

# Master Data

## for Mid-Market Oil and Gas

The acquisition decade has arrived with a data bill attached. How 200 to 2,500 employee companies pay it once.

**October 2026**

A white paper for CIOs, CFOs and operating executives at independent operators, midstream companies, service firms, refiners and fuel distributors



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## How to read this paper

Every figure carries a superscript number that points to the Sources section. Where a number is derived from two published figures, the text says so. Where a figure comes from a vendor's own published guide rather than an independent survey, it is labelled an industry estimate. Where no public figure exists (a count of US midstream operators, for example), we say that too rather than invent one.

The paper is written for the people who sign the integration budget and the ERP contract: CIOs, CFOs, controllers, and the vice presidents of operations, supply chain and land who own the data the systems hold. Property level tactics appear where they change the executive's number.

## EXECUTIVE SUMMARY

# Fewer companies are running more wells, more pipe and more parts, on data nobody cleaned.

**U**S crude production will set a record near 13.9 million barrels a day in 2026 with the fewest extraction workers in a June since 2021.<sup>3,12</sup> The same ten years that produced that productivity also produced \$192 billion of upstream deals in 2023, \$105 billion in 2024, \$65 billion in 2025 and \$38 billion in the first quarter of 2026 alone.<sup>8,9,10,11</sup> Every one of those transactions landed a second well master, a second vendor file, a second item catalog and a second chart of accounts on a finance and IT team that was already thin.

The majors solved this a decade ago with enterprise master data platforms and global integrators. The 200 to 2,500 employee company, which is where most of the consolidation is now happening, cannot afford that answer and has rarely been offered a better one. This paper sets out what the data problem costs in each segment, what the regulatory calendar now demands of it, why the enterprise toolset is mis-sized for it, and how a mid-market company builds a governed master one domain at a time inside a single quarter.

## \$38B

US upstream M&A in the first quarter of 2026, the highest quarter in two years.

Enverus, Apr 2026

## 114,500

US oil and gas extraction jobs, June 2026; about 40% below the 2016 peak.

BLS via Oilprice, Jul 2026

## 10 to 20%

Share of material master records that are duplicates in large oil and gas companies. Industry estimate.

Verdantis, 2026

## Nov 30

2026 due date for the first EPA OOOOb annual methane reports; the compliance wave follows on Jan 22, 2027.

EPA via ALL4, Dec 2025

## Six findings shape the executive agenda.

● **1. The industry is consolidating faster than its data.**

IBISWorld counts 17,789 US oilfield service businesses in 2026, a count that has shrunk 8.4% a year since 2021.<sup>2</sup> The 130 operable refineries are two fewer than a year ago.<sup>4</sup> Independents still operate 95% of US wells.<sup>1</sup> Enverus expects "far fewer companies operating in the main US shale plays within a few

years."<sup>11</sup> Each merger halves the number of companies and doubles the number of systems inside the survivor.

● **2. Integration, not the deal, is where the value leaks.**

IT integration costs about 14% of deal value on transactions under \$500 million and takes twelve to eighteen months; 83% of data migrations miss budget or schedule.<sup>22</sup> McKinsey finds full potential integration yields about 55% more synergy than the conventional kind.<sup>41, 47</sup> The division of interest deck is the most financially sensitive object in the company and the first one to break.<sup>25</sup>

● **3. The warehouse is where the working capital hides.**

Industry estimates put duplicate material records at 10 to 20%, inactive spares at 20 to 35% of inventory value and carrying cost at 18 to 25% a year; emergency purchases run five to ten times standard rates.<sup>20</sup> An hour of unplanned downtime costs about \$500,000, and more than half of it traces to a part that was not where the system said it was.<sup>20, 21</sup>

● **4. The regulator now asks for equipment level data by site.**

Subpart W reports for 2025 are due October 30, 2026; the first OOOOb annual reports on November 30, 2026; control device, leak and storage vessel compliance on January 22, 2027.<sup>27, 28</sup> PHMSA requires pipeline records that are traceable, verifiable and complete, with penalties above \$200,000 per violation per day.<sup>29, 30</sup> None of this can be reported from a spreadsheet of wells that disagrees with the maintenance system.

● **5. The enterprise toolset is priced for someone else.**

Half of master data vendors publish no price; enterprise deals run \$200,000 to more than \$2 million a year in license before the integrator arrives, and the five 2026 Gartner Leaders are all built for the global company.<sup>36, 38</sup> An open source core with a specialist partner delivers a first governed domain in three to six months inside a year one budget under \$1 million.<sup>39</sup>

● **6. AI will wait for the master.**

Only 7% of enterprises say their data is completely ready for AI and 56% name silos as the obstacle; 87% of data leaders believe their data is ready while 43% call readiness their biggest barrier.<sup>18, 19</sup> In oil and gas, 49% of executives plan a great deal of digital investment and 81% plan to rely more on vendors to do it.<sup>17</sup> The model is cheap. The well list it learns from is not.

- The 2027 play is not another system. It is to own one governed record of the wells, the parts, the vendors and the owners you already have, load the next acquisition into it in weeks, and answer the regulator from a query.

# 01

SECTION 01

## The industry in numbers: fewer companies, more data.

The public record describes a productive, profitable and shrinking industry. The data inside it tells a quieter story: every merger that removes a company adds a system.



## Key takeaways

- 01** US output heads to 13.9 million b/d in 2026 with extraction jobs at a June low of 114,500.
- 02** Upstream M&A: \$192B, \$105B, \$65B and a \$38B first quarter of 2026.
- 03** Public independents plan \$53.9B of 2026 capex, flat on 2025; 39% of executives expect to cut.

## Structure: a pyramid with a very wide base

**P**AA counts roughly 9,000 independent oil and natural gas producers across 33 states. Independents operate 95% of US wells, produce 85% of the oil and 90% of onshore gas, and average about twelve employees each.<sup>1</sup> The mid-market band of 200 to 2,500 employees is therefore a thin slice near the top of the pyramid: sponsor backed private operators, small and mid cap publics, and the larger family owned independents. It numbers in the low hundreds, not the thousands.

Oilfield services is larger and consolidating faster. IBISWorld counts 17,789 US oil and gas field services businesses in 2026, with \$127.2 billion of revenue, and a business count that has fallen 8.4% a year since 2021.<sup>2</sup> Downstream, the EIA counted 130 operable refineries on January 1, 2026, two fewer than a year earlier, with 18.2 million barrels per day of distillation capacity after the LyondellBasell Houston and Phillips 66 Los Angeles closures removed about 400,000 b/d.<sup>4</sup> Midstream has no single published count; it is a few dozen public partnerships and corporations and several hundred private gathering, processing, compression and terminal operators, many of them sponsor owned.<sup>7</sup>

## Price, volume and the people who produce it

The EIA's October 2026 outlook puts Brent at \$96 a barrel for 2026 and \$84 for 2027, Henry Hub at \$3.48 and \$3.16 per MMBtu, and US crude output at 13.9 million b/d this year rising to 14.3 million in 2027.<sup>12</sup> Against that record volume, Bureau of Labor Statistics data show oil and gas extraction employment at 114,500 in June 2026, the second lowest June on record and roughly 40% below the January 2016 peak of 187,300.<sup>3</sup> Chevron, ExxonMobil, ConocoPhillips and Halliburton have all announced reductions on top of that.<sup>3</sup>

The arithmetic is the point. Fewer people are managing more wells, more pipe, more equipment and more acquired data. Any proposal that adds systems without removing work will not survive a budget review in this environment.

# 13.9M b/d

US crude output forecast for 2026, rising to 14.3M b/d in 2027.

EIA STEO, Oct 2026

# \$53.9B

2026 capex planned by selected public US independents, down 0.4% on 2025.

Oil & Gas Journal, 2026

# 39%

Share of Dallas Fed survey executives expecting to cut 2026 capex; 37% expect to raise it.

Dallas Fed via OGJ, Q4 2025

# 8.4%

Annual decline in the number of US oilfield service businesses since 2021.

IBISWorld, 2026

## Capital discipline is the operating condition

Oil & Gas Journal's 2026 survey has selected public US independents spending about \$53.9 billion, essentially flat on \$54.1 billion in 2025; the six majors are down 3.4% globally. EOG, Diamondback, Occidental, ConocoPhillips, Devon and Coterra all guided flat to lower.<sup>5</sup> The Dallas Fed's fourth quarter survey of about 130 executives found 37% expecting to raise 2026 spending and 39% expecting to cut it, a fifth of them significantly; smaller firms were the more optimistic.<sup>6</sup> US refiners are holding capex near \$11 billion in both years.<sup>5</sup>

## The consolidation wave, by the numbers

US upstream M&A set a record of \$192 billion in 2023, led by ExxonMobil and Pioneer at \$65 billion and Chevron and Hess at \$53 billion.<sup>10</sup> It held at \$105 billion in 2024, the third highest year Enverus has tracked, with eleven public company deals above \$2 billion since the start of 2023.<sup>11</sup> In 2025 the total was \$65 billion, with international buyers spending a seven year high of \$7.4 billion and "reloaded private equity actively hunting for assets."<sup>9</sup> The first quarter of 2026 produced \$38 billion, two thirds of it Devon and Coterra, and only eight deals above \$100 million, which ties a post 2020 low: fewer transactions, each one larger.<sup>8</sup>

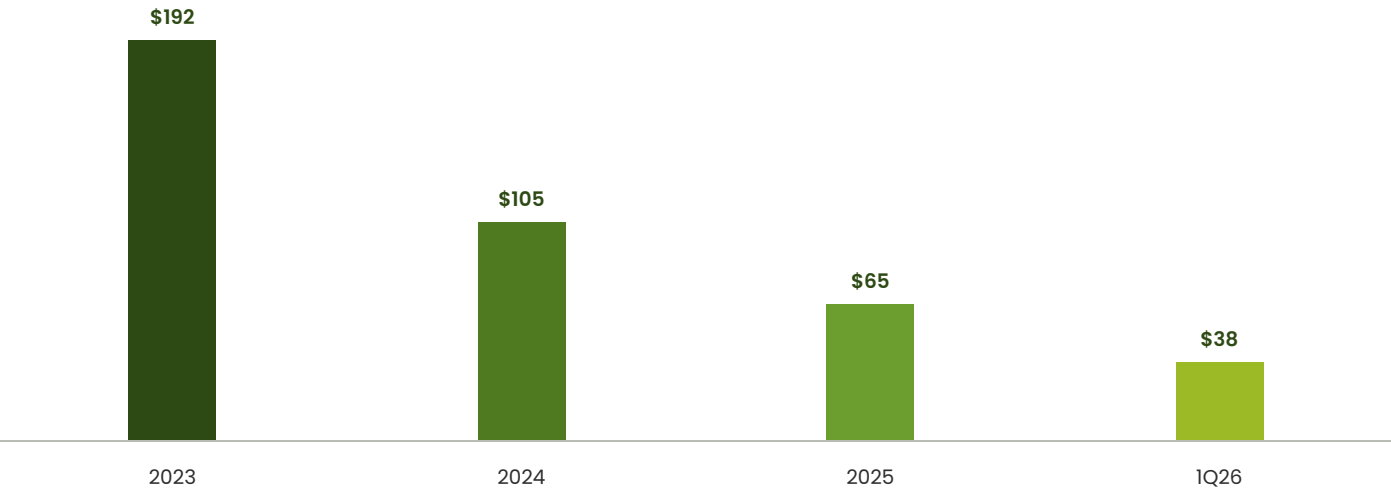
## Private equity and the exit clock

Capital into private oil and gas funds has declined, and only a short list of proven managers, Quantum, EnCap and NGP among them, raised new vehicles in 2025. Institutional investors have cut hydrocarbon allocations, asset backed securitization has become a mainstream way to finance acquisitions, and more than \$440 billion of global oil and gas debt matures before 2030.<sup>7</sup> Enverus notes that a wave of sponsor backed operators reached exit maturity at the same time, which drove the 2024 surge, and that the remaining private Permian operators may see the current window as a last chance for a major sale.<sup>9, 11</sup>

Sponsor platforms are built by rolling up assets with mismatched systems and are sold on the quality of their reporting. Both the roll up phase and the exit preparation phase therefore depend on master data, and Deloitte expects a second consolidation wave among mid cap Permian and Gulf of Mexico independents if oil holds in the \$65 to \$75 range.<sup>47</sup>

FIGURE 1

US upstream M&A value by year (\$ billion)



A record, a near record, a normal year and a first quarter that beat most full years before 2021. Source: Enverus Intelligence Research via JPT, World Oil and Enverus newsroom.<sup>8, 9, 10, 11</sup>

Digital maturity: the systems a mid-market company actually runs

ERP Research tracks 664 oil and gas ERP implementations and finds 87% still on premise or hybrid.<sup>13</sup> A mid-market operator typically runs an upstream accounting package for joint interest billing, revenue and land: Quorum, Enertia, W Energy Software or the former P2 products now owned by IFS. Larger midstream, refining and service companies run SAP or Oracle; service companies and distributors lean on Dynamics 365, NetSuite, JD Edwards, Epicor or Infor.<sup>13, 14</sup> Maintenance lives in Maximo, SAP Plant Maintenance, Infor or Hexagon EAM.<sup>15</sup> Well and subsurface data sits with SLB, Halliburton Landmark and Katalyst on the OSDU standard, whose version 1.0 was re-leased in June 2026.<sup>16</sup>

In practice the vendor master, the well master and the AFE master are duplicated across all of these, and Excel fills the gaps. One operator that recently changed platforms described a twenty year old ERP with lease analysis in spreadsheets and regulatory reporting done by hand.<sup>43</sup>

TABLE 1 The four segments at a glance

| Segment      | Scale indicators                                                                                   | Where the mid-market sits                                                                        | Dominant systems                                                                   |
|--------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Upstream E&P | ~9,000 independents; 13.9M b/d; \$38B of deals in 1Q26                                             | Sponsor backed and family owned operators, small and mid cap publics, ABS financed consolidators | Quorum, Enertia, W Energy, IFS/P2; land systems; production systems; Excel         |
| Midstream    | No published count; six deals above \$1B in 2026; sponsors shifting capital to G&P and compression | Private gathering and processing, compression fleets, water midstream, terminals                 | SAP or Oracle; Maximo, Hexagon or SAP PM; Esri GIS; FLOWCAL, Quorum Pipeline; PODS |

**TABLE 1 The four segments at a glance** continued

| Segment                                | Scale indicators                                                                         | Where the mid-market sits                                                                     | Dominant systems                                                                         |
|----------------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <b>Oilfield services and equipment</b> | 17,789 businesses; \$127B revenue; count falling 8.4% a year                             | Sponsor platforms, regional service companies, equipment makers                               | Dynamics 365, NetSuite, JD Edwards, Epicor, Infor; field ticketing; rental fleet systems |
| <b>Downstream and distribution</b>     | 130 refineries; ~\$11B refiner capex; c-store and fuel distributor M&A rebounded in 2026 | Independent refiners, specialty producers, propane and fuel distributors, lubricant marketers | SAP IS-Oil, Oracle; PDI, Quorum Fuel, ADD Systems; SAP PM, Maximo; tax engines           |

Sources: IPAA;<sup>1</sup> IBISWorld;<sup>2</sup> OGJ / EIA;<sup>4,5</sup> Enverus;<sup>6</sup> Akin Gump;<sup>7</sup> ERP Research;<sup>13</sup> CSP Daily News.<sup>45</sup>

**AI readiness is the new pressure on the same old data**

EY's Future of Energy survey of 1,020 executives found 49% of oil, gas and chemicals leaders planning "a great deal" of digital investment, up 20 points since 2020, with another 42% planning a moderate amount; 81% expect to rely more on vendors and contractors, and 58% say culture gets in the way.<sup>17</sup> Across industries, a Cloudera and Harvard Business Review study of more than 230 enterprises found that only 7% describe their data as completely ready for AI and 56% name siloed data or integration difficulty as the top obstacle.<sup>18</sup> Precisely and Drexel's survey of 505 data leaders found 87% believe their data is AI ready while 43% cite data readiness as their largest barrier to AI alignment, and 38% call data quality their biggest integrity problem.<sup>19</sup>

The gap between those two numbers, 87% confident and 43% blocked, is the gap between the data a company thinks it has and the data its systems actually agree on. In oil and gas that is the well list, the equipment register and the material master. AI programs in this industry stall at the master data layer, and Houston alone showed 34 open Chief Data Officer roles in October 2026, which suggests the mid-market has started to notice.<sup>48</sup>

**49%**

Oil, gas and chemicals executives planning a great deal of digital investment.

EY, Mar 2025

**7%**

Enterprises that say their data is completely ready for AI.

Cloudera / HBR, Mar 2026

**87% vs 43%**

Data leaders who believe their data is AI ready versus those blocked by data readiness.

Precisely / Drexel, 2026

● The model is the cheap part. The well list it learns from, the equipment register it reasons over and the vendor file it reconciles are not.

# 02

## SECTION 02

# The integration tax: what every acquisition costs in data.

The deal is priced on reserves, acreage and synergies. The synergies are captured, or not, in the twelve to eighteen months after close, and master data is the bottleneck in every one of them.



### Key takeaways

- 01 IT integration costs about 14% of deal value on sub \$500M deals and takes 12 to 18 months.
- 02 83% of data migrations miss budget or schedule; 53% of integrations delay the core ERP.
- 03 Expand Energy cut M&A data time and cost 40% after rebuilding its data platform.

### The published arithmetic of integration

Cross industry integration statistics compiled in 2026 put IT integration at about 14% of deal value for transactions under \$500 million, with full integration taking twelve to eighteen months; 50 to 60% of synergy initiatives are strongly tied to IT; 53% of acquirers experience delayed integration of core systems such as the ERP; and 83% of data migration projects fail or exceed budget or timeline, a Gartner figure that has survived a decade of retelling because nobody has disproved it.<sup>22</sup> McKinsey's review of oil and gas transactions found that companies that miss integration goals in the first two years rarely reach them later, that rigorous pre close planning yields 30 to 150% incremental synergy, and that full potential integration delivers about 55% more than the conventional kind.<sup>41, 47</sup> EY found cost per barrel of oil equivalent rose 1% in 2024 despite expected synergies, which is what integration friction looks like in a public filing.<sup>24</sup>

### What the big companies did about it

ExxonMobil consolidated twelve legacy ERPs, eleven of them SAP, into one S/4HANA instance, harmonizing more than 2,500 distinct data objects across about 1,000 applications.<sup>23</sup> Expand Energy, the Chesapeake and Southwestern combination, manages 3,700 production sites and royalty records for more than 1.2 million owners and reported a 40% reduction in time and cost for M&A data activities after rebuilding its data platform.<sup>24</sup> Both programs ran on budgets and teams that a mid-market company does not have. The lesson transfers; the method does not.

### What arrives with the acquired package

Integration consultants who work the upstream deal flow list the same headaches every time: overlapping well interests that require interest lineage to be mapped, different charts of accounts and sub ledger structures, vendor payment verification against fraud, and decimal precision differences between systems, eight places against ten, that change what an owner is paid.<sup>42</sup> Accounting specialists add the quieter failures: AFEs sent to the wrong legal entity because two owners share a similar name; acquisitions that bring ownership records that have changed hands repeatedly over decades; a single division of interest correction that forces the whole ownership deck to be recalculated; and land department changes that

never reach accounting, producing joint interest billing errors and ownership discrepancies that surface months later as disputes.<sup>25</sup>

The joint interest audit is where those disputes are priced. Audits take 80 hours at minimum, and COPAS rules allow overhead escalation errors to be recovered up to two years in arrears, so a bad interest deck is a rolling liability rather than a one time error.<sup>26</sup>

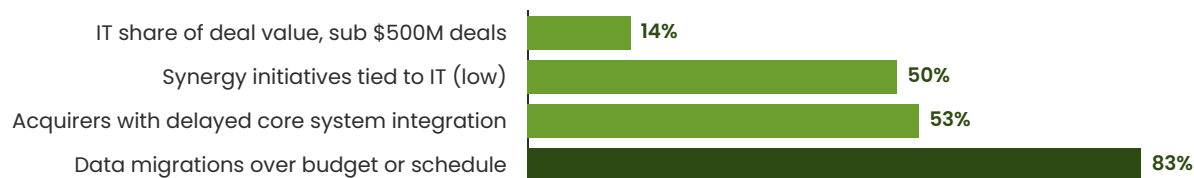
### The mid-market version of the story

A sponsor backed Permian operator closes on a \$900 million package. The acquired company ran a different accounting package, kept its leases in a separate land system, and tracked its 400 facilities in a maintenance tool nobody at the buyer has a license for. The buyer has four people in IT, a controller who has done this twice before, and an integration budget that was set as a percentage of the deal. Twelve to eighteen months later, the well list still carries two API number formats, the owner deck has been corrected three times, the vendor master has 30% more suppliers than the company uses, and the methane filing for the acquired sites was assembled by a contractor from PDFs.

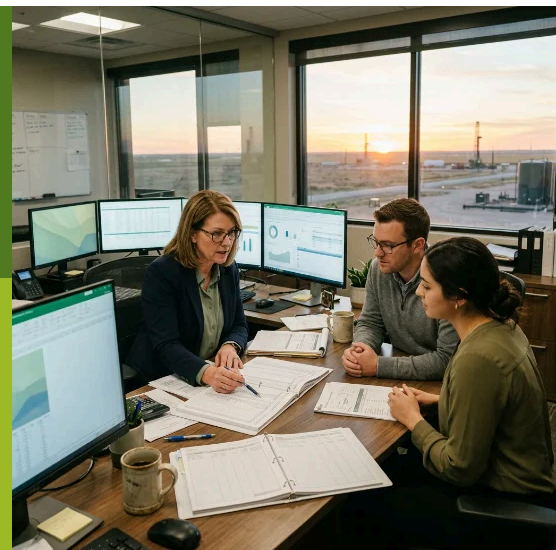
None of that is a failure of effort. It is what happens when integration is run as a migration rather than as the creation of one governed record.

FIGURE 2

### What integration costs, in the published statistics (%)



Integration is an IT project that is budgeted as a finance project. Source: PMI Stack compilation of Gartner, Deloitte and McKinsey figures, 2026.<sup>22</sup>



### Worked example · 1,500 well independent: what this means at asset level

Take a mid-market operator with 1,500 producing wells, 6,000 royalty and working interest owners, and 4,000 active vendors that buys a package adding 600 wells, 2,500 owners and 1,800 vendors. On the published ranges, IT integration at 14% of a \$500 million deal is about \$70 million of cost over twelve to eighteen months, most of it in people's time reconciling records. If a governed well, owner and vendor master cuts the reconciliation phase to 90 days, as Expand Energy's 40% improvement and Centric's own single domain deliveries suggest is achievable, the saving is measured in months of a finance team's time and in every joint interest audit that does not find a two year old error. (Derived illustration; inputs from the sources cited above.)<sup>22, 24, 26, 49</sup>

The owners of the first deal are the same owners of the next one. A sponsor that intends to make three more acquisitions before exit is buying a repeatable onboarding process, not a one time cleanse.

## ~\$70M

IT integration cost at 14% of a \$500M deal, on the published range.

Derived illustration

## 12 to 18

Months of conventional integration during which the well, owner and vendor files disagree.

PMI Stack, 2026

## ~90 days

Time to a governed golden record for the acquired package with a single domain master.

Centric delivery records

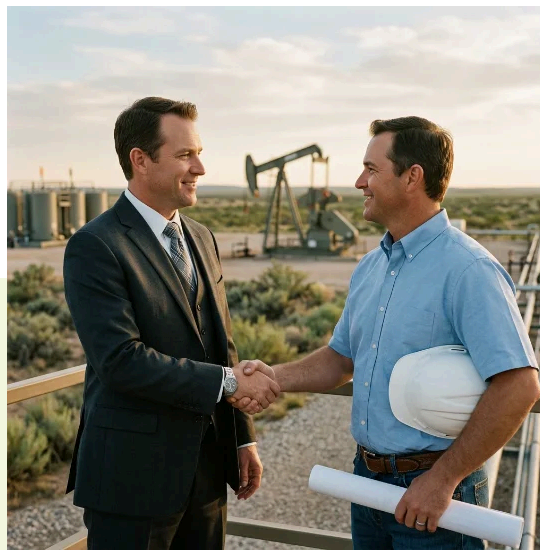
## 40%

Less time and cost for M&A data at Expand Energy after a platform rebuild.

Snowflake customer story

### The executive's three integration questions

- 1 How many well masters do we have today?** Count the systems that hold an API number: accounting, land, production, maintenance, the regulatory spreadsheet. If the answer is more than one, the next acquisition adds that many again.
- 2 Who owns the division of interest?** If the answer is a person rather than a governed record with a workflow from land to accounting, every correction is a recalculation and every audit is a risk.
- 3 What did the last integration cost in people?** Most integration budgets record contractor fees. The controller's six months of reconciliation never appears on the deal P&L.

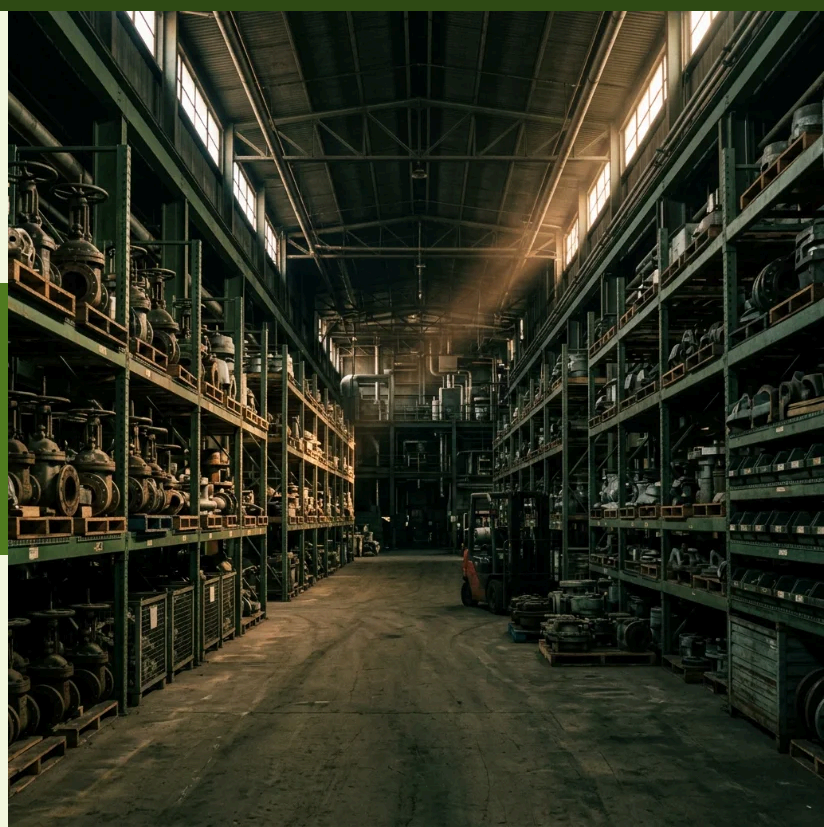


# 03

## SECTION 03

# The hidden inventory: spares, downtime and the turnaround.

Material master data is the one domain where the return on cleaning it can be counted in a warehouse walk. It is also the domain most likely to have been ignored for a decade.



### The duplicate valve

Industry estimates published in 2026 describe the typical oil and gas material master in uncomfortable detail: 10 to 20% of records are duplicates; a single valve can exist as five to fifteen SKUs across twenty or more plants; inactive MRO inventory is 20 to 35% of total spares value; carrying costs run 18 to 25% of inventory value per year; and emergency purchases cost five to ten times standard rates when a part the company already owns cannot be found. A 15 to 25% reduction in MRO working capital is described as a realistic program outcome.<sup>20</sup> These are vendor published figures and we label them as estimates, but they are consistent with what every reliability manager says in the first ten minutes of a conversation. A separate academic case cited in the same guide describes an E&P holding more than 4,200 spare part SKUs, of which 7% made up 74% of inventory value.<sup>20</sup>

### Downtime, priced

Siemens and Senseye's study of the true cost of downtime puts unplanned downtime in oil and gas at about \$500,000 an hour and average annual losses per facility at \$149 million at 2022 peak prices; a Kimberlite study found the worst performing offshore operators losing more than \$88 million a year, and data driven maintenance cutting unplanned downtime by 36% against reactive approaches.<sup>20, 21</sup> More than half of machine downtime is attributed to spare part unavailability.<sup>20</sup> The part was usually in the building. The record said it was not.

### The turnaround that slipped

AP Networks' database of more than 1,350 turnarounds shows two thirds exceeding planned cost or schedule by 10% or more or tripping after startup, about 40% overrunning by more than 30%, and budgets underestimating cost by about 16% on average.<sup>32</sup> A refinery turnaround costs \$50 to \$500 million, and a four day delay caused by a missing valve assembly can cost \$25 to \$50 million in lost margin.<sup>20</sup> The equipment hierarchy that the turnaround plan is built on, functional locations, bills of material, spares, is the same master data that the warehouse count depends on. When each unit has its own functional location logic, as it usually does after a plant has changed hands, scope grows and parts go missing in the same week.

### The standards that make the data comparable

Two standards do most of the work. ISO 14224, also published as API RP 689, defines the equipment taxonomy and failure data structure that lets reliability data be compared across sites and across acquired fleets; it is the prerequisite for any predictive maintenance program that is meant to run on more than one plant.<sup>44</sup> ISO 8000, and specifically Part 115, addresses the fact that a part number is not unique across industry and proposes owner qualified identifiers so that a specification can be exchanged between buyer and supplier without ambiguity; operators have begun writing ISO 8000

## ● FIGURE 3

**What \$100 of integration spend buys, by approach**

■ Spent reconciling records   ■ Spent on new capability

**Conventional migration****Governed master first**

Illustrative split; a migration moves data between systems while a master reconciles it once and syndicates it to all of them. Derived from the integration statistics and delivery records cited in this section.<sup>22, 49</sup>

- Integration is run as a migration when it should be run as the creation of one record. Migrations move the disagreement from one system to another. A master resolves it once.

**14%**

of deal value goes to IT integration on sub \$500M deals.

PMI Stack, 2026

**83%**

of data migrations miss budget or schedule.

Gartner via PMI Stack

**12 → 1**

Legacy ERPs ExxonMobil consolidated into one S/4HANA instance.

Syniti

**1.2M+**

Royalty owners in Expand Energy's records, across 3,700 production sites.

Snowflake customer story

**Key takeaways**

- 01** Duplicate material records run 10 to 20%; inactive spares 20 to 35% of value; carrying cost 18 to 25% a year.
- 02** Unplanned downtime costs about \$500,000 an hour; over half traces to spare part unavailability.
- 03** Two thirds of turnarounds overrun by 10% or more; a four day slip can cost \$25M to \$50M of margin.

**\$500K**

Cost of an hour of unplanned downtime in oil and gas.

Siemens / Senseye

**\$149M**

Average annual downtime losses per facility, at 2022 peak prices.

Siemens / Senseye

**5 to 10×**

Standard rates paid for emergency purchases of parts already owned.

Verdantis, industry estimate

**36%**

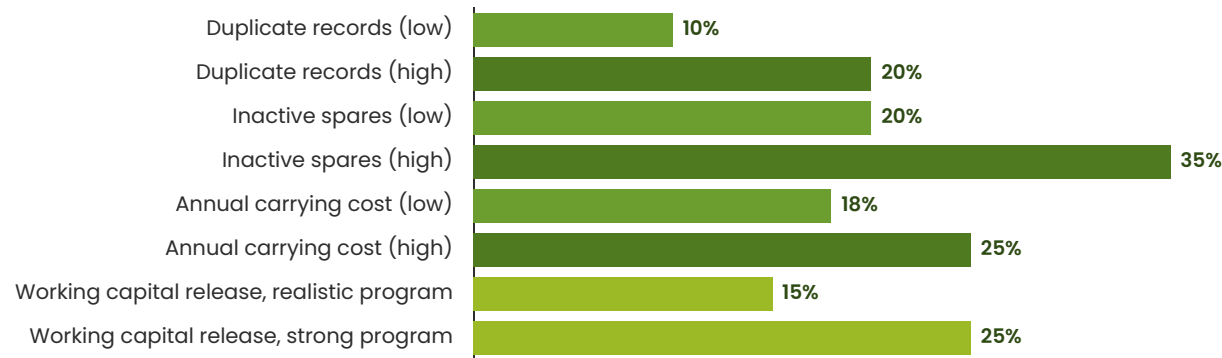
Less unplanned downtime with data driven maintenance versus reactive.

Kimberlite

compliant specifications into purchase orders.<sup>44</sup> A material master built without either standard will be rebuilt within five years.

● FIGURE 4

The material master, on the industry estimates (% of inventory value or records)



Vendor published industry estimates; ranges shown as low and high. Source: Verdantis Oil & Gas Inventory Management Guide, 2026.<sup>20</sup>

Worked example - \$40M spares, three sites: what this means at asset level

Take an independent refiner or a mid-sized midstream operator carrying \$40 million of spares across three sites. At the industry estimates, 20 to 35% of that value is inactive, which is \$8 million to \$14 million of stock that will not move, carried at 18 to 25% a year, which is \$1.4 million to \$3.5 million of annual cost for the privilege of storing it. If 10 to 20% of the records are duplicates, some of the emergency purchases the plant made last year, at five to ten times standard rates, were for parts it already owned under another number. A governed material master that retires the duplicates, classifies the catalog and feeds the maintenance system a single hierarchy typically releases 15 to 25% of MRO working capital, or \$6 million to \$10 million on this inventory, before any change in downtime. (Derived illustration; inputs from the sources cited above.)<sup>20</sup>

**\$8M to \$14M**

Inactive stock at 20 to 35% of value.

Derived illustration

**\$1.4M to \$3.5M**

Annual carrying cost of that inactive stock at 18 to 25%.

Derived illustration

**\$6M to \$10M**

Working capital release at 15 to 25%, before downtime gains.

Derived illustration

**2 in 3**

Turnarounds that exceed planned cost or schedule by 10% or more.

AP Networks via Reliamag



## The executive's three inventory questions

- 1 What share of spares has not moved in three years?** Most plants do not know. The number is found in the first thirty days of a profiling exercise and is usually the budget case on its own.
- 2 How many part numbers does our most common valve have?** If the answer is more than one, the purchasing system is buying the same item at different prices from different suppliers.
- 3 Do the maintenance system and the warehouse system agree on the equipment hierarchy?** If a functional location in one has no match in the other, the turnaround plan and the parts list were built from different truths.

- The warehouse walk is the cheapest audit in the company. The master data is what makes it the last one.



# 04

SECTION 04

## The regulatory clock: what is due between now and 2027.

The federal direction of travel is deregulatory. The reporting obligations are not going away; they are moving to states, lenders and acquirers, and they are asking for equipment level data.



### Key takeaways

- 01 Subpart W reports for 2025 are due October 30, 2026; first OOOOb annual reports November 30, 2026.
- 02 OOOOb control device, leak and storage vessel compliance, plus state OOOOc plans, land January 22, 2027.
- 03 PHMSA requires traceable, verifiable and complete records; penalties exceed \$200,000 per violation per day.

### Methane: OOOOb and Subpart W

**E**PA's final rule of November 26, 2025 extended several OOOOb compliance dates but kept the structure intact. Flare and enclosed combustion device monitoring was due June 1, 2026. Control devices, equipment leak monitoring, storage vessels, process controllers, closed vent systems and the second phase of zero emission process controllers are due January 22, 2027, which is also the deadline for state OOOOc plans covering existing sources. The first OOOOb annual reports are due by November 30, 2026, with subsequent reports 90 days after each compliance period.<sup>27</sup> Separately, Greenhouse Gas Reporting Program Subpart W remains a mandatory federal obligation for facilities above 25,000 tonnes of CO<sub>2</sub> equivalent; the reporting year 2025 deadline moved to October 30, 2026, the proposal to pause reporting through 2034 has not been finalized, and the Waste Emissions Charge, though delayed, is calculated from Subpart W data. Today's equipment counts set the future fee baseline. State programs such as Colorado's operate regardless of federal pauses.<sup>28</sup>

Subpart W now requires operational data and equation inputs at the well, pad or gathering site level, with new source categories including produced water tanks, mud degassing, crankcase venting and large release events.<sup>28</sup> None of it can be reported accurately without a facility and equipment master tied to wells, which is the master most operators have never built.

### Pipelines: traceable, verifiable and complete

Under 49 CFR 192.624, maximum allowable operating pressure must be reconfirmed wherever the records supporting it are not traceable, verifiable and complete; the July 2025 technical correction narrowed the test for pre 1970 pressure tests but left the core burden in place.<sup>29</sup> PHMSA's civil penalties are inflation adjusted and now exceed \$200,000 per violation per day, with a multi million dollar cap for a related series.<sup>30</sup> A midstream acquirer that inherits an asset register built on a different taxonomy from its own inherits that burden with it, and a missing material record is the difference between a records request and a reconfirmation program.

### FERC and the audit trail

FERC completed ten audits of electric, gas and oil pipeline companies in fiscal 2025, producing 63 non compliance findings, up 15%, with financial

impact up 75%; examples included incorrect Page 700 inputs and unap-  
proved depreciation rates, and audits ran twelve to eighteen months.<sup>31</sup>  
The same report notes that nearly three quarters of companies fall  
short of ERP expectations and only 9% of transformed companies realize  
expected value.<sup>31</sup>

●  
**Climate disclosure  
moves to the states**

The SEC proposed on May 29, 2026 to rescind its climate disclosure rules.<sup>33</sup>  
California's SB 253 still applies to companies above \$1 billion in revenue do-  
ing business in the state, with first Scope 1 and 2 reports due November 10,  
2026 and Scope 3 in 2027; New York, New Jersey, Illinois, Colorado and  
Washington are considering similar laws.<sup>33, 34</sup> Lenders and acquirers ask for  
the same figures in diligence whether or not a regulator does.

**Oct 30**  
2026 deadline for GHGRP Subpart W reports for reporting year 2025.  
Tetrasoft; EPA

**Jan 22**  
2027 OOOOb compliance wave and state OOOOc plan deadline.  
EPA via ALL4

**\$200K+**  
PHMSA civil penalty per violation per day, inflation adjusted.  
PHMSA, 2026

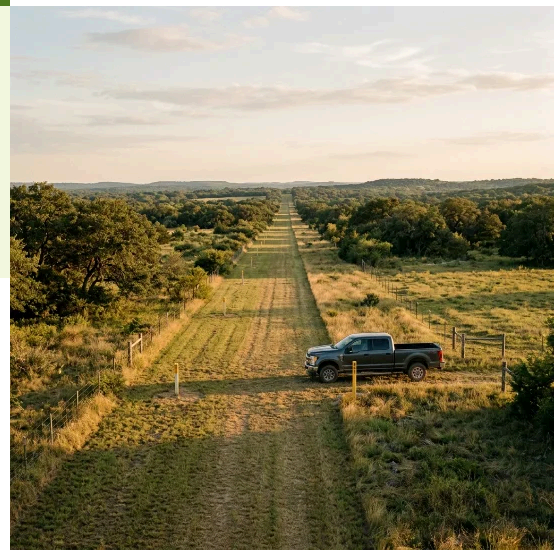
**63**  
FERC non compliance findings in fiscal 2025, up 15%; financial impact up 75%.  
PowerPlan, May 2026

TABLE 2 The compliance calendar, October 2026 to January 2027

| Date         | Obligation                                                                                           | Who it touches                                            | Data it requires                                                             |
|--------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------|
| Oct 30, 2026 | GHGRP Subpart W report for reporting year 2025                                                       | Operators and gatherers above 25,000 tCO2e                | Equipment counts and equation inputs by well, pad or gathering site          |
| Nov 10, 2026 | California SB 253 Scope 1 and 2 report                                                               | Companies above \$1B revenue doing business in California | Facility level emissions with auditable source data                          |
| Nov 30, 2026 | First OOOOb annual report                                                                            | Operators with affected facilities                        | Site and equipment inventory, monitoring records, repairs                    |
| Jan 22, 2027 | OOOOOb control device, leak, storage vessel and process controller compliance; state OOOOc plans due | Operators with new and existing sources                   | Equipment master tied to wells and facilities; inspection and repair history |
| Ongoing      | PHMSA MAOP reconfirmation where records are not traceable, verifiable and complete                   | Gas transmission operators                                | Segment level material, test and inspection records with lineage             |
| Dec 31, 2027 | SAP ECC mainstream maintenance ends                                                                  | SAP shops in midstream, refining and services             | Cleansed master data ahead of S/4HANA migration                              |

Sources: EPA via ALL4;<sup>27</sup> Tetrasoft;<sup>28</sup> Mondaq;<sup>34</sup> Federal Register and PHMSA;<sup>29, 30</sup> Savic.<sup>35</sup>

- None of this can be reported from a spreadsheet of wells that disagrees with the maintenance system. The calendar is fixed; the equipment master is the only variable an operator controls.



# 05

## SECTION 05

# Master data by segment: what matters, where it lives.

A refinery reliability manager and a Permian controller share no vocabulary. The domains below are the ones each of them would name first.



## Key takeaways

- 01** Upstream: well, lease, division of interest and vendor, broken by every acquisition.
- 02** Midstream: one asset hierarchy that links GIS, EAM, measurement and the ERP.
- 03** Services, refining and distribution: item, equipment, customer, site and tax masters across acquired entities.

**TABLE 3 The master data domains of oil and gas**

| Domain                                      | What it anchors                                                                                                      | Where it is duplicated                                                           | Segment where it leads            |
|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------|
| <b>Well and wellbore</b>                    | API number, status, completion, operator and working interest; production, land, accounting and regulatory reporting | Accounting ERP, land system, production system, regulatory filings, spreadsheets | Upstream                          |
| <b>Lease, land and division of interest</b> | Tracts, units, ownership decks, revenue distribution; the most financially sensitive object in the company           | Land system, revenue accounting, JIB, acquired owner files                       | Upstream                          |
| <b>Asset and equipment</b>                  | Functional locations, equipment, BOMs, maintenance plans, pipeline segments, meters                                  | EAM, ERP, GIS, integrity database, historian                                     | Midstream, refining               |
| <b>Materials and MRO spare parts</b>        | Spares, consumables, chemicals, tubulars; the highest return domain for operators, refiners and service firms        | ERP, EAM, warehouse, supplier catalogs                                           | Refining, services, midstream     |
| <b>Vendor and supplier</b>                  | AP, procurement, field ticketing, bank details, insurance and compliance                                             | ERP, field invoicing, EAM, acquired vendor files                                 | All segments                      |
| <b>Customer, shipper and purchaser</b>      | Crude and gas purchasers, shippers and dedications, service clients and rate books, dealers and sites                | Accounting, CRM, contract system, field ticketing                                | Midstream, services, distribution |
| <b>Product and hydrocarbon grade</b>        | Crude grades, gas quality, NGL and refined products, lubricants and blends                                           | ERP, lab systems, terminal automation, pricing                                   | Refining, distribution            |
| <b>Chart of accounts and AFE</b>            | The first casualty of every acquisition                                                                              | Each legacy ERP                                                                  | All segments                      |
| <b>Employee and contractor</b>              | Time, HSE training, site access, personal data                                                                       | HRIS, ERP, access control                                                        | All segments                      |

Domains and systems compiled from ERP Research, Prometheus Group, Embark, Martin & Associates and Centric delivery records.<sup>13, 15, 25, 42, 49</sup>

## 5.1 Upstream independent E&P

**T**he problem in their words. "We closed in March and we are still reconciling two well lists, two owner files and two vendor masters in spreadsheets. Revenue checks went out late, two partners disputed JIBs, and the Subpart W filing took a project team instead of a report."

**Where the money is.** Every acquisition brings a second well master, owner deck and vendor file, and integration runs twelve to eighteen months at about 14% of deal value.<sup>22</sup> Bad decks produce JIB disputes, duplicate payments and COPAS recoveries two years in arrears.<sup>25, 26</sup> Subpart W and OOOOb now require equipment level data by site, due October 30 and

November 30, 2026, with the January 22, 2027 compliance wave behind them.<sup>27, 28</sup> Fewer than 60% of oil and gas companies have adopted next generation ERP, and dirty master data is the usual reason a migration slips.<sup>31</sup>

**What a governed master does.** Reconciles the accounting package, land system, production system and regulatory filings into one well, lease, division of interest and vendor record. Survivorship rules decide the golden well across API number variants; workflow routes division of interest changes from land to accounting with approval and an audit trail; the facility and equipment hierarchy turns the methane filing into a query. It integrates by API with the upstream packages the company already runs and publishes governed records to the analytics platform.

**The problem in their words.** "Our asset IDs do not match between GIS, Maximo and SAP. When PHMSA asks for a pressure test record on a segment we bought in 2022, three people spend a week finding it. Our fee revenue depends on dedication records that live in a contract folder."

**Where the money is.** MAOP must be reconfirmed where records are not traceable, verifiable and complete, and penalties exceed \$200,000 per violation per day.<sup>29, 30</sup> FERC's fiscal 2025 audits produced 63 findings with financial impact up 75%.<sup>31</sup> Acquirers that bought gathering systems in 2025 and 2026 each inherited asset registers built on a different taxonomy, and the sellers were left with partial landscapes to rebuild. Compression fleets assembled from acquired units cannot benchmark reliability without an ISO 14224 aligned equipment taxonomy.<sup>44</sup>

**What a governed master does.** Links GIS, EAM, measurement and ERP keys for every segment, valve, meter and compressor in one hierarchy, carrying MAOP, material and inspection records as attributes with lineage. Governs the shipper, producer and dedication records that fee revenue depends on through the integration. Syndicates to the maintenance, GIS and measurement systems rather than replacing them.

**The problem in their words.** "We have bought five companies in two years and we still run three ERPs. The same ball valve has fourteen part numbers, field tickets get priced off the wrong rate book, and we cannot tell a customer which serialized units carry a current certification."

**Where the money is.** Service and distribution roll ups typically run multiple ERPs for eighteen to thirty six months after their acquisitions. The 10 to 20% duplicate item estimate and the five to fifteen SKUs per valve apply directly.<sup>20</sup> API Q1 and ISO 8000 Part 115 demand traceable, owner qualified part

## 5.2 Midstream: gathering, processing, pipelines and compression

## 5.3 Oilfield services and equipment manufacturers

identifiers, and operators have begun writing them into purchase orders.<sup>44</sup> Field tickets priced against the wrong contract or an outdated rate book leak revenue in the first month after close; vendor duplicates and unverified bank details create duplicate payments and fraud exposure.<sup>42</sup>

**What a governed master does.** Harmonizes the product, item and bill of material master with golden records, classification and ISO 8000 quality identifiers so the ERP consolidation happens in one wave instead of three. Carries serialized asset and rental fleet records with certification and maintenance history across acquisitions. Governs the customer and rate book master that stops ticket leakage. For manufacturers, the same golden record feeds catalogs, e-commerce and technical documentation.

#### 5.4 Downstream: refining, petrochemicals and specialty products

**The problem in their words.** "The turnaround slipped four days because a valve assembly was in the warehouse under a different number. We carry \$40 million of spares and a third of it has not moved in three years. Every unit has its own functional location logic."

**Where the money is.** Two thirds of turnarounds overrun by 10% or more and about 40% by more than 30%; budgets underestimate cost by about 16%.<sup>32</sup> A four day slip over a missing part can cost \$25 to \$50 million in margin; inactive stock runs 20 to 35% of spares value and emergency freight five to ten times standard rates.<sup>20</sup> Data driven maintenance cuts unplanned downtime 36% against reactive approaches,<sup>21</sup> and SAP ECC's end of mainstream maintenance on December 31, 2027 sits on top of all of it for the SAP shops.<sup>35</sup>

**What a governed master does.** Delivers one equipment, functional location and material master aligned to ISO 14224 and ISO 8000, feeds the maintenance system a single hierarchy, keeps blends, additives and product grades consistent across plants and terminals, and lands the ERP migration clean because the cleanse was done as a governed asset rather than a one time project.

#### 5.5 Fuel, propane and lubricant distribution

**The problem in their words.** "We have acquired eleven distributors and every one keyed customers, sites and products differently. Excise tax reconciliation takes a team, dealer onboarding takes months, and nobody trusts the margin by site report."

**Where the money is.** Convenience store and fuel distributor M&A rebounded sharply in 2026 after a quiet 2025, and the large consolidators have each merged dealer, site, tax jurisdiction and product masters several times over.<sup>45</sup> A misclassified site or product creates federal, state and local motor fuel tax exposure and audit cost in a business where margins are counted in

cents per gallon. Gartner's estimate of \$12.9 million a year in cost of poor data per organization, a self reported figure, lands hardest here.<sup>46</sup>

**What a governed master does.** One customer, site and product master that supports excise tax accuracy, rapid dealer onboarding after acquisitions and a margin by site report the finance team believes, syndicated to the fuel ERP and the tax engine. For lubricant and propane marketers the same golden record powers dealer portals and e-commerce catalogs.

**TABLE 4 Lead domain, lead sponsor and lead number, by segment**

| Segment                       | Lead domain                                     | Executive sponsor            | Owning functions                          | The number that opens the conversation                                  |
|-------------------------------|-------------------------------------------------|------------------------------|-------------------------------------------|-------------------------------------------------------------------------|
| Upstream E&P                  | Well, lease, DOI and vendor                     | CFO or Controller; CIO       | Land, revenue accounting, production, HSE | Months to trust the well list after a close; JIB exceptions per quarter |
| Midstream                     | Asset hierarchy, meter and contract             | VP Operations; CIO           | Integrity, measurement, GIS, commercial   | Days to answer a PHMSA records request; dedication records reconciled   |
| Oilfield services             | Equipment, fleet, customer and rate book        | CIO; VP Supply Chain         | Operations, fleet, billing, procurement   | Part numbers per common item; ticket leakage after close                |
| Equipment manufacturing       | Product, item, BOM and supplier                 | VP IT; VP Supply Chain       | Engineering, quality, sales operations    | Duplicate items; ISO 8000 conformance in customer POs                   |
| Refining and petrochemicals   | MRO material, equipment and functional location | CIO; Director of Reliability | Maintenance, turnaround, warehouse        | Inactive spares share; turnaround scope growth                          |
| Fuel and propane distribution | Customer, site, product and tax                 | CFO; VP IT                   | Operations, supply, tax                   | Weeks to onboard an acquired distributor; tax reconciliation effort     |

Compiled from the segment analyses above and Centric delivery records.<sup>49</sup>

- Nobody buys master data management. A controller buys a trustworthy owner deck; a reliability manager buys a turnaround without surprises; a tax director buys a site master that reconciles.

- Start with the domain that is already costing money this quarter, build the governance once, and add the second domain on the same hub rather than buying a second project.



# 1 domain

in the first 90 days: well and owner, asset, or material, depending on the segment.

Centric delivery method

# 3 to 6 mo

to a first governed domain live, with stewards, rules and dashboards.

Centric budget guide, 2026

# Same hub

for the second and third domains; the operating model is the reusable asset.

Centric delivery records

# \$12.9M

Average annual cost of poor data quality per organization, self reported.

Gartner, 2021

## Worked example: a sponsor backed operator, three acquisitions, one record

A composite drawn from Centric's delivery records and the integration statistics in Section 2; the company is illustrative, the numbers are the published ranges. The operator had 900 wells in two basins when its sponsor approved a growth plan: three bolt on acquisitions over eighteen months, then a sale. The first package arrived with a different accounting system, a land file with 3,000 owners that had been corrected by hand for years, and a maintenance tool that nobody at the buyer had a license for.

The conventional plan was a migration. Move the acquired data into the buyer's accounting package, fix what breaks, and start on the second deal when the first was "done." On the published ranges, that is twelve to eighteen months and about 14% of deal value, with the controller's team doing the reconciliation in the evenings.<sup>22</sup>

The alternative was to treat the first acquisition as the occasion to build the record the company should have had already. Ninety days of discovery, two process workshops to settle who owns the well, the lease and the division of interest and what makes a record golden, a solution design, a sprint build of the well and owner domain with survivorship rules, approval workflow and quality dashboards, system integration tests, user acceptance and hyper-care. The acquired package loaded into the governed master; the accounting package, the land system and the production system were fed from it rather than reconciled against each other.

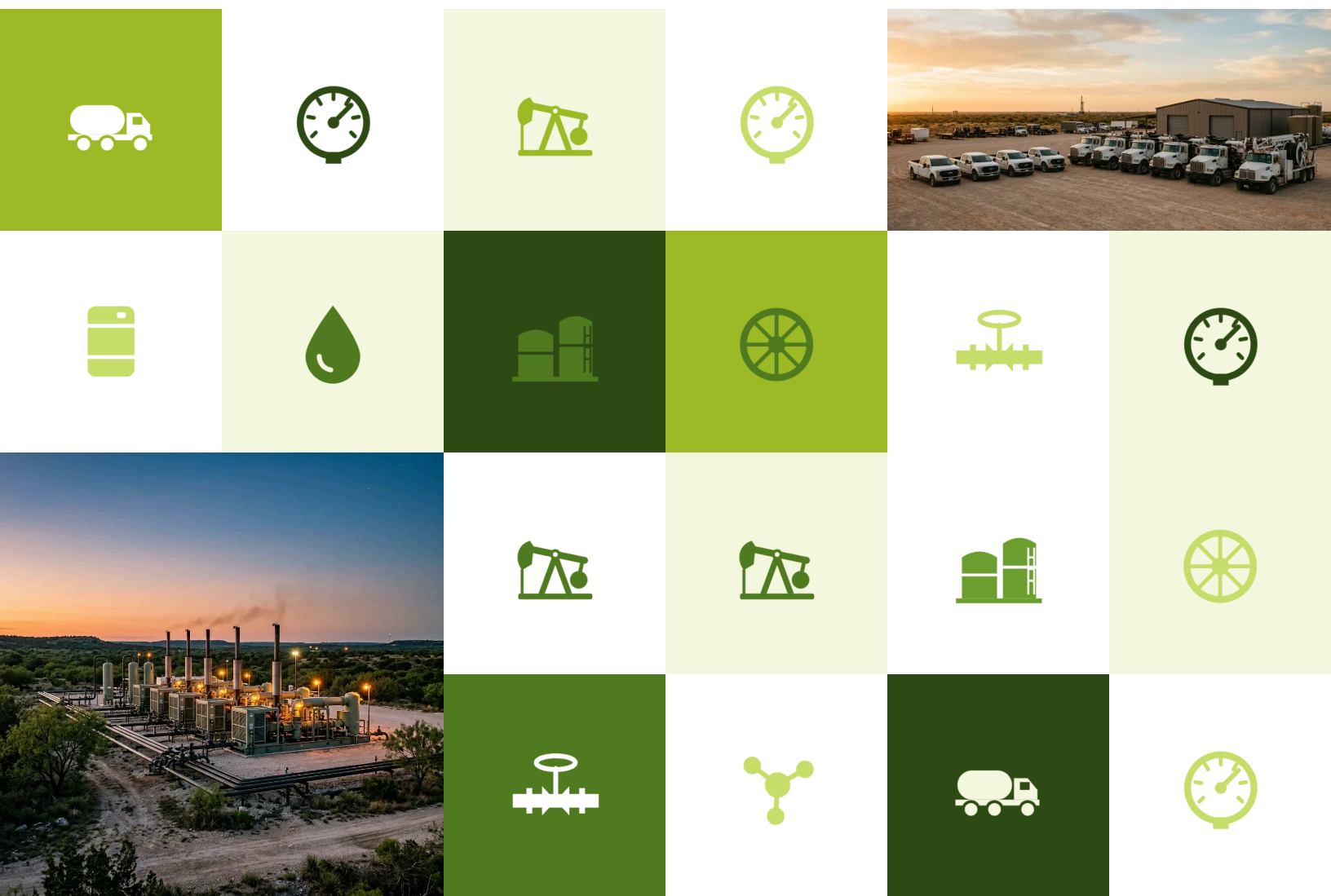


The second acquisition took six weeks to load. The third took four. At exit, the data room held one well list, one owner deck with an audit trail on every change, and a vendor master with a known duplicate rate, which is the kind of thing a buyer's diligence team notices and prices.

TABLE 5 The two plans side by side

|                                       | Conventional migration                 | Governed master first                                   |
|---------------------------------------|----------------------------------------|---------------------------------------------------------|
| Time to a trusted well and owner list | 12 to 18 months                        | About 90 days for the first package; weeks for the next |
| Where the reconciliation happens      | Inside the accounting package, by hand | Once, in the master, with rules and workflow            |
| What the second acquisition costs     | The same again                         | Loading, not rebuilding                                 |
| What the regulator gets               | A spreadsheet assembled per filing     | A query against the equipment hierarchy                 |
| What the buyer at exit sees           | Three generations of corrections       | One record with an audit trail                          |

Illustrative composite; timing and cost ranges from the sources cited in Section 2 and Centric delivery records.<sup>22,49</sup>

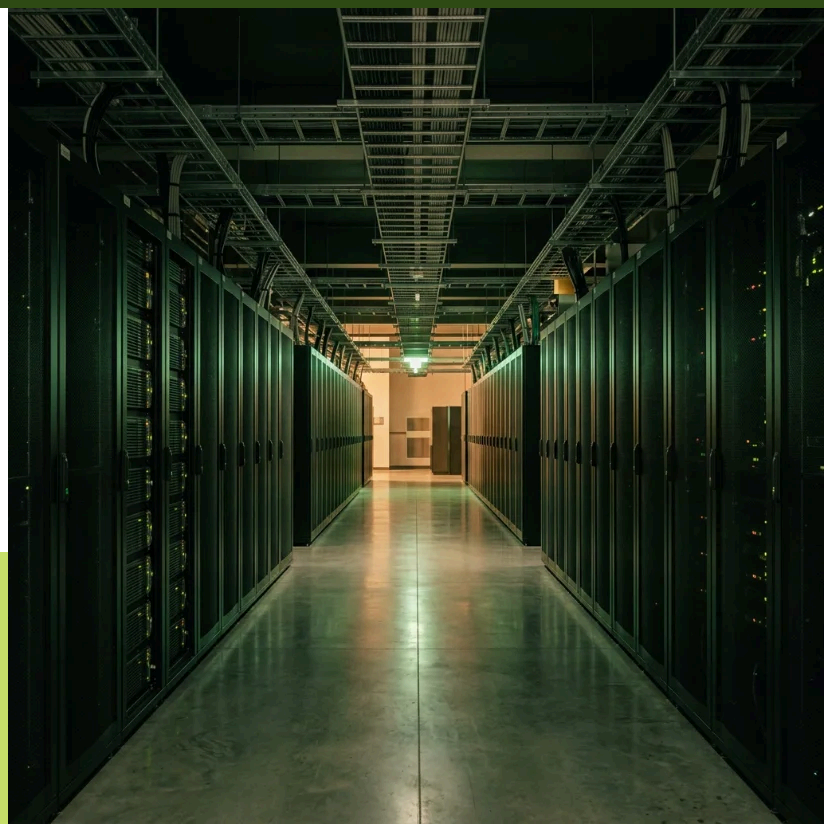


# 06

SECTION 06

## Why the enterprise answer does not fit the mid-market.

There is nothing wrong with the enterprise platforms. There is something wrong with asking a 600 person operator to buy one.



### Key takeaways

- 01** Enterprise license: \$250,000 to more than \$1 million a year, before a 9 to 18 month implementation.
- 02** Half of master data vendors publish no price; cost scales with records, which penalizes well and meter counts.
- 03** An open source core with a specialist partner lands a first domain in 3 to 6 months under \$1 million in year one.

### The vendor landscape in 2026

The 2026 Gartner Magic Quadrant for Master Data Management Solutions names five Leaders: Informatica, now part of Salesforce after the roughly \$8 billion acquisition closed on November 18, 2025; Profisee; Reltio; Stibo Systems; and Semarchy.<sup>36,37</sup> The wider set includes SAP Master Data Governance, Oracle, IBM, TIBCO EBX, Ataccama, Syndigo, Talend and Pimcore.<sup>40</sup> Seven of fourteen vendors tracked by ERP Research publish no list price. Informatica deals are quote based and typically run \$200,000 to more than \$2 million, with implementation commonly exceeding the first year subscription; every enterprise vendor scales price on record volumes, domains and users, and flags stewardship staffing and per source integration as the hidden costs.<sup>38</sup>

Record based pricing matters in this industry in a specific way. A mid-market operator may have 2,000 employees and twenty million meter readings, well records and material lines. The license was designed for a company whose record count tracks its headcount. Here it does not.

### Market size and the unclaimed vertical

The global master data management market was about \$18 to \$19 billion in 2025, growing 16 to 19% a year, with North America roughly 38% of it and services growing faster than software. The United States was about \$5 billion, which implies a US services market near \$1.6 billion. Small and mid sized enterprises are the fastest growing segment at about 19% a year. No analyst publishes an oil and gas slice.<sup>40</sup> An industry that generates more master data per employee than almost any other does not yet have a market category of its own, which is a sign that the mid-market is being served by accident.

### The integrators, and who actually serves the mid-market

The global integrators dominate at majors and large independents; ExxonMobil's twelve ERP consolidation is the archetype.<sup>23</sup> Their rate cards and minimum engagement sizes make them impractical below roughly 2,500 employees. In Houston, the upstream systems specialists own the accounting relationships, with one firm alone reporting more than 500 ERP implementations across Quorum, Enertia, IFS and P2, but they lead with the

**TABLE 6 The vendor landscape and the mid-market fit**

| Vendor                                  | Position                                          | Where it wins                                                                                            | Why it is mis-sized for a 200 to 2,500 employee oil and gas company                                                                  |
|-----------------------------------------|---------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>Informatica (Salesforce)</b>         | 2026 Leader                                       | Global integrator programs at majors; multi domain at scale                                              | License floor above a mid-market approval limit; roadmap now sits inside a CRM company                                               |
| <b>SAP MDG, with EAM extensions</b>     | Incumbent in SAP shops                            | Refiners, midstream and service companies on SAP; plant maintenance master data                          | Only viable where SAP is the core ERP; twelve to eighteen month programs                                                             |
| <b>Profisee</b>                         | 2026 Leader, mid-market                           | Microsoft stack buyers; publishes an oil and gas MRO use case                                            | Proprietary license; no oil and gas data model; no published oil and gas outcomes                                                    |
| <b>Semarchy, Stibo Systems, Reltio</b>  | 2026 Leaders                                      | Multi domain, customer and product mastering at enterprise scale                                         | Priced and staffed for enterprise; no upstream or midstream domain content                                                           |
| <b>Oracle, IBM, TIBCO EBX, Ataccama</b> | Challengers and specialists                       | Where the platform is already licensed                                                                   | Rarely selected by mid-market oil and gas on merit                                                                                   |
| <b>MRO data specialists</b>             | Single domain cleansers                           | Material master cleansing for plants                                                                     | A cleanse without a governed hub decays within five years                                                                            |
| <b>Microsoft Purview</b>                | Catalog and governance                            | Dynamics 365 and Fabric estates                                                                          | Catalogs data; does not master it. Pairs with a hub rather than replacing one                                                        |
| <b>Pimcore (open source core)</b>       | Gartner recognized; MDM, PIM and DAM on one model | Flexible data model for well, lease, equipment and material; 3 to 6 month first domain; REST integration | Fewer prebuilt connectors and less procurement familiarity than the Leaders; a scale ceiling that rarely binds below 2,500 employees |

Sources: Gartner 2026 Magic Quadrant via Business Wire and Qmetrix;<sup>36</sup> Salesforce;<sup>37</sup> ERP Research and Costbench;<sup>38</sup> Prometheus Group;<sup>15</sup> Centric.<sup>39</sup>

**FIGURE 5**

### Year one cost of a first governed domain, by approach (\$ million, midpoint of published ranges)



Enterprise: \$250K to \$1M+ license plus \$500K to \$3M implementation at \$300 to \$500 an hour, 9 to 18 months. Mid-market proprietary: \$75K to \$250K license, \$175 to \$300 an hour, 4 to 9 months. Open source core: free core, \$15K to \$50K support, 3 to 6 months. Source: Centric 2026 budget guide drawing on ERP Research and Costbench.<sup>38,39</sup>

accounting migration rather than a standalone master.<sup>14</sup> The accounting vendors sell migration services scoped to their own product. The subsurface data specialists on OSDU own well and seismic data; they are adjacent to, not competitive with, the business master data that drives the ERP and the maintenance system.<sup>16</sup> The Microsoft partners that sell Dynamics 365 and data platform work in Houston and Denver are the natural home for a master data layer, and most mid-market energy IT teams already run on Azure, Entra ID and Power BI.

### What "fit" looks like

A platform fits the mid-market when four things are true at once. The license does not scale with the number of wells. The first domain is live, with

governance, in a quarter. The delivery partner has oil and gas domain content, a working demo and a reference, so the workshops start from a model rather than a blank page. And the commercial structure is a fixed scope per domain with acceptance gates, so the CFO can sign for one domain without underwriting an enterprise program. The open source core approach satisfies the first; the method in Section 7 satisfies the other three.

**5**

Leaders in the 2026 Gartner Magic Quadrant, all built for the global enterprise.

Gartner via Business Wire, Apr 2026

**7 of 14**

Master data vendors that publish no list price.

ERP Research, 2026

**~\$1.6B**

Implied US master data services market in 2025, growing near 19% a year.

Derived from Fortune BI and Mordor

**19%**

Annual growth of the SME segment, the fastest in the market.

Fortune Business Insights, 2026

- The question is not which Leader to buy. It is whether a 600 person operator should be buying a Leader at all.



# 07

SECTION 07

## The 90 day path: building a governed master one domain at a time.

How a mid-market company builds a governed master one domain at a time, inside a quarter, with the systems it already runs.



## Key takeaways

- 01** Discovery, two workshops, a solution design, a sprint build, SIT, UAT and hypercare, inside one domain and one quarter.
- 02** Governance is the deliverable: owners, stewards, rules, survivorship and dashboards, not a one time cleanse.
- 03** One engagement letter per domain, milestone acceptance, tiered support afterwards.

**T**he method below is the one Centric used to deliver a multi domain master data program for a Gulf consumer group across employee, vendor, customer, product, material and finance domains, and to design a spare parts master for a US advisory firm's client on Oracle Fusion. The steps transfer directly to oil and gas.

### ● **Weeks 1 to 3: discovery and the two workshops**

A structured discovery questionnaire covers entity and brand structure, master data sources and repositories, current data quality and golden record practice, taxonomy and workflows, regulatory and multilingual needs, syndication targets, the integration landscape, access control and the success metrics the executive will hold the program to.<sup>49</sup> Workshop A settles ownership, data flow, integration points and the golden record criteria for the chosen domain. Workshop B works through the create, update and retire processes, the confirmed governance decisions and the open validation items, with a pre read so decisions are taken in the room. Consolidated mappings are signed off at the end of week three.

### ● **Weeks 3 to 5: the solution design**

A solution design document, iterated to an approved version, fixes the data model, the critical data elements, the survivorship rules, the quality rules and their health scoring, the workflow states and approvers, the role mapping to the identity provider, the integration pattern for each source and target, and the publication of governed records to the analytics platform.<sup>49</sup> For an upstream operator that means the well and owner model against the accounting package and the land system; for a refiner, the equipment and material model against the maintenance system.

### ● **Weeks 5 to 11: the sprint build**

Environment and continuous integration first, then the domain module: import from the source systems with delta logic, identifier generation, the quality rules with health scores and dashboards, survivorship with duplicate group analysis and golden record selection, the create, update and inactivate workflow with review, approval and rejection, notifications, audit logging, scheduled exports and the API syndication back to the systems of record.<sup>49</sup> Encrypted handling of personal data and role based access are

built in where the domain requires it, as the employee and owner domains do.

● **Weeks 11 to 13: SIT, UAT, go live and hypercare**

A functional quality test checklist, system integration tests with evidence, a user acceptance template and tracker with defect and change logs, named data stewards and governance leads, knowledge transfer sessions, and a hypercare completion report. One practical lesson from delivery: several tests in the Gulf program were held up for lack of write access to a source system, so sandbox credentials for every integrated system are now written into the engagement letter before the build starts.<sup>49</sup>

● **The operating model that outlives the project**

The reusable asset is not the software. It is the target operating model: a data owner per domain, named stewards with a work queue, documented rules, a quality dashboard the executive reads, and a change process that routes every correction through workflow. Post go live support runs in three lines, break and fix, data steward operations, and continuous development, in tiered packages that scale as the second and third domains are added to the same hub.<sup>49</sup>

● **The commercial structure that fits the mid-market**

A master services agreement, then one fixed scope engagement letter per domain with named deliverables, milestone acceptance certificates that trigger payment, and intellectual property assignment. Build scope is quoted as one time fees with line items for setup, project management, data profiling, the domain module, survivorship and quality rules, workflow and security, API and syndication, documentation, testing, training and deployment; the platform license and the support tier are priced separately, and the domain price varies with attribute count, critical data element complexity and entity count.<sup>49</sup> The CFO signs for one domain, not for an enterprise program.

**TABLE 7 The 90 day path, by week**

| Weeks    | Phase                        | Outputs                                                                                        | Executive decision                             |
|----------|------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------|
| 1 to 3   | Discovery and workshops      | Discovery findings; ownership and golden record criteria; process definitions; signed mappings | Which domain first, and who owns it            |
| 3 to 5   | Solution design              | Approved solution design; critical data elements; rules; integration pattern                   | Approve the design and the acceptance criteria |
| 5 to 11  | Sprint build                 | Domain module live in test; imports, rules, survivorship, workflow, syndication                | Milestone acceptance per sprint                |
| 11 to 13 | SIT, UAT, go live, hypercare | Test evidence; trained stewards; production cutover; hypercare report                          | Go live; approve the support tier              |

TABLE 7 The 90 day path, by week continued

| Weeks            | Phase         | Outputs                                      | Executive decision               |
|------------------|---------------|----------------------------------------------|----------------------------------|
| Quarter 2 onward | Second domain | Same hub, same governance, new domain module | One engagement letter per domain |

Centric delivery method, as applied on the Gulf multi domain program.<sup>49</sup>

What the end user sees

The user manual from the Gulf program describes the day to day better than any architecture diagram. A steward signs in through the company's single sign on, works a to do list of records awaiting review, filters the domain by any attribute, runs imports through a process manager, reads a quality dashboard with a health score per rule, opens a duplicate group and selects the golden record or merges or skips, submits a change for approval and receives a notification when it is approved, and can see the audit trail on every record.<sup>49</sup> For a land administrator that is the owner deck. For a warehouse supervisor it is the parts catalog. For a measurement technician it is the meter list. The platform is the same; the screens are theirs.

The architecture, in one paragraph

An open source master data hub for data modeling, survivorship, workflow, role based access, audit logging, process manager imports, reporting and a REST API with webhooks. An identity provider for single sign on and role mapping. The source and target systems the company already runs, integrated by API where one exists and by secure file transfer with staging and scheduled processing where it does not. A governed analytics layer, Databricks, Snowflake or Fabric, that receives golden records with lineage so the dashboards and the AI programs read from the same record the ERP does. Cloud deployment with continuous integration, encryption at rest and in transit, and operational monitoring.<sup>49</sup> For a US operator the sources are Quorum or W Energy, the land system and the production system; for a midstream company, the ERP, the maintenance system, GIS and the measurement system; for a refiner, SAP or Oracle and the maintenance system.



### Five questions to ask any master data partner

- 1 Show me the demo on my domain.** Not a product tour. A duplicate well, a duplicate valve, a division of interest change, with the survivorship rule and the approval workflow running.
- 2 How many weeks to the first governed domain, and what are the acceptance gates?** If the answer is a phase plan without dates and certificates, the program will take as long as the budget allows.
- 3 What does the license cost when I double my well count?** Record based pricing is the enterprise trap. Get the answer in writing.
- 4 Who owns the data after you leave?** Stewards, rules, dashboards and documentation are the deliverable. The partner's people are not.
- 5 What is in the second engagement letter?** The second domain should cost less than the first because the hub, the governance and the integration patterns already exist.

- Governance is the deliverable. A cleanse without owners, rules and a workflow is a photograph of the data on the day the contractor left.

## 13 weeks

from discovery to hypercare for the first domain.

Centric delivery method

## 1 letter

per domain: fixed scope, milestone acceptance, IP assigned.

Centric commercial model

## 3 lines

of support afterwards: break and fix, steward operations, continuous development.

Centric delivery records

## 2 workshops

to settle ownership, golden record criteria and the create, update and retire processes.

Centric delivery method



# 08

SECTION 08

## Scenarios and the executive's scorecard.

Three ways 2027 can go, anchored to the published forecasts, and the eight numbers an executive should hold the data estate to.



### Key takeaways

- 01** Base case: Brent \$84, 14.3M b/d, M&A continuing in fewer and larger deals.
- 02** The regulatory calendar does not vary by scenario.
- 03** Eight monthly numbers separate a governed data estate from a managed one.

### Three scenarios for 2027

**T**he base case follows the EIA and Enverus: Brent averaging \$84 in 2027 after \$96 in 2026, Henry Hub at \$3.16, US crude output of 14.3 million b/d, and upstream M&A continuing at the 2025 to 2026 pace with fewer, larger transactions and reloaded private equity bidding for production heavy assets.<sup>8, 9, 12</sup> Capex stays flat and extraction headcount keeps falling.<sup>3, 5</sup> The upside case assumes prices hold nearer the 2026 level, the Permian gas constraint eases with new pipeline capacity, and the second consolidation wave among mid cap independents that Deloitte anticipates arrives early, which multiplies the number of integrations in flight.<sup>47</sup> The downside case follows the Dallas Fed's pessimists: a fifth of executives cutting capex significantly, prices drifting toward the \$45 to \$55 buy zone, distressed and ABS financed consolidation replacing strategic deals, and service company bankruptcies forcing asset sales.<sup>6, 47</sup>

What does not change across the three is the calendar in Section 4 and the arithmetic in Sections 2 and 3. The methane reports, the PHMSA records and the SAP deadline arrive on the same dates whatever Brent does, and a duplicate valve costs the same to carry at \$60 as at \$90. In the downside case the working capital in the warehouse matters more, not less.

## \$70

Downside. Brent drifts toward Deloitte's \$45 to \$55 buy zone; distressed consolidation.

Dallas Fed; Discovery Alert

## \$84

Base. EIA's published 2027 Brent forecast; 14.3M b/d.

EIA STEO, Oct 2026

## \$95

Upside. Prices hold near 2026; second mid cap consolidation wave arrives early.

Enverus; Deloitte via Discovery Alert

## Same

Methane, PHMSA and SAP deadlines in every scenario; fixed by rule.

EPA, PHMSA, SAP

TABLE 8 2027 scenarios

| Indicator           | Downside  | Base      | Upside    | Source of the anchor                           |
|---------------------|-----------|-----------|-----------|------------------------------------------------|
| Brent, 2027 average | \$70      | \$84      | \$95      | EIA STEO October 2026; Centric planning ranges |
| US crude output     | 14.0M b/d | 14.3M b/d | 14.5M b/d | EIA STEO October 2026                          |

TABLE 8 2027 scenarios continued

| Indicator                           | Downside                                      | Base                                | Upside                       | Source of the anchor                                |
|-------------------------------------|-----------------------------------------------|-------------------------------------|------------------------------|-----------------------------------------------------|
| Upstream M&A pace                   | Distressed and ABS led; fewer strategic deals | \$60B to \$80B; fewer, larger deals | Second mid cap wave; \$100B+ | Enverus 2025 and 1Q26; Deloitte via Discovery Alert |
| Public independent capex            | Down 10% or more                              | Flat (-0.4%)                        | Up 5%                        | OGJ survey; Dallas Fed Q4 2025                      |
| Extraction employment               | Falls further                                 | Flat to down                        | Flat                         | BLS via Oilprice, July 2026                         |
| Methane and PHMSA obligations       | Same                                          | Same                                | Same                         | EPA, PHMSA (fixed by rule)                          |
| SAP ECC deadline                    | Dec 31, 2027                                  | Same                                | Same                         | SAP, via Savic                                      |
| MRO carrying cost on inactive stock | 18 to 25%, on a larger share                  | 18 to 25%                           | 18 to 25%                    | Verdantis industry estimate                         |

Downside and upside values are Centric planning ranges around the published base anchors; the regulatory and vendor deadlines do not vary by scenario.<sup>3, 5, 6, 8, 12, 20, 27, 35, 47</sup>

**The executive's scorecard: eight numbers that separate a governed data estate from a managed one**

Most can be produced from the systems the company already runs; none of them appear in a standard month end pack. The scorecard below is designed to be detached and used. Each metric has a benchmark drawn from the sources in this paper and a blank for the company's own number. A company that can fill in all eight has a governed data estate. A company that cannot fill in the first three is paying the integration tax on every acquisition and does not know how much.

The benchmarks are deliberately demanding. A 5% duplicate rate in the vendor master is achievable with workflow and survivorship; the industry estimate for material masters without them is 10 to 20%.<sup>20</sup> Ninety days to a trusted well list is what a governed master delivers; twelve to eighteen months is the published integration norm.<sup>22</sup>

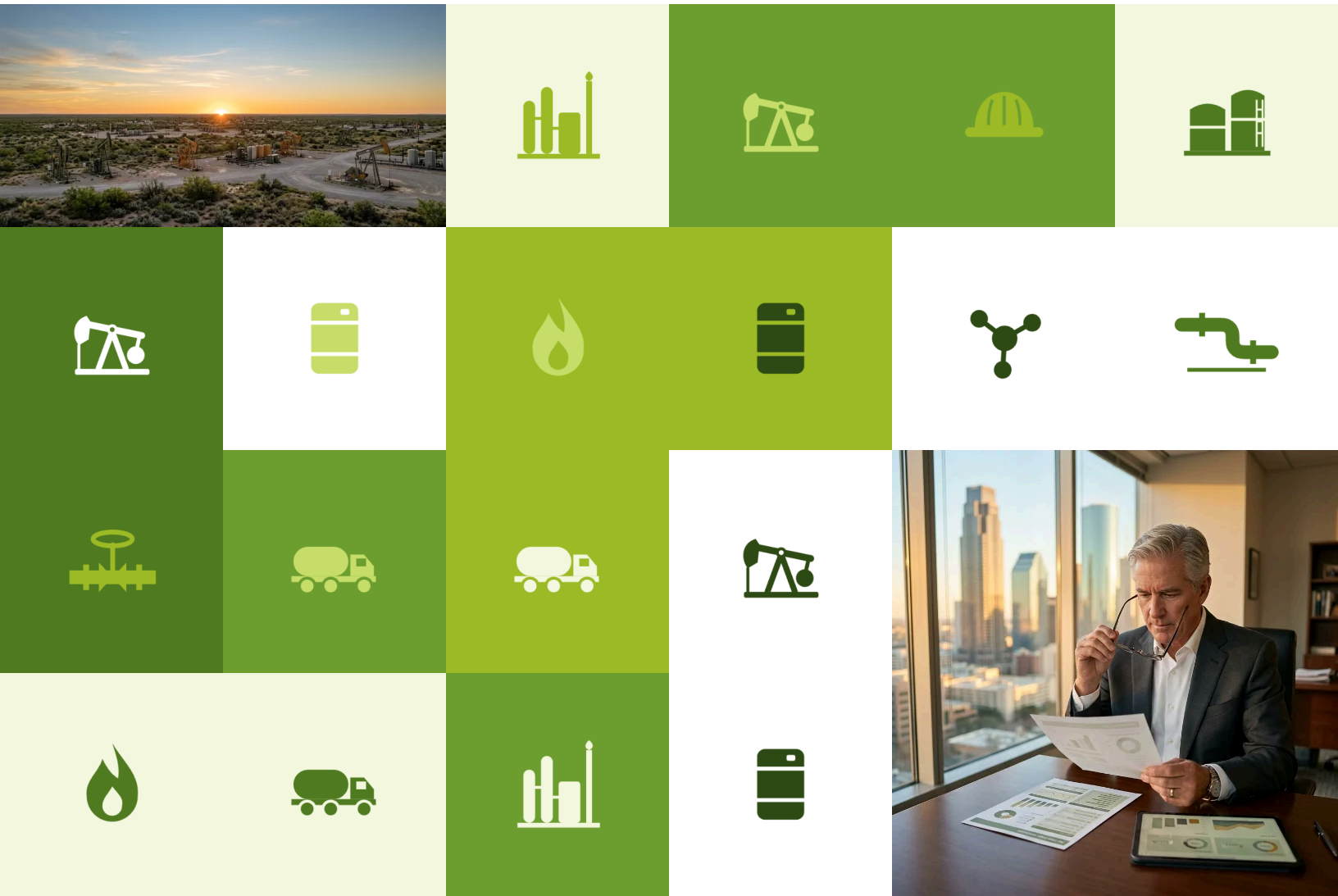
**SCORECARD Eight numbers to hold the data estate to, every month**

| Metric                                                                                                  | Benchmark to beat                            | Your number |
|---------------------------------------------------------------------------------------------------------|----------------------------------------------|-------------|
| <b>Number of systems holding a well master</b><br>Accounting, land, production, maintenance, regulatory | One governed record; others fed from it      |             |
| <b>Days to a trusted well and owner list after a close</b><br>The integration tax, measured             | Under 90 days; industry norm 12 to 18 months |             |
| <b>Duplicate rate in the vendor master</b><br>Duplicate payments start here                             | Under 5%; unmanaged masters run 10 to 20%    |             |

SCORECARD **Eight numbers to hold the data estate to, every month** continued

| Metric                                                                                                  | Benchmark to beat                                            | Your number |
|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|-------------|
| <b>Share of spares inactive for three years</b><br>The working capital in the warehouse                 | Under 15%; industry estimate 20 to 35%                       |             |
| <b>Part numbers per most common item</b><br>Duplicate valves, duplicate prices                          | One; unmanaged catalogs run 5 to 15                          |             |
| <b>Days to answer a regulator's records request</b><br>PHMSA, EPA, state agency                         | Same day from the hierarchy; not a week across three systems |             |
| <b>Division of interest changes routed through workflow</b><br>Audit trail on the most sensitive object | 100%, with approver and timestamp                            |             |
| <b>Records in the analytics platform with lineage to the master</b><br>What the AI program will read    | 100% of governed domains                                     |             |

Benchmarks drawn from the integration, inventory and regulatory sources cited in Sections 2, 3 and 4, and from Centric delivery records. <sup>20, 22, 27, 29, 49</sup>



## SOURCES AND METHODOLOGY

# Every number, traced.

Figures are taken from government, industry, analyst, trade press and company sources published between January 2024 and October 2026 and were retrieved between October 5 and October 11, 2026. Where two published figures are combined (the 1,500 well illustration in Section 2, the \$40 million spares illustration in Section 3, the year one cost midpoints in Figure 5), the text labels the result as derived or illustrative. Where a figure comes from a vendor's own published guide rather than an independent survey, as with the inventory benchmarks, it is labelled an industry estimate.

Forecasts are the publishers' and are quoted as issued; the scenario ranges in Section 8 are Centric planning ranges around published anchors and are labelled as such. Centric has no commercial relationship with any analyst or publication cited. Centric's own delivery records (source 49) describe engagements whose client names are withheld; the figures drawn from them are durations and structures, not client data. Where a publication was accessed through a secondary outlet, the primary publisher is named first.

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## ABOUT CENTRIC

# We build the one record that an oil and gas company's systems have never agreed on.

Centric is a marketing and technology agency working with mid-market energy, industrial and consumer companies on the data that their ERP, maintenance, land and analytics systems depend on: the well list, the equipment hierarchy, the material master, the vendor file and the owner deck. Our master data practice delivers governed domains on an open source hub, one engagement letter at a time, with the operating model that keeps them governed after we leave. We are a Pimcore partner and work inside the Microsoft stack most mid-market energy IT teams already run.

The team behind this paper combines master data architects who have delivered multi domain programs across employee, vendor, customer, product, material and finance domains, integration engineers who have connected SAP, Oracle, SuccessFactors and Databricks to a governed hub, and an oil and gas practice that runs a live spare parts master data demonstration for operators, service companies and refiners. We work from Houston and the San Francisco Bay Area in the United States, and from Dubai for the Gulf.



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