

2024 ETRM/CTRM TRANSFORMATION + MODERNIZATION REPORT.





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A WORD FROM MOLECULE.



KARI FOSTER

VP of Marketing, Molecule



The results we've compiled... underscore what we've heard from market participants all along: trading organizations of all sizes and types are prioritizing modernization.

According to the Greek philosopher Heraclitus, “Change is the only constant.” During my time at Molecule, I’ve had a front-row seat to change that drives how some of the largest companies on the planet operate and generate revenue. As what and how these companies trade changes at breakneck speed, I’ve seen what our customers use Molecule to model truly does run the world.

The global Covid pandemic kickstarted the digital transformation train, and it hasn’t stopped since. Additionally, in the last couple of years, we’ve seen the impact of advanced technologies on the way we all do our jobs. As all of these forces of change come together, companies are naturally reevaluating their tech stacks and asking, “How can we improve?”

That’s why we began this journey at the beginning of 2024. As we heard more of this sentiment, we decided to survey the market to understand the extent to which it was being felt — is modernization indeed a top priority? Are ETRMs/CTRM adapting to meet modern needs on the trading floor?

The results we’ve compiled in our first-ever ETRM/CTRM Transformation + Modernization Report are eye-opening and underscore what we’ve heard from market participants all along: trading organizations of all sizes and types are prioritizing modernization.





SAMEER SOLEJA

Founder and CEO, *Molecule*



People who are undertaking modernization initiatives are not doing so in pursuit of revenue-based ROI opportunities; rather they are modernizing to make the business more agile.

The results of this survey reflect that in times of dramatic market shifts, trading organizations are waking up to the reality that modernization is the key to their continued survival. People who are undertaking modernization initiatives are not doing so in pursuit of revenue-based ROI opportunities; rather they are modernizing to make the business more agile. And, while the fundamental expectations of an ETRM/CTRM haven't changed — it's there to be a reliable, fundamental part of a trading organization's ecosystem — how it adapts to support evolving business needs will be scrutinized even more.

Agility and reliability of systems are top priorities for trading organizations. As such, what people really need out of an ETRM/CTRM is indeed changing: from an all-encompassing ERP-style monolith (less than a decade ago) to focused software that provides better plumbing, better speed and usability, and direct access to data. Today's generation of new hires expects something different out of their systems with regard to access, and this survey speaks to this.



INTRODUCTION.

Energy markets have always been volatile, but what we are experiencing now is a complete transformation in energy markets and trading:

- **Market participants are evolving**, as new investors are enticed by the [\\$150 billion in gross margin](#) commodity trading generates each year. Another major source of this change is the consolidation happening in U.S. oil and gas markets, which collapses some trading strategies while changing others.
- **Energy supply options are expanding rapidly.** Europe continues to source alternatives to Russian energy due to continued geopolitical pressures and investment in renewable energy grows in Europe, North America, and beyond. [U.S. solar power generation](#) is predicted to grow by 75% and wind power generation by 11% by 2025, [while renewable natural gas](#) is now in demand. Carbon credits are now an integral part of commodity markets.
- **Demand is changing.** [AI data centers](#) in the United States are forecasted to grow energy demand by 20% by 2030, while demand for renewable energy continues to grow as governments and organizations work to reduce greenhouse gasses and emissions.
- **Trading is faster.** Technological advances such as natural language processing (NLP) speed up information inputs, and the move towards algorithmic or automated trading enables instant transactions.



- **Technology is smarter.** Data connectivity enables real-time dataflows and advanced computing systems and software enable real-time analyses of trading and risk.
- **Risk has increased.** The pandemic in 2020, followed by Russia's invasion of Ukraine — not to mention disruptions to cargo ships in the Suez Canal, Panama Canal, and the Red Sea in recent years — have demonstrated continued supply chain shocks and transportation risks.

If we know anything about change, it's that it drives more change. All of the above factors happening on a large scale are catching up with day-to-day operations... and company expectations. A faster pace is becoming the expectation while increasing agility is the new status quo.

With 90% of respondents planning or undergoing modernization initiatives, companies are experiencing the shortfalls of outdated systems and are ready to lean in to modern systems that can better meet their evolving needs and scale with their business.

Molecule's 2024 ETRM/CTRM Transformation + Modernization Report explores the challenges of modernization, what modernization means for energy and commodity trading companies, and how these changes will impact the market to come.



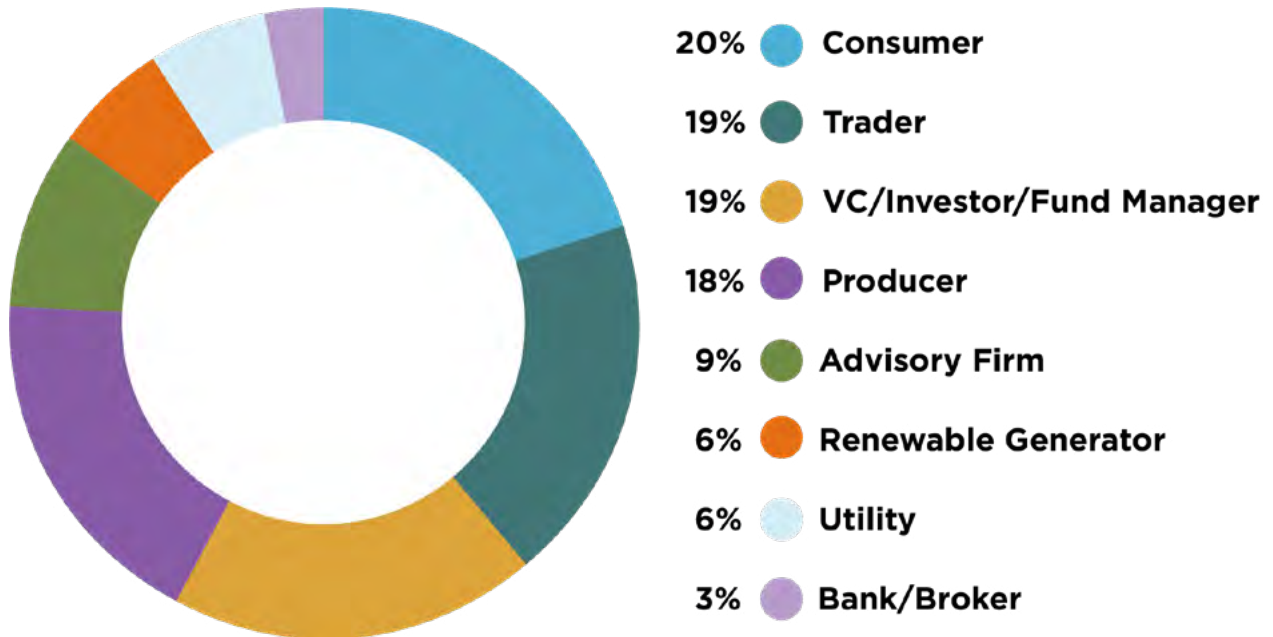


SURVEY OVERVIEW.

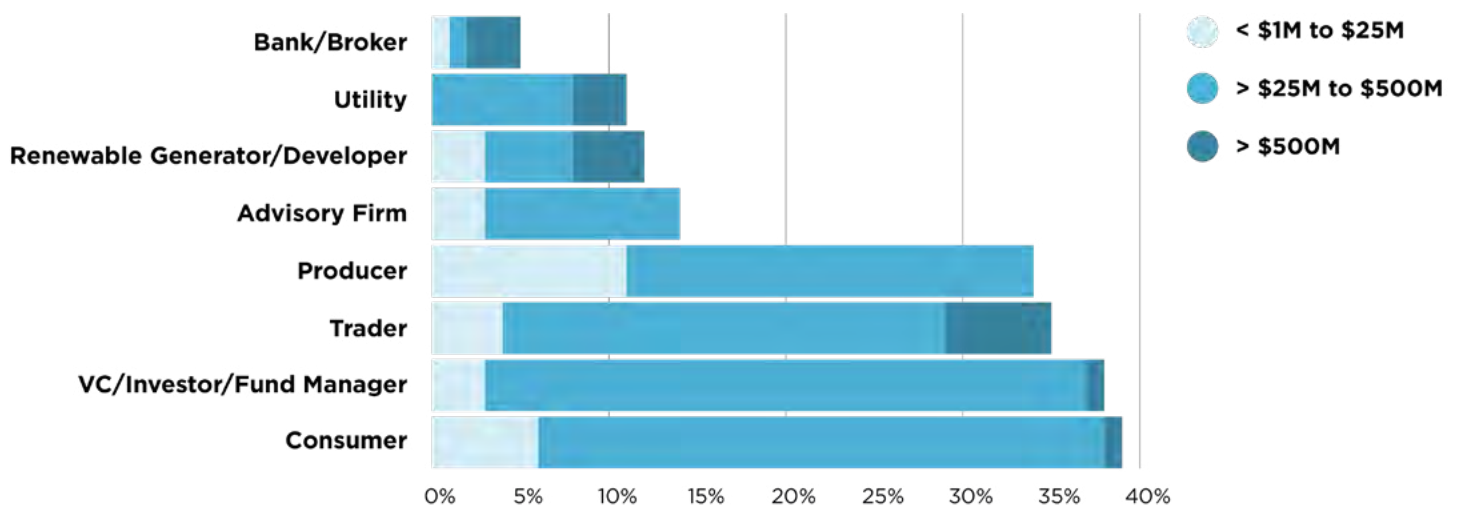
SURVEY OVERVIEW.

Over 200 participants in the commodity market responded to our survey. Respondents represented small companies with revenue slightly above \$1 million to large organizations exceeding \$1 billion.

What best describes the type of company you work for?

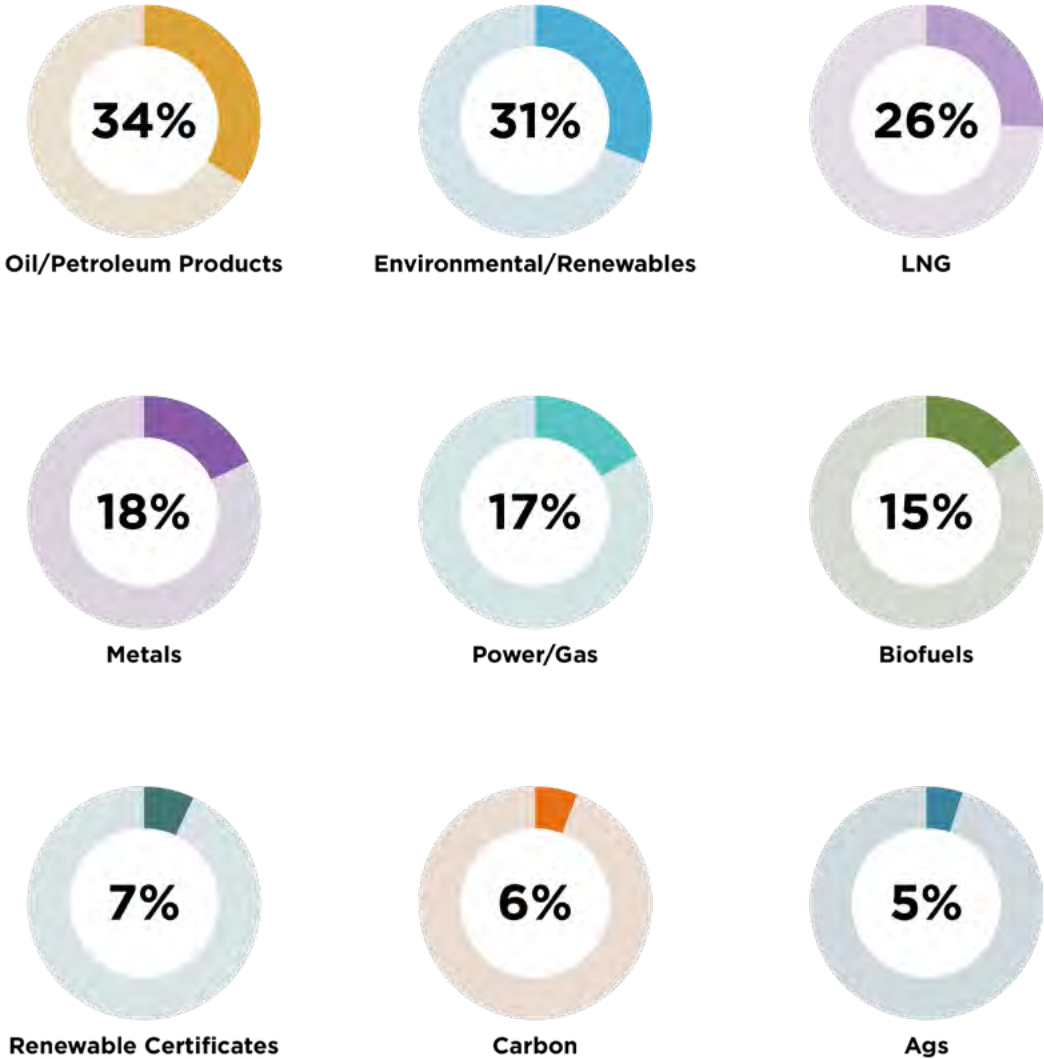


What is the annual revenue of the company you work for?



Respondents represented companies that traded mostly oil/petroleum products, environmental/renewables, and LNG.

Percent of Companies Trading Specific Commodities



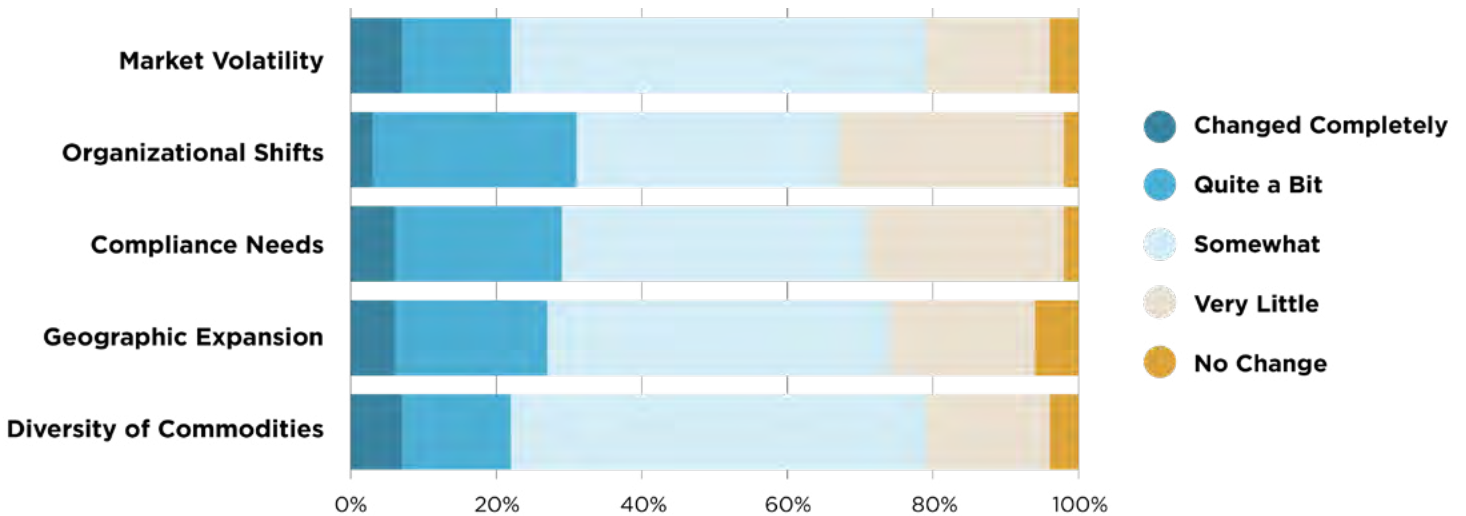


IMPACTS TO RISK MANAGEMENT.

IMPACTS TO RISK MANAGEMENT.

Market volatility and diversity of commodities both had the greatest impact on change among all survey participants (79%).

How have the following factors impacted your risk management practices?



Definitions of Factors

Market volatility is the frequency and intensity of price fluctuations of commodities over time.

Organizational shifts are changes to an organization — personnel, structure, technology, etc. — that are designed to address new markets, growth, or a need for cost-cutting.

Compliance needs are the policies, procedures, and documentation a company must create and follow to comply with the specific industry standards, laws, and regulations that apply to their business.

Geographic expansion occurs when a company chooses to enter new regions.

Diversifying commodities occurs when an organization adds new commodities to its list of products, such as an oil company offering renewable energy.

TOP FACTORS IMPACTING RISK MANAGEMENT NEEDS

While all of these factors showed to have a significant impact on change across all companies, regardless of size or commodities traded, every type of company will have its own unique set of circumstances and business needs.



Market Volatility.

Top concern for: Bankers/brokers, traders, renewable generators/developers

Volatility had the greatest impact on change across all company types, at over 60% for each type. It was the biggest driver of change for renewable generator/developer companies (90%), indicating fear of price instability is prevalent in the renewables market.



Geographic Expansion.

Top concern for: Producers, bankers/brokers

Geographic expansion had an increased impact on risk management across company types, with the highest impact in financial firms (i.e bankers/brokers and funds). This makes sense, since geographic expansion requires investment in advance of increasing revenue, increasing risk for financial companies.



Organizational Shifts.

Top concern for: Consumers

Organizational shifts had the biggest impact on consumer, utility, and renewables companies. These companies are more likely to shift their organization to embrace new areas of risk or when compelled to manage risk by new compliance regulations.



Diversity of Commodities.

Top concern for: Utilities, investors

Diversity of commodities had a greater impact on risk management across all company types, particularly renewables, and was the top driver for change for utilities and investors. Since investors are looking for a financial return, entering new markets carries additional financial risk.



Compliance Needs.

Top concern for: Renewable generators/developers, producers, consumers, and traders.

The pattern is similar to the impact of organizational shifts (which would be expected to increase compliance needs if corporate exposure increases), especially when companies move into new markets. Interestingly, advisory firms named compliance needs as the top factor, but market participants did not.

OPINION

MOLECULE ASKS

What are the possible contributors to how these factors are impacting risk management practices (i.e., the effect of the energy transition on energy and commodity markets)?



SANDY FIELDEN

Former Director of Research at Morningstar/RBN Energy, “That Energy Guy”



Assuming commodity risk management needs develop in response to corporate exposure to market price volatility, then any increase in exposure will increase the need to manage risk.

The advent of new risks — e.g., those created by compliance with energy transition rules such as carbon taxes and credits — need to be managed.

However, if corporate risk derives from an existing exposure via commodity trading, then geographic expansion or diversity of commodities is more likely to generate additional investment in risk management.



JEFF DAVIES

Founder, EnerWrap



Energy markets are undergoing the greatest shifts in decades with both supply and demand witnessing substantial changes. For example, U.S. electricity consumption has effectively flat-lined for over two decades, but is expected to see significant growth over the next two decades, due to a combination of data center demand driven by the power needs of AI and the electrification of vehicle fleets. Additionally, more intense weather patterns are creating challenges for power grid operators.

On the supply side of electricity markets, wind, solar and battery storage capacity continues to grow, with solar and battery storage in exponential growth phases. Thermal coal is being phased out of most global markets and natural gas powered generation continues to grow. Increased gas generation tied to an inherently volatile underlying commodity together with intermittent dispatch from renewables and peak shaving from battery storage creates risks that need to be managed appropriately.

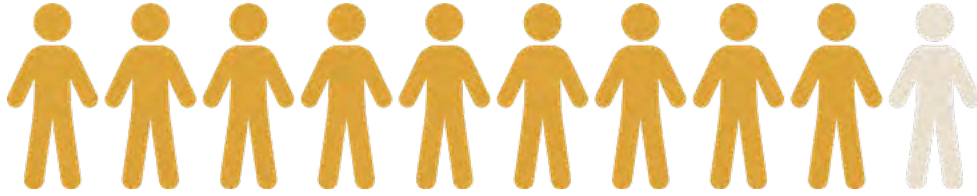
Oil markets are facing increasing upside geopolitical risks exacerbated by slowing U.S. supply growth and downside risks as the marginal barrel of demand gets diluted by EV fleet growth. Meanwhile, global natural gas markets continue to be impacted by LNG export growth and Russian supply replacements. In short, energy markets are facing unprecedented challenges and opportunities.



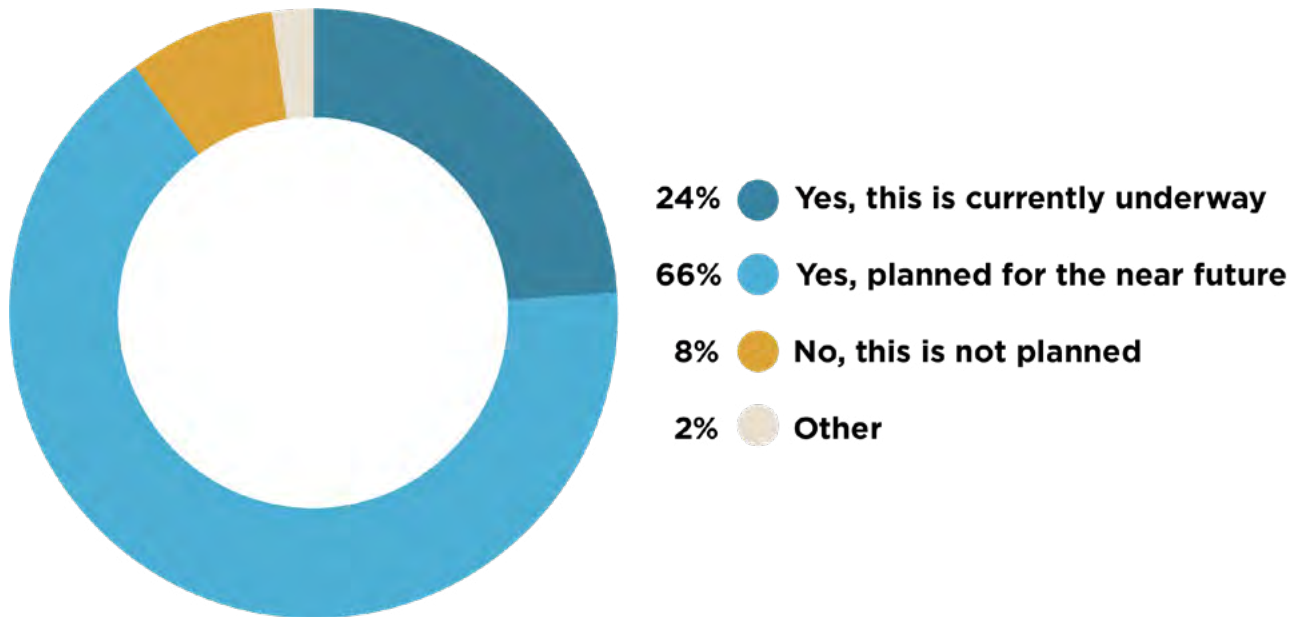
MODERNIZING RISK OPERATIONS.

MODERNIZING RISK OPERATIONS.

90% of all respondents report planning a modernization initiative or having one currently underway, underscoring a prevailing need to modernize.

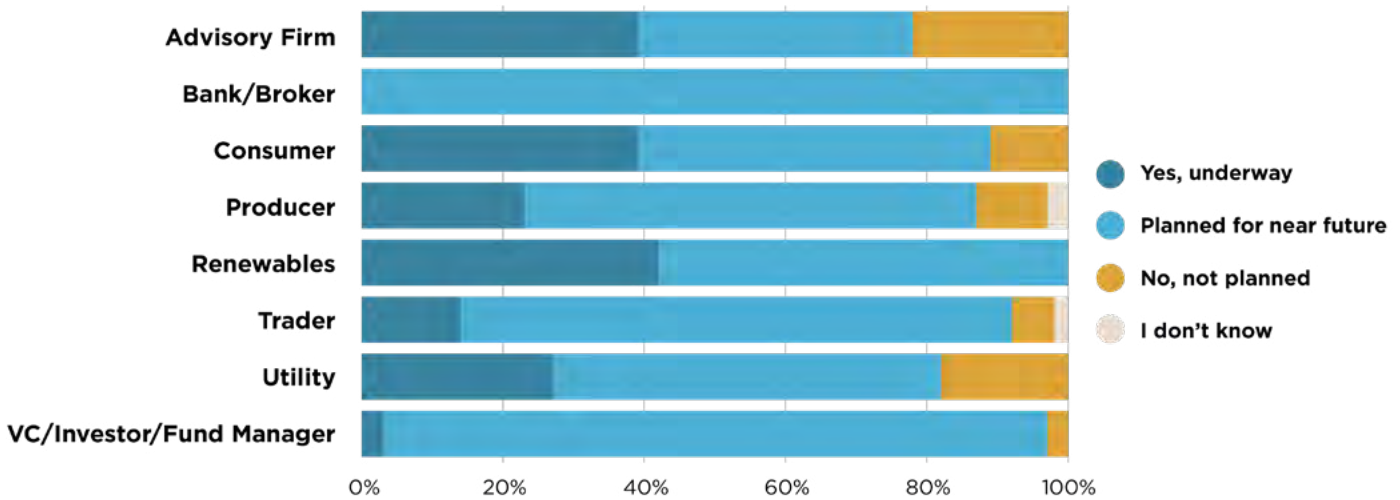


Is modernizing your risk operations currently an initiative that's underway at your organization?



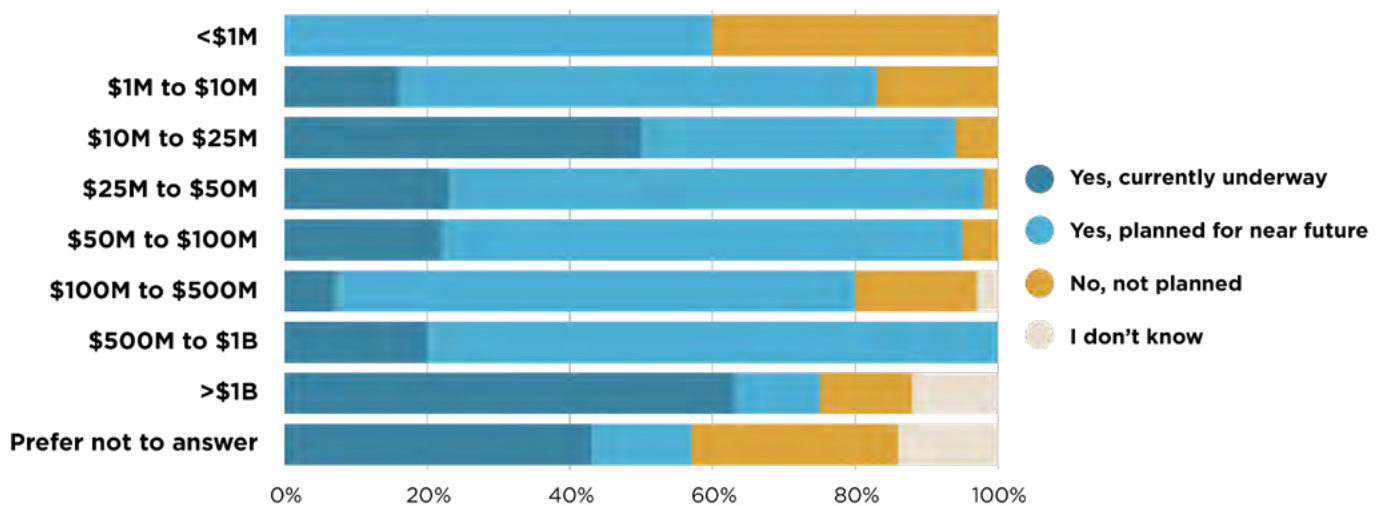
PRIORITY OF MODERNIZATION ACROSS COMPANY TYPE & SIZES

Modernization initiatives are underway or currently planned across all types of companies.



100% of bankers/brokers and renewable companies are planning to modernize, and 75% of all other company types have modernization plans. Renewables, consumer, and advisory firms are the furthest along: nearly 40% have modernization initiatives currently in progress.

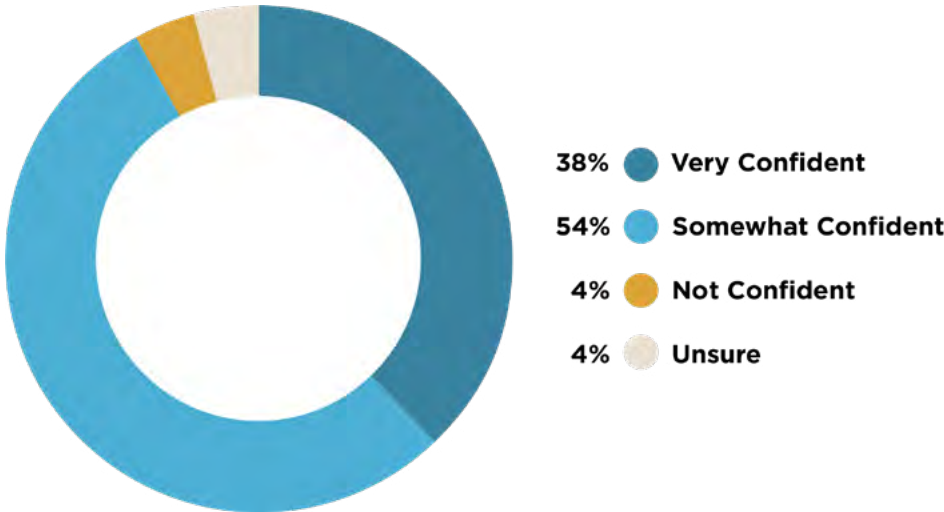
More than 70% of companies with over \$1 billion in revenue have a planned or current risk modernization initiative underway, while nearly 100% of companies with \$500 million to \$1 billion have one.



Even 60% of the smallest companies surveyed (revenue <\$1 million) indicated they have planned or ongoing initiatives to modernize risk management.

Additionally, there is overwhelming confidence (92%) in the ability to launch a modernization initiative.

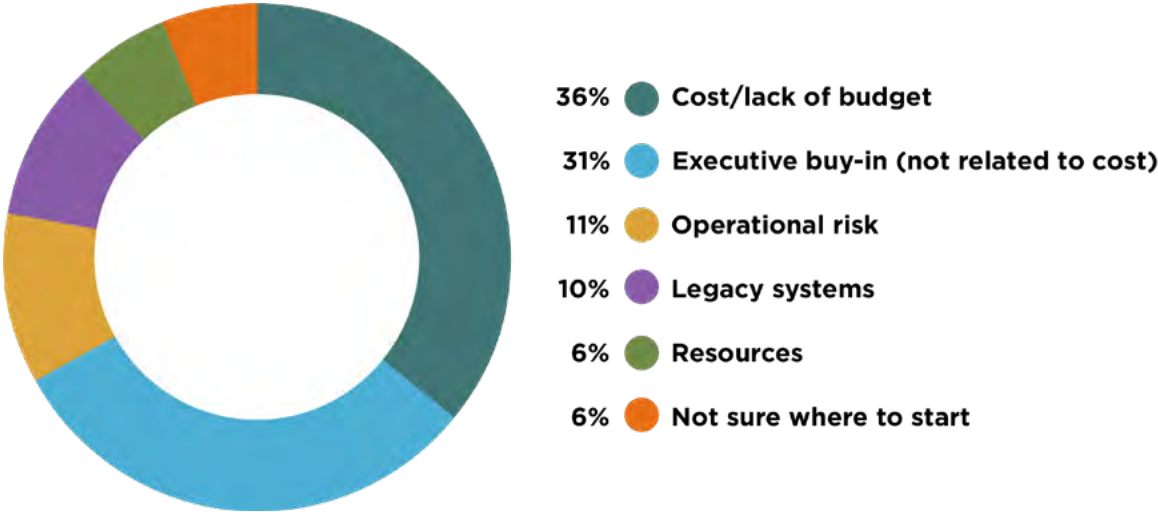
How confident are you in the ability to launch a modernization initiative at your company?



92% of respondents were either somewhat or very confident in their ability to launch a modernization initiative. However, despite the confidence, there are still challenges to overcome.

Cost and executive buy-in are the greatest challenges preventing the modernization of risk operations.

What is the biggest challenge preventing the modernization of risk operations at your organization?



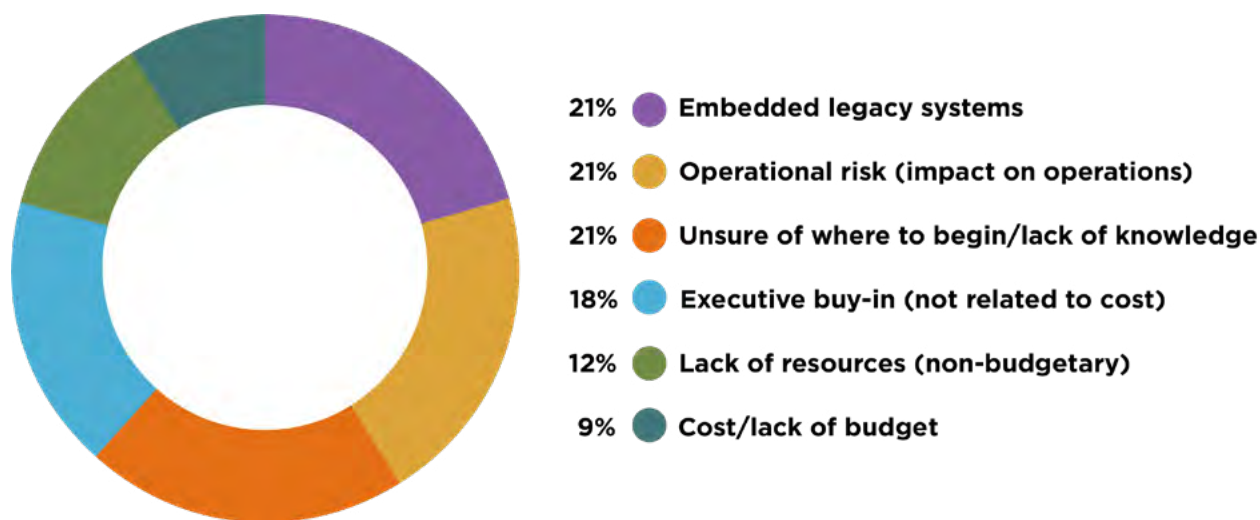
Lack of budget and executive buy-in are the top challenges, likely due to competition with other initiatives that provide — on face value — a greater ROI.

Tied for third, and certainly tied together, are embedded legacy systems and operational risk. This becomes clearer when looking at companies by revenue band. Implementing any new system is particularly painful and disruptive for smaller organizations since they have to manage any change with fewer resources. Therefore, removing legacy systems may increase operational risk.

While it is possible that certain challenges are lessening due to increased market pressure, respondents clearly feel modernization is important and they are confident that these initiatives will proceed despite the obstacles.

21% of smaller companies don't know where to begin.

Challenges of modernization by company size (revenue <\$25M)

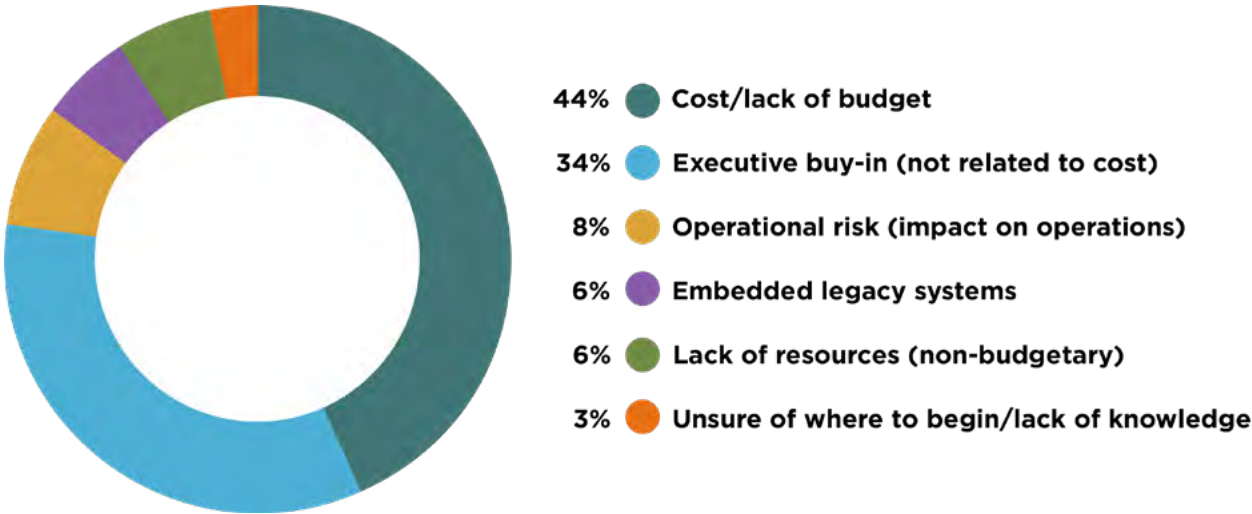


Smaller teams have less institutional knowledge simply because they have fewer people and are less likely to have the time or resources to research options. Operational risk (also 21%) is always a pain point for small companies that must handle any disruption with fewer resources while still managing operations.

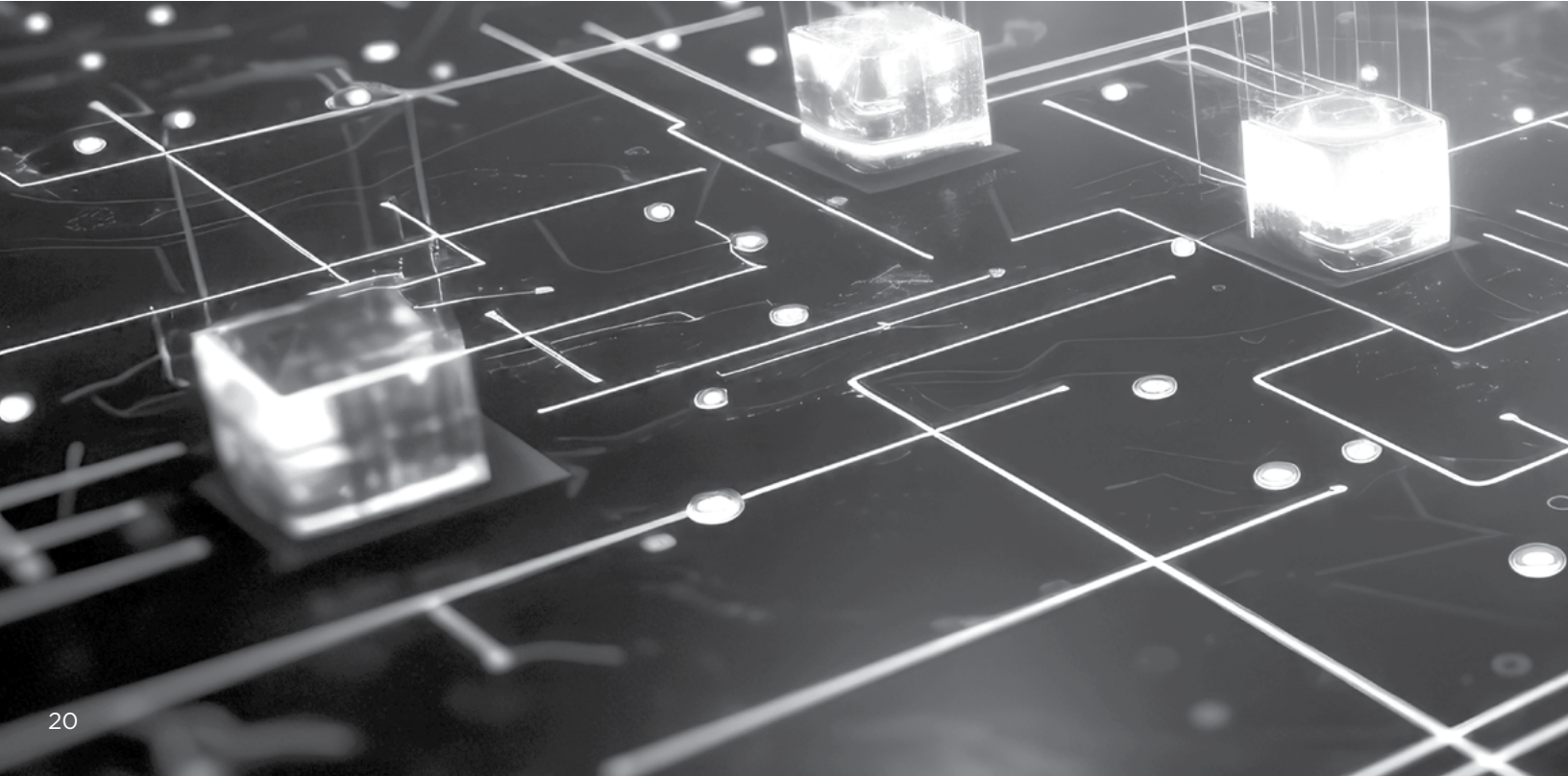
The data shows that embedded legacy systems (21%) are the greatest challenge in the smallest organizations (under \$10 million). This may refer to the prevalence of homegrown, and therefore custom, systems that often require a lot of work to maintain. The majority are most likely using spreadsheets with customized macros and algorithms that have been developed over time to meet the changing needs of a growing business.

Cost (44%) and executive buy-in (34%) are the greatest challenges of modernization at mid-size companies.

Challenges of modernization by company size (revenue \$25M-\$500M)

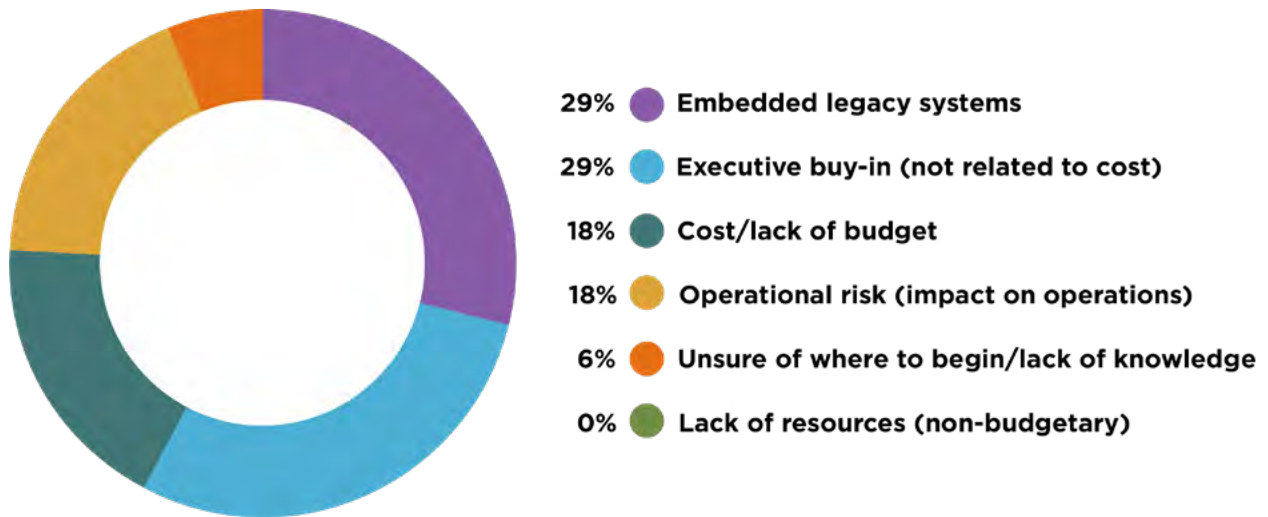


Mid-sized companies follow the overall trend with cost (44% of responses for companies \$25M-\$500M) and executive buy-in (34%) representing the biggest challenges. Companies in this revenue range may be experiencing relatively rapid growth or positioning themselves for rapid growth to meet market demand, and their executives may be more focused on revenue growth. System upgrades are not a top budget priority and current risk management may be seen as “good enough.” This pattern of carefree growth is often seen in new commodities and small trading firms until financial risk or regulations catch up.

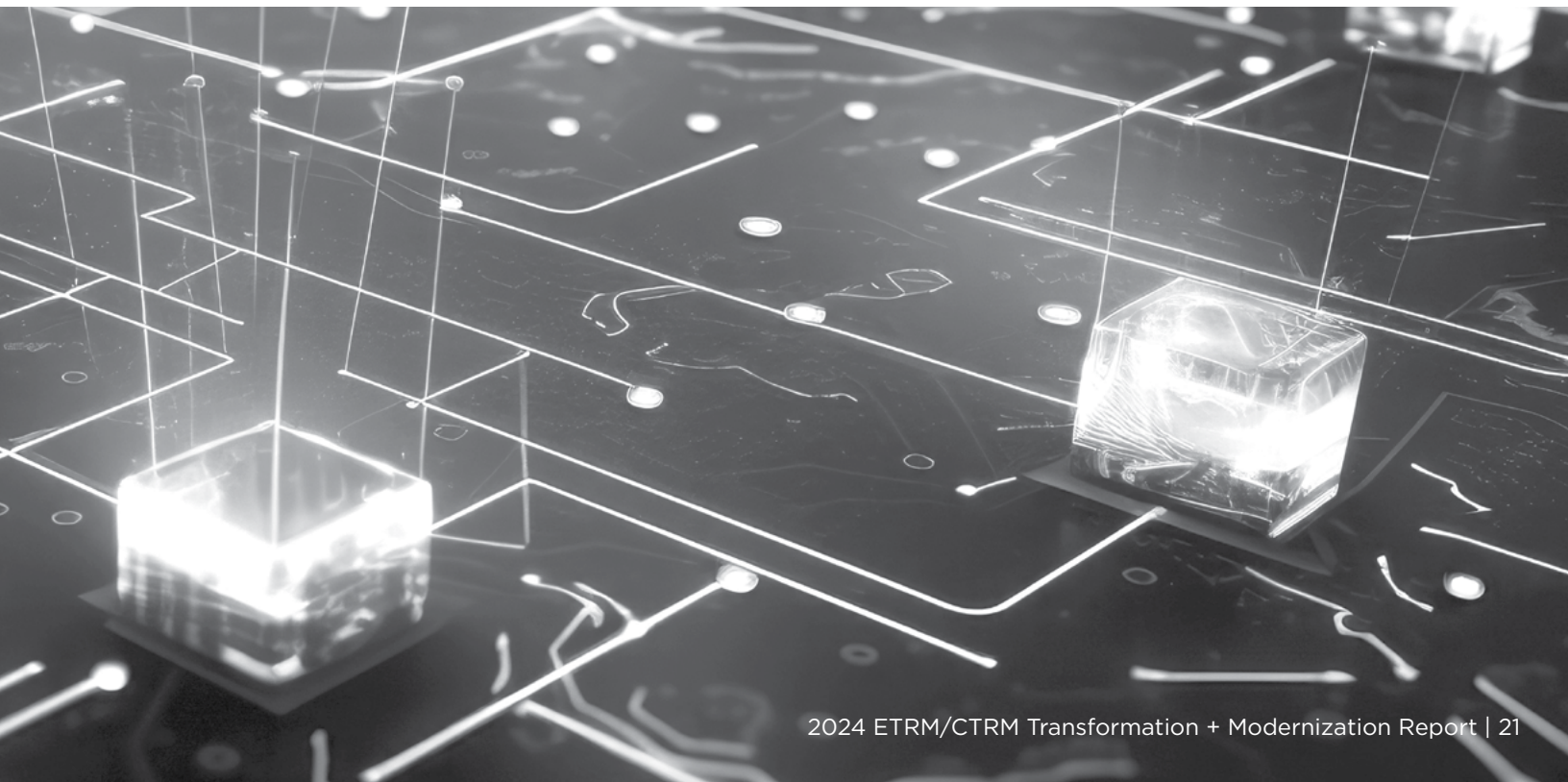


Embedded legacy systems (29%) prove a big burden for large companies.

Challenges of modernization by company size (revenue >\$500M)



In the largest companies, embedded legacy systems can be challenging because of inertia and the cost/disruption associated with updating or replacing them. These large organizations have robust trading teams already well-versed in current systems, and retraining staff seems like a burden, especially when the staff may also be resistant.



OPINION

MOLECULE ASKS

Given the trend towards modernization and the challenges preventing it, what do trading organizations need to do to get executive buy-in and budget and mitigate risks associated with change?



GEOFFREY CANN

Author of “Bits, Bytes, and Barrels,” and “Carbon, Capital, and The Cloud”



In the US market, the key to securing executive endorsement of a modernization drive is to clearly tie the outcomes of the modernization to prevailing executive performance metrics.

Once executives grasp how such an initiative can directly impact their departmental and personal performance targets in a positive way, and superior to other initiatives, they will endorse it.

The key executives most impacted by an ETRM deployment are the CFO, CIO and VP Supply and Trading. As these executives may not have common or shared metric targets, the more successful projects target improvements across a range of growth, revenue, cost, productivity, ROI, and risk areas.

Incidentally, cost reduction is rarely that appealing as the costs of an ETRM function are very small relative to other cost areas. Project sponsors should concentrate elsewhere for performance improvements.



SANDY FIELDEN

*Former Director of Research at Morningstar/
RBN Energy, “That Energy Guy”*



Ideal E/CTRM systems are highly flexible to accommodate rapid changes in corporate commodity, geographic and regulatory exposure. That flexibility allows for seamless modernization as firms expand needs. Cloud hosting reduces software upgrade delays and accommodates data growth. Standard interfaces connect legacy systems easily to reduce implementation disruption and costs. An “expand-as-you-go” architecture removes “big step” upgrade inertia and executive push back, by aligning systems and budgets directly with the business profile.



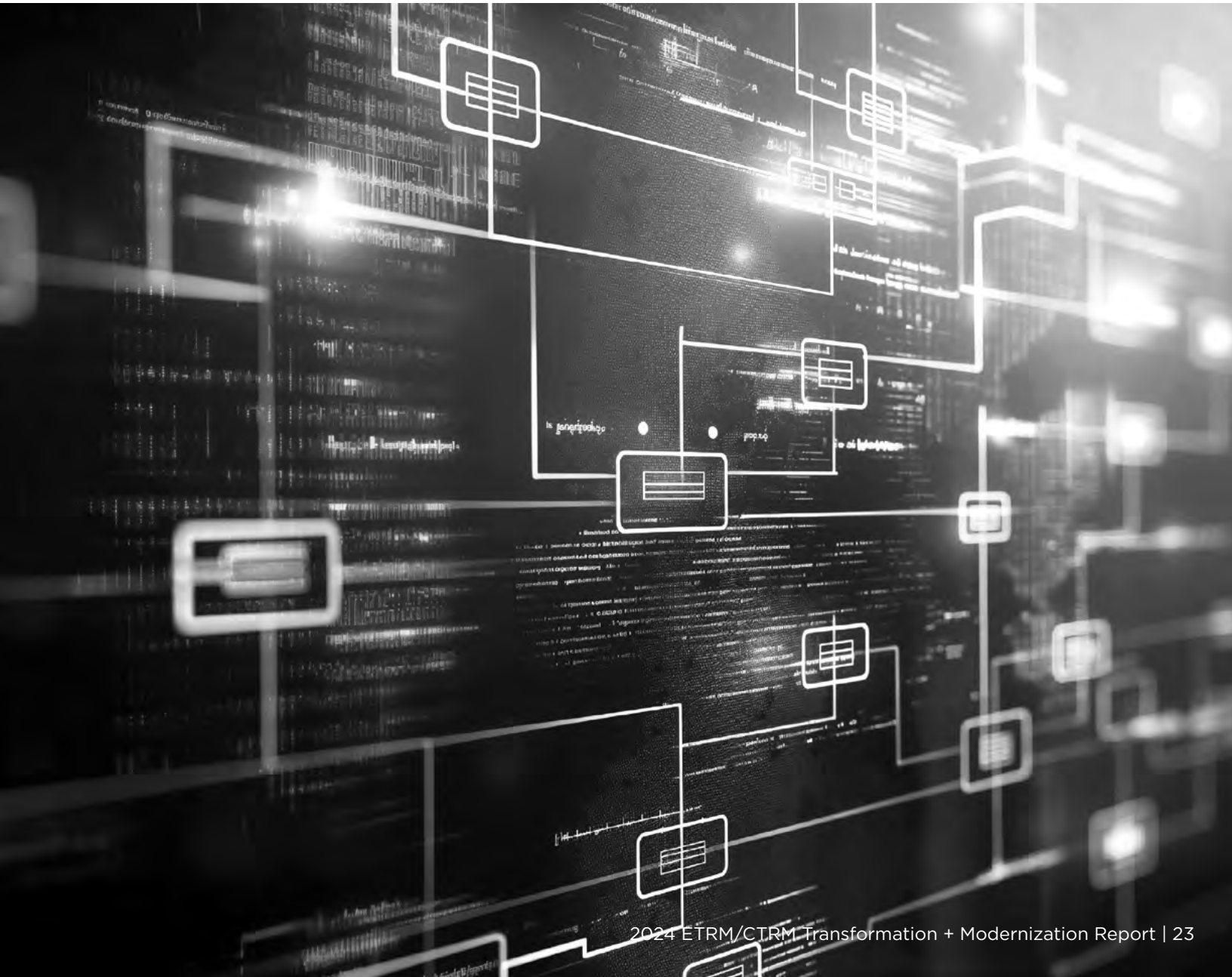
STEVE HARWITZ

Head of Financial Risk Management and Fuel Credit, Delta Air Lines, Inc., and Monroe Energy, LLC



When we think about “getting to yes” when asking for executive buy-in, I believe we’ve gone beyond simply asking about cost. Sure, ultimately a CFO or Treasurer might look at the bottom line, but increasingly people I’ve talked to are concerned about process time, integration and maximizing the value of that spent dollar.

Some of the larger systems still pose integration risk, consulting fees well beyond the sticker price of the ETRM, and a steep learning curve that minimizes initial impact when you have a select few who “know how it works” as opposed to something more streamlined that can be accessed, learned without a steep curve, and create a multitude of SMEs rather than condense the knowledge to a select few.

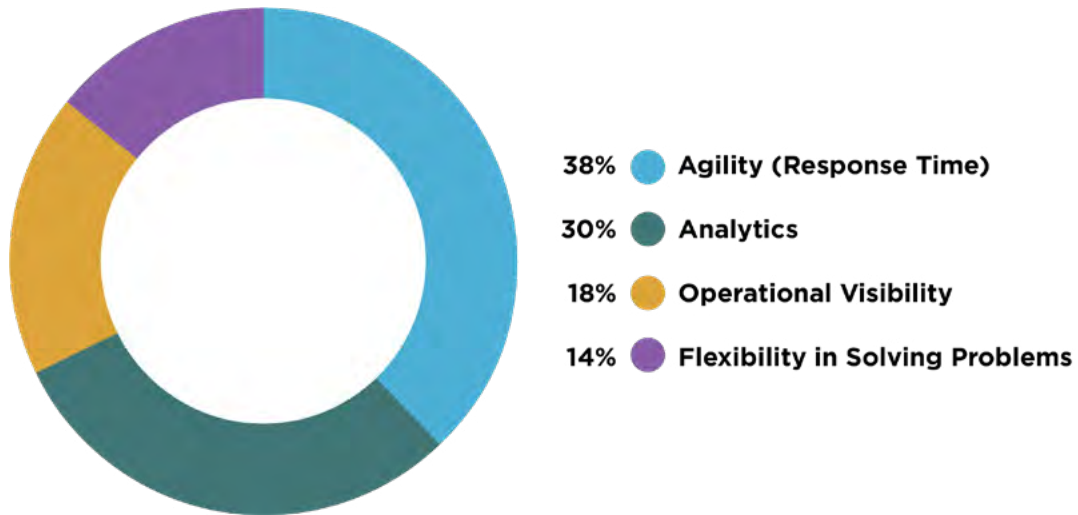


ETRM/CTRM GOALS + PRIORITIES

ETRM/CTRM GOALS + PRIORITIES.

Trading organizations are motivated to modernize their risk operations... driven by the need to do more, faster.

What are your risk management priorities that you do not see changing in the next 5 years?



Agility and analytics made up almost 70% of the total responses in unchanging risk management priorities. Unsurprisingly, these priorities are driven by the same need: the ability to move faster.

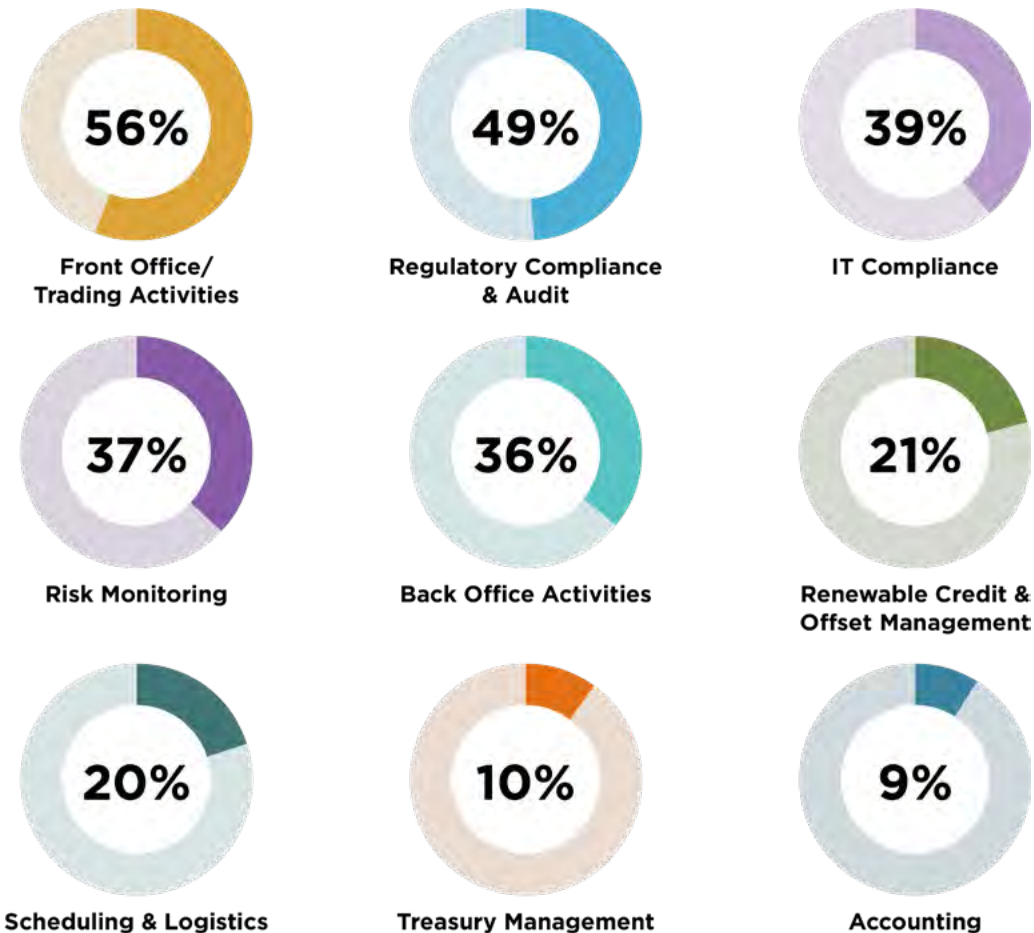
Traditional ETRM/CTRM systems usually take time — often overnight — to generate risk reports, such as position and exposure. This timeline is changing because data is accessible almost immediately and analytics can be run in minutes or seconds.

At the same time, the commodity market is trending towards algorithmic or automated trading, which further increases the speed of trading, requiring even more agile systems. When trades are automated, all transactions are happening in seconds, and reporting needs to keep up. If not, every position, exposure, or risk report will always be outdated.

Additionally, technology advances like AI, combined with access to real-time data, require the ability to analyze trade information and create reports quickly.

While ETRM/CTRM systems help companies achieve their risk monitoring goals, they also support goals related to the energy transition.

What goals does your ETRM/CTRM system help you achieve at your company?



While risk monitoring would be considered the obvious goal trading organizations aim to achieve with an ETRM/CTRM, every company has its own unique business needs that they expect their system to support.

Interestingly, the most important goal the respondents need to achieve with an ETRM/CTRM system is front office/trading activities, followed by regulatory compliance & audit, IT compliance, risk monitoring, and back-office activities.

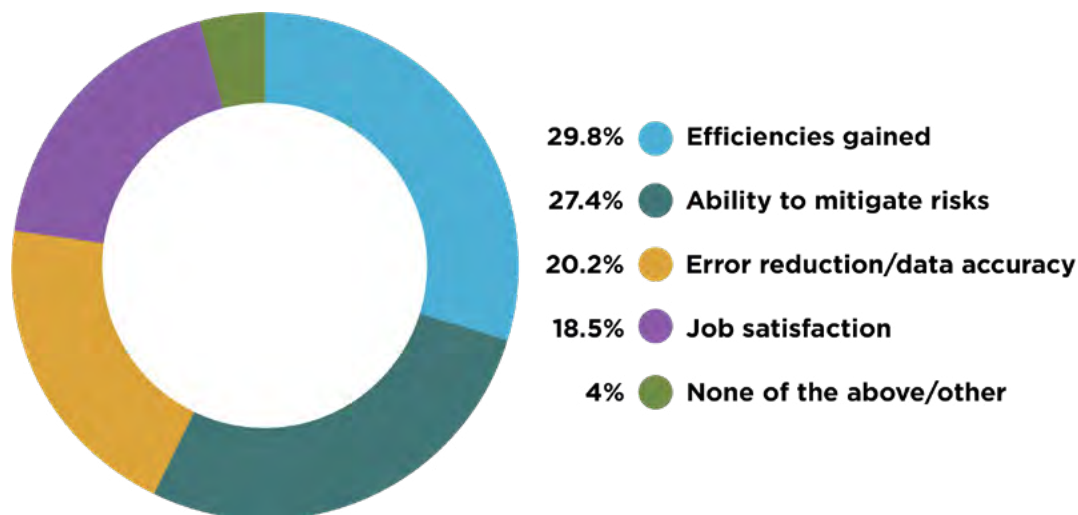
Renewable credit and offset management and scheduling and logistics are also growing needs for the ETRM/CTRM to support.

While these responses are logical — an organization would not purchase a trading and risk management system that does not manage trading and risk — they also highlight some of the difficulty in selling the investment in a new system to executives. While improving these activities increases efficiency and reduces risk for the organization, they are not activities that will drive direct revenue growth. However, as the survey responses will show, the return on investment (ROI) of an ETRM/CTRM system is measured by much more than just direct revenue impact.

MEASURING THE VALUE OF ETRM/CTRM SYSTEMS

Efficiency, risk mitigation, and data accuracy deliver the most ROI.

How do you measure return on investment for your ETRM/CTRM system?



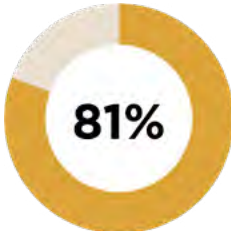
Efficiencies gained are the top measure of ROI (29.8%), slightly ahead of the ability to mitigate risk (27.4%). This again underscores the increasing importance of agility to ETRM/CTRM users.

Having a single system of record, instead of spreadsheets or a myriad of systems tied together with interfaces, enables real-time access to data and reporting — instead of relying on people to spend hours, or even days, collecting, inputting, and double-checking data to ensure trade information is complete and accurate. The risk management team has instant access to position reports, exposure, and an accurate view of current risk, enabling better trade decisions and the ability to expand trading and transactions at minimal incremental cost.

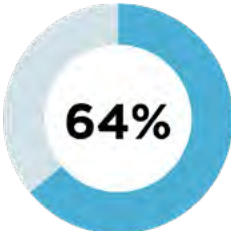
Error reduction could drive ROI faster than any other benefit if the existing commodity management process is very error-prone. There are stories of [spreadsheet errors](#) costing organizations billions of dollars, for example. Not having a single system of record requires carefully checking VaR calculations, exposure, and position reports to ensure the numbers are correct. If those numbers do not match, resources must be spent figuring out which numbers are the right ones — which is inefficient and expensive.

Reducing company risk and increasing productivity/efficiency are the biggest self-reported benefits of an ETRM/CTRM.

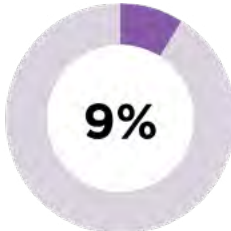
Thinking of your current ETRM/CTRM system, what are the benefits you've experienced from it?



Reduction of Company Risk



Increase in Productivity/Efficiency



Additional Revenue

Interestingly, this almost mirrors the top ROI measures, with efficiencies topping the list at 31% and the ability to mitigate risk close behind at 29%.

Combining these two findings shows that an ETRM/CTRM system can provide measurable ROI by lowering risk and increasing efficiency, perhaps feeding respondents optimism about investing in new ETRM/CTRM initiatives.



OPINION

MOLECULE ASKS

What are the biggest opportunities for ETRM/CTRM software to meet the risk management goals and priorities of today?



SANDY FIELDEN

Former Director of Research at Morningstar/RBN Energy, “That Energy Guy”



Aside from functionality to manage the trade life cycle, today’s E/CTRM systems need to store transaction and price data history quickly and make it available to analytic and/or AI functions that support algorithmic trading.



STEVE HARWITZ

Head of Financial Risk Management and Fuel Credit, Delta Air Lines, Inc., and Monroe Energy, LLC



Integration, Integration and of course, Integration. I think companies want an ETRM that is up to date with a click, and flexible enough for all types of stakeholders, not just the traders. The key being that all the pieces, whether they be trades, prices, risk metrics, etc., are all updated on the fly without the need for uploading information “by hand.”



HOW AN ETRM/CTRM SYSTEM SUPPORTS EVOLVING NEEDS.

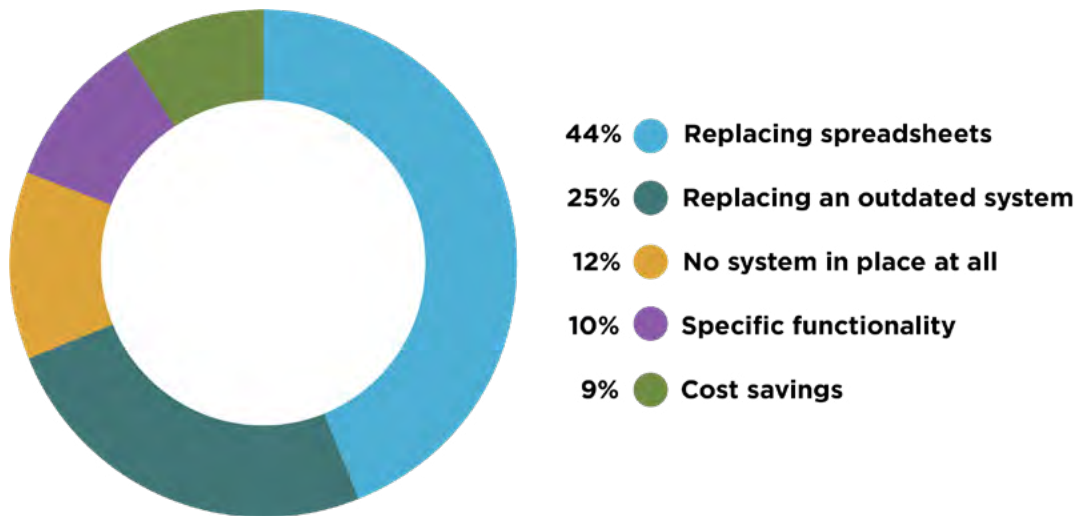
HOW AN ETRM/CTRM SYSTEM SUPPORTS EVOLVING NEEDS.

Respondents who currently use an ETRM/CTRM system were asked to evaluate it, focusing on these aspects:

1. Reasons for transitioning to their current system
2. Challenges associated with their current system
3. Importance of expected functionality within their current system
4. Functionality they would like to see

70% of respondents transitioned to an ETRM/CTRM system to replace spreadsheets or an outdated system.

What was the main need that drove the decision to use an ETRM/CTRM system?



However, 80% of respondents feel their current system doesn't support all necessary business processes or is too slow.

Thinking of your current ETRM/CTRM system, have you experienced any challenges with it?



This indicates that the ETRM/CTRM system they purchased previously can no longer keep up with their evolving trading needs. This continues the theme that changing markets and business processes require more scalable, automated systems that can adapt quickly.

This response was consistent across all company types, but there was a strong bias among consumer companies (45% of responses).

Traders and advisory firms were more likely to find existing systems difficult to use (27% of respondents). Traders are the people most likely to use the system every day and encounter challenges when entering new markets or processes. Additionally, 57% of traders reported their current system is too slow.

A large percentage (35%) of renewable generators/developers also indicated that their system does not handle everything they trade. This demonstrates the growing need for ETRMs/CTRMs to adapt to changing markets/commodities.

62% of respondents stated the ability to manage trade lifecycles was deemed the most important function they expect from their ETRM/CTRM.

Thinking of what you expect from an ETRM/CTRM system, please rate the importance of the functions for your company.

Most important

1. Trade lifecycle management
2. Ability to handle a variety of trade types
3. Invoicing
4. Integrations with a variety of exchanges
5. Ability to handle a variety of instruments

Least important

1. Trade execution
2. General ledger and accounting functions
3. Scheduling (nominating movements)
4. Automated deal capture
5. What-if scenario analysis



Automation is the name of the game when it comes to the desired functionality of an ETRM/CTRM.

Thinking of your current ETRM/CTRM system, what kinds of functionality would you like to see that isn't available to you now?

Hedging
Inventory management, accurate price risk
Time management
Scalability and modular
Regulatory reporting
Transaction and deal capture
Regulatory reporting
Settlement and clearing
I'd value enhanced automation features and improved integration capabilities in my current E/CTRM system.
More speed
Speed
Able to detect errors
Adjust simulation parameters like volatilities and confidence levels
Risk
Web interface as opposed to hosted.
Improved real-time analytics, enhanced integration with emerging technologies like blockchain for secure transactions, and more advanced predictive modeling capabilities. Additionally, user-friendly interfaces, seamless interoperability with other enterprise systems, and increased automation to streamline processes would be beneficial. Continuous adaptation to regulatory changes and enhanced cybersecurity features are also crucial for these systems.
Automation
PPA's, Inventory management, new instrument types
Better deal entry, mass update, contract deals, shipping logs, automation
Easier trade entry, mass update, editable shipping logs, complex P&L, hedging CX an FX
What-if scenarios
Confirm Management, Invoicing and Analytics
Improved on the fly reporting capability

The underlying theme remains efficiency. People want faster, easier data entry and reporting. They want “on the fly reporting” and “real-time analytics” as well as easy-to-use web interfaces and accurate price risk. These features require automated systems with one accurate system of record to ensure speed and reliability.

While not listed here, there are also growing use cases for AI within the trading organization and greater opportunities for the integration of AI functionality in ETRM/CTRM systems. There are challenges with this, such as the security of proprietary trade data; however, there's evidence that the commodities and energy industries are beginning to see the benefits of AI for increasing efficiency and providing rapid analyses.

OPINION

MOLECULE ASKS

What does the future look like for the ETRM/CTRM space and how should systems should evolve?



GEOFFREY CANN

Author of “Bits, Bytes, and Barrels,” and “Carbon, Capital, and The Cloud”



Consistent with changes across the energy and financial technology landscape, trading and risk systems will feature dramatically higher levels of automation in the future.

Data will be far more reliant on machine generation than on scarce, expensive, and error-prone human fingers.

High-quality trading data then enables the use of algorithms, machine learning, and AI-enabled technologies to accelerate trading practices, in turn allowing business to capture opportunities and margin.

Expect to see much greater emphasis on cyber security, transparency, and auditability as a condition of play.



SANDY FIELDEN

Former Director of Research at Morningstar/ RBN Energy, “That Energy Guy”



Transaction systems should evolve from being single system of record “silos” that maintain company trade data inside the corporate firewall (including cloud implementations). The evolution will take advantage of blockchain architecture to allow corporate databases to interact with uniquely identified external transaction records. This puts each party to the transaction on the same page, reduces reconciliation and deal confirmation time and improves accuracy, cost and inventory control.

Risk management systems will provide increased pre-deal analytic capability including access to rich transaction and pricing histories. This data is the raw material for generating algorithmic trading strategies (using AI).

Better pre-deal analysis of options and other derivative strategies will flow through the transaction and risk systems to better manage exposure and adjust trading strategies to respond to changing market conditions.



JEFF DAVIES

Founder, EnerWrap



AI is a new and exciting technology for all companies in all industries. Although in its infancy, the writing appears to be on the wall that it will change the way we all learn, work and plan going forward. Challenges exist, but the opportunity for process improvement is material. Early adopters are likely to emerge as winners in their respective industries.



MARK BOSSE

VP of Business Development and Marketing, cQuant.io



Moving forward, ETRM solutions will need to be ever more scalable and extensible as renewable energy and battery storage continue to drive complexity in both generation mix and the contractual structures to which modern energy portfolios are exposed. SaaS-based solutions that leverage cloud infrastructure will have a competitive advantage, ensuring software delivery is high performance, modular, and flexible enough to keep pace with the Energy Transition.

A deeper analytical view into the uncertainty within energy generation, portfolio dynamics, and today's rapidly evolving energy markets is critical for business success. Stochastic simulation is one valuable approach to gain this insight, enabling holistic analysis for entire portfolios of physical and financial assets and contracts while also supporting portfolio optimization that maximizes value while minimizing risk.

The ability to succeed in the Energy Transition requires the ability to explicitly expose opportunity and risk, highlighting the need for purpose-built solutions that can scale and adapt to ever-changing requirements.

A low-angle, upward-looking photograph of several modern skyscrapers. The buildings are dark with a grid-like window pattern. The sky is a mix of light blue and grey. A strong red-to-cyan color gradient is applied across the entire image, with red being more prominent at the bottom and cyan at the top. The word "CONCLUSION." is written in large, white, bold, sans-serif capital letters across the middle of the image.

CONCLUSION.

CONCLUSION.

The evolving market — and the behaviors and policies changing along with it — are prompting trading organizations to modernize their operations.

Company priorities are expected to stay the same, with agility and analytics as a top focus in the upcoming years. However, supply chain instability, the increasing speed of tech (including the AI boom), and the global energy transition (among plenty of other factors) send a clear message about how to navigate a dynamic market: speed up to keep up.

If anything, companies are strongly motivated to modernize not only for a competitive edge, but also to achieve goals that they may find challenging with their current system — such as handling new instruments or large amounts of data. The rise of highly automated, cloud-native, multi-tenant software solutions is a testament to that.

As our report shows, expectations of what a modern ETRM/CTRM should be are evolving — highlighting a greater opportunity to meet organizations' changing needs and goals while remaining true to their core purpose.

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