

FORRESTER®

Digital Modernization Fuels Downstream Oil And Gas

Downstream Success Flows From Better
Operational Intelligence And Timely Data

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Executive Summary

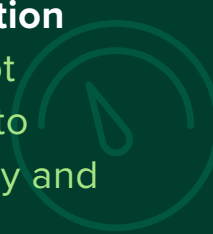
The downstream energy industry is a complex ecosystem that requires wholesaler, supplier, terminal, and carrier partners to seamlessly collaborate and securely communicate with each other to maximize efficiencies and profitability. With each partner using different people, processes, and technologies, inaccurate data can domino delays throughout the entire supply chain.

To minimize human error, expensive delays, and poor customer and employee experiences, all parties in the supply chain need to play their part in digitally modernizing their business and evolving their processes for a more productive and profitable future.

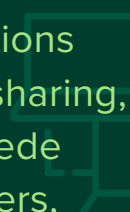
In October 2021, DTN commissioned Forrester Consulting to understand the current state of digital modernization adoption at downstream oil and gas companies. To do so, Forrester Consulting surveyed 308 global technology strategy decision-makers of energy carriers, suppliers, terminals, and wholesalers. We found that while decision-makers recognize the importance of digital modernization and operational intelligence for themselves and their supply chain partners, they struggle to address various data-related impediments and, in some cases, begin their digital modernization journeys.

Key Findings

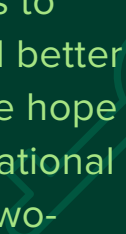
Digital modernization is a top priority, but industry adoption is slow. More than two-thirds of respondents recognize not only digital modernization's importance but also its ability to advance business goals (e.g., greater operational efficiency and profitability); yet 43% have yet to begin their journeys.



Inability to harness operational data hinders digital modernization and supply chain collaboration. Organizations wrestle with various data-related challenges like external sharing, compliance and security, and quality. Data challenges impede collaboration and problem solving with supply chain partners, which affects business growth.



Better operational intelligence unlocks benefits. Improved operational intelligence can provide real-time data insights to drive better decisions and results. Firms have experienced better analytics, insights, and operational effectiveness, and more hope for better supply chain communication/collaboration, operational efficiencies, data intelligence, and financial gains. Nearly two-thirds agree that their operational intelligence capabilities must improve to reap these benefits.



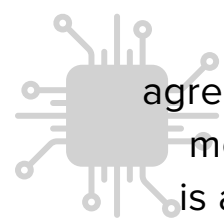
Decision-makers want fully featured cloud-based operational intelligence solutions and more investment. More than 40% of respondents want their organizations to invest more in digital modernization. Existing technology stacks are lacking. More than a third don't have operational intelligence solutions, and more than half with solutions have at least three implemented, indicating a digital modernization gap. Virtually all believe that their current operational intelligence stack lacks key features.



Digital Modernization Is A Top Priority, But Progress Lags

As the saying goes, “Time is money.”

Organizations that deliver in speed, security, and accuracy internally and externally will not only reduce risks and minimize losses but also generate financial gains. Boosts in customer and employee satisfaction will also accelerate productivity and revenue growth. In light of expanding partner networks, increasing customer experience demands, COVID-19, weather events, and international relations issues, downstream energy firms must evolve legacy processes and technologies to stay competitive. Digital modernization is the process by which businesses implement critical digital investments to evolve their existing business model, which is crucial to support operational agility, efficiency, and profitability. Our study of 308 global technology strategy decision-makers at downstream oil and gas firms found that:

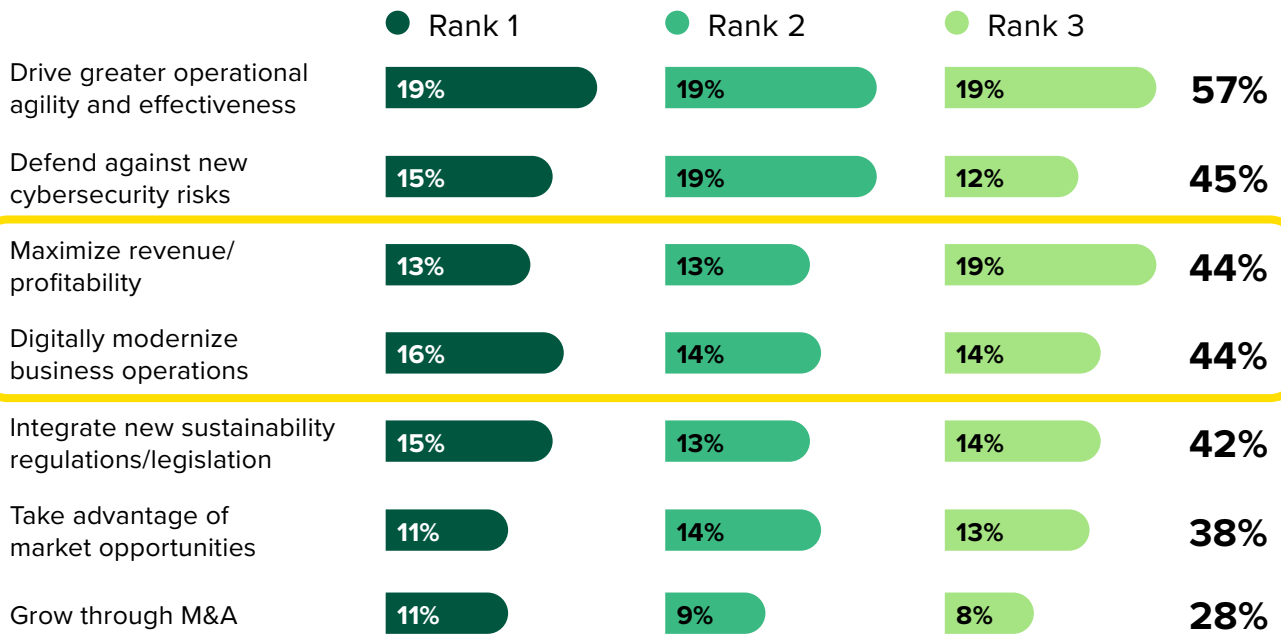


72% agree that digital modernization is a top priority for their business.

- **Digital modernization is a top business goal that rivals revenue growth in importance.** Seventy-two percent of respondents agree that digital modernization is a top priority for their business. When ranked against other top business goals, digital modernization is third in importance only to: 1) greater operational agility and effectiveness, which ranks first, and 2) the defense against new cybersecurity risks, which ranks second. It ties for third with maximizing revenue and profitability (see Figure 1). Top business goals highlight firms’ desire to be more agile, efficient, resilient, and profitable. Digital modernization in turn supports those business goals.
- **Digital modernization initiatives echo top business priorities.** Top digital modernization efforts include improving operational efficiencies, customer experience, business continuity, internal and external data sharing, and employee experience (see Figure 2). Efforts to minimize cyber and physical risks, disruptions, and delays and to improve communication and experiences with partners and teams will boost operational and financial gains. In fact, 76% agree that digitalizing offline processes is crucial to driving operational efficiency.

Figure 1

“What are your organization’s top business priorities?”



Base: 308 global technology strategy decision-makers at downstream oil and gas companies

Source: A commissioned study conducted by Forrester Consulting on behalf of DTN, October 2021

- **Failing to digitally modernize would be a disservice to the business.**

Digital modernization is not just a competitive advantage; it is critical to business survival. Two-thirds of decision-makers agree that failing to invest in digital modernization is a “significant risk” to the future of their company. Sixty-six percent also agree that operational inefficiencies from manual offline tasks and processes cost them valuable profit margin.

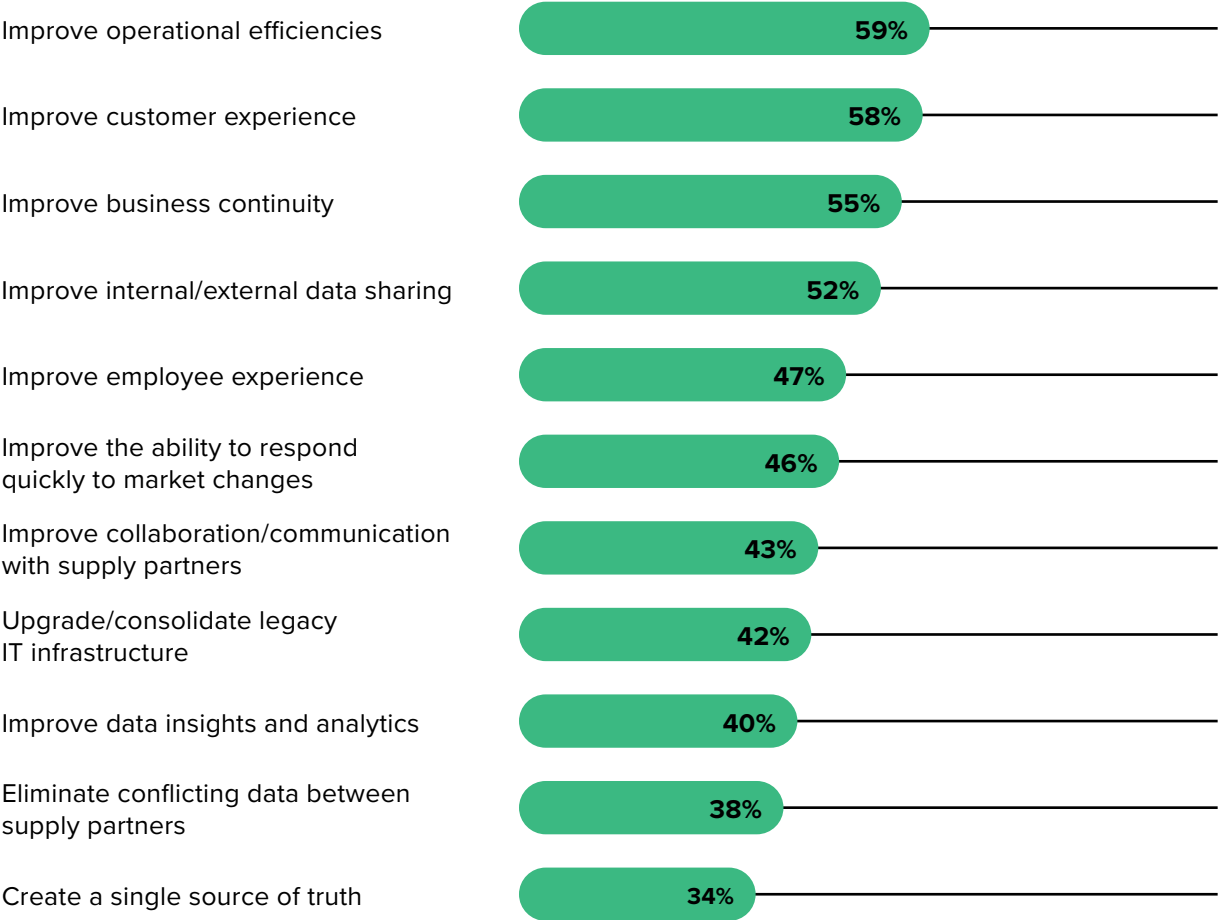
- **Many have yet to start their digital modernization journeys.** Despite widespread acknowledgment of digital modernization’s importance, 43% of surveyed respondents have yet to begin their digital modernization initiatives. Most respondents (53%) agree that their industry has been slow to digitally modernize. Late starters will find themselves two or more years behind early movers, a marked but not insurmountable competitive disadvantage.

43%

have yet to begin their digital modernization initiatives. Late starters will be two or more years behind, a marked but not insurmountable competitive disadvantage.

Figure 2

“Which of the following initiatives are included or do you expect to be included in your digital modernization efforts to help your organization achieve its top business priorities?”



Base: 308 global technology strategy decision-makers at downstream oil and gas companies
Source: A commissioned study conducted by Forrester Consulting on behalf of DTN, October 2021

Inability To Leverage Operational Data Stymies Digital Modernization And Supply Chains

The downstream oil and gas sector has groups of people juggling and passing along large volumes of highly sensitive information across various types of software. Business success relies on seamless collaboration and communication across the supply chain, but incorrect manually entered data or missed notifications to partners can cause disruptions and delays across the ecosystem. One bug or cyberattack can cause breakdowns to ripple throughout systems of applications. Organizations need to address cybersecurity, data, and supply chain collaboration challenges to ensure digital modernization and business success.

CYBERSECURITY IS THE FOUNDATION OF SUCCESS

It's no surprise: Defending against new cybersecurity risks ranks second in organizations' top business priorities, and cybersecurity concerns are at the top of digital modernization challenges (see Figure 3). As businesses become more digital, companies face new and more security risks and a growing threat landscape. Decision-makers want to protect their business and be resilient to any threats or disruptions. Additionally, 2021 introduced a new security directive for the oil and gas industry, heralding regulations to come and a need for businesses to prepare to address any cybersecurity vulnerabilities, lest they face not only financial losses due to cyberattacks but also financial penalties from the government. Firms that embark on digital modernization should strategize for cybersecurity along the way.

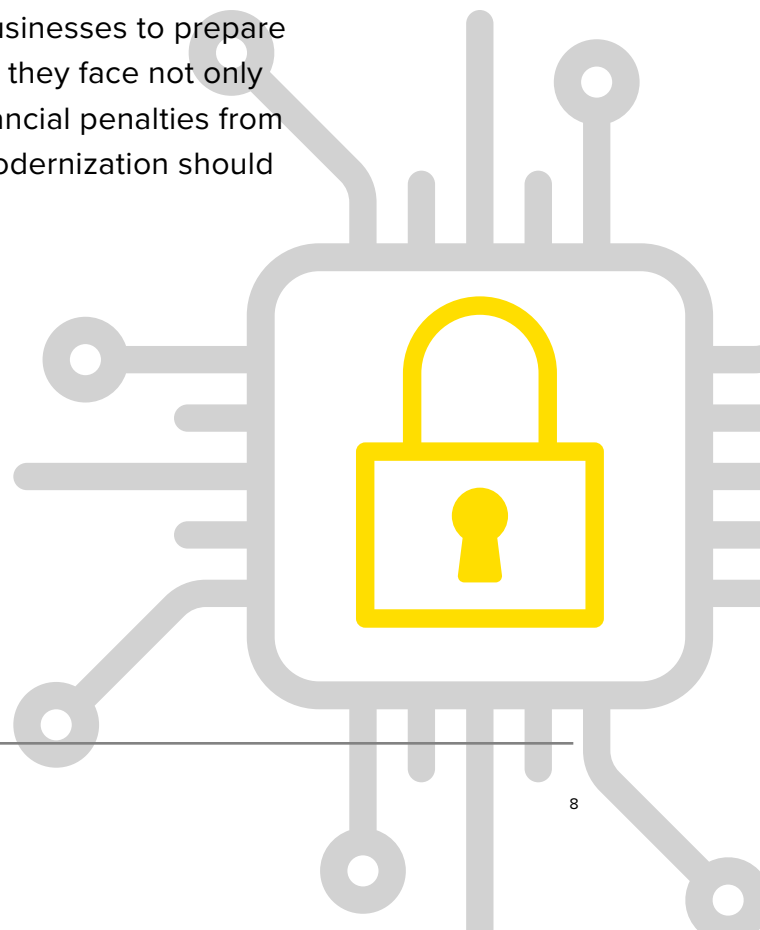
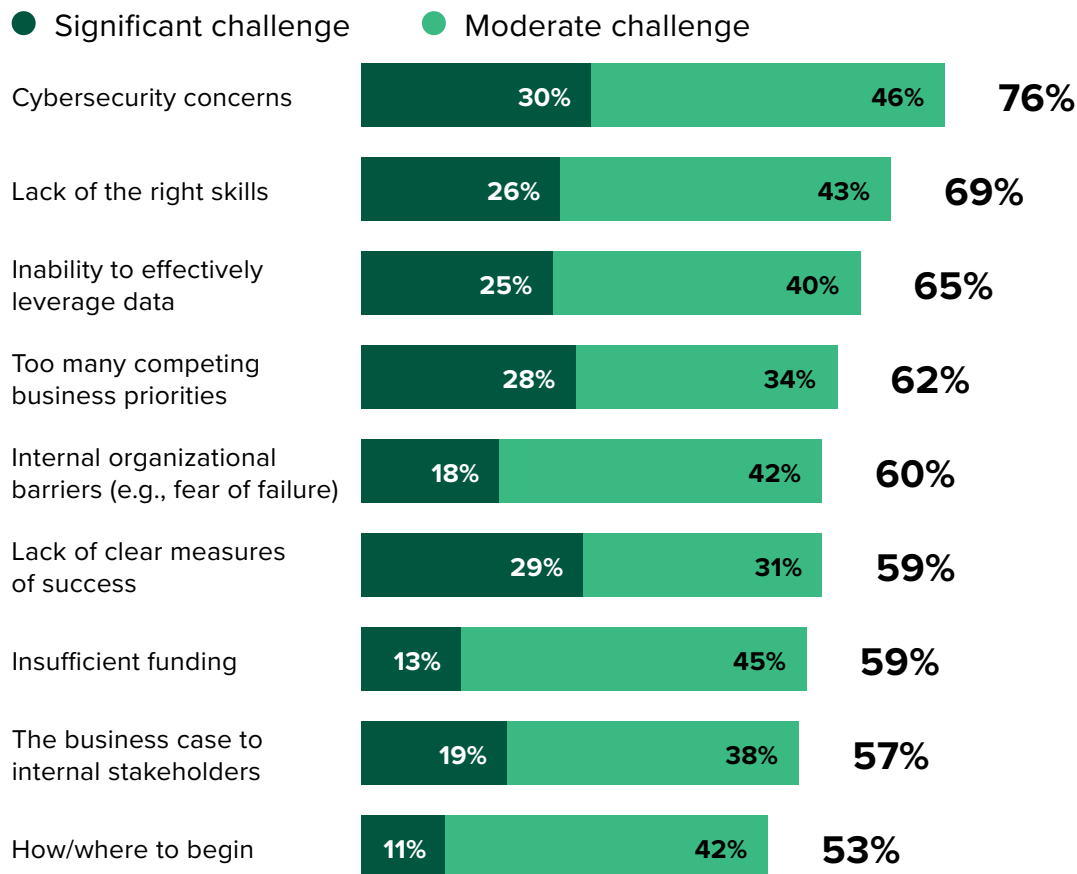


Figure 3

“To what extent are each of the following challenges when it comes to your digital modernization efforts?”



Base: 308 global technology strategy decision-makers at downstream oil and gas companies
Source: A commissioned study conducted by Forrester Consulting on behalf of DTN, October 2021

SHARING AND DISTRIBUTING DATA EXTERNALLY IS THE HARDEST DATA TASK OF THEM ALL

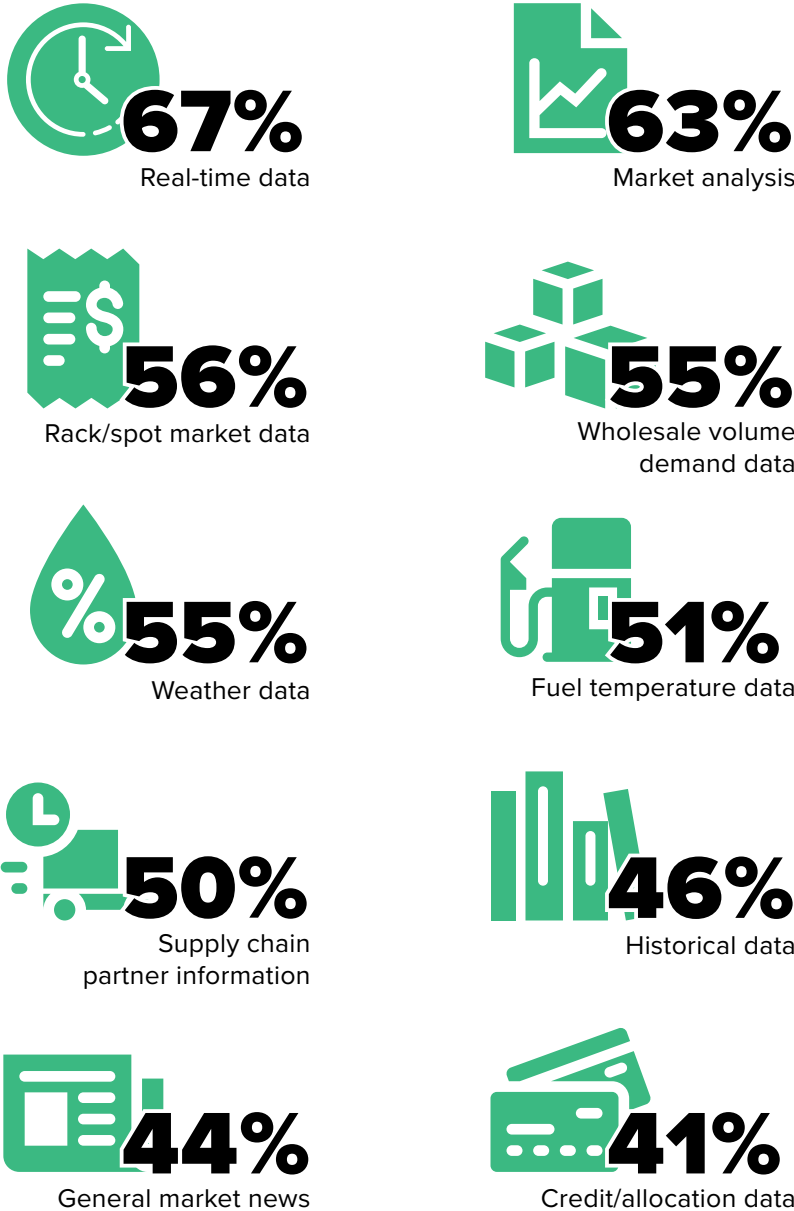
Secure, timely, and high-quality operational data is king, with real-time data and market analysis being especially valuable for better decision making (see Figure 4). However, sharing and distributing data with supply chain partners is the topmost challenge for 74% of decision-makers.

Sharing data externally is difficult. Firms need to maintain compliance and information security, which 64% find difficult. They also need to collect the right data, maintain data quality, and derive valuable insights to share with partners, and these tasks are difficult in their own right (see Figure 5).

Firms need to improve their data management so that employees can more confidently trust and use the analytics and insights to improve the business externally and internally. As Figure 3 shows, 65% of decision-makers consider the inability to effectively leverage data a challenge when regarding their organization’s digital modernization efforts.

Figure 4

“What data would help your organization make better decisions?”

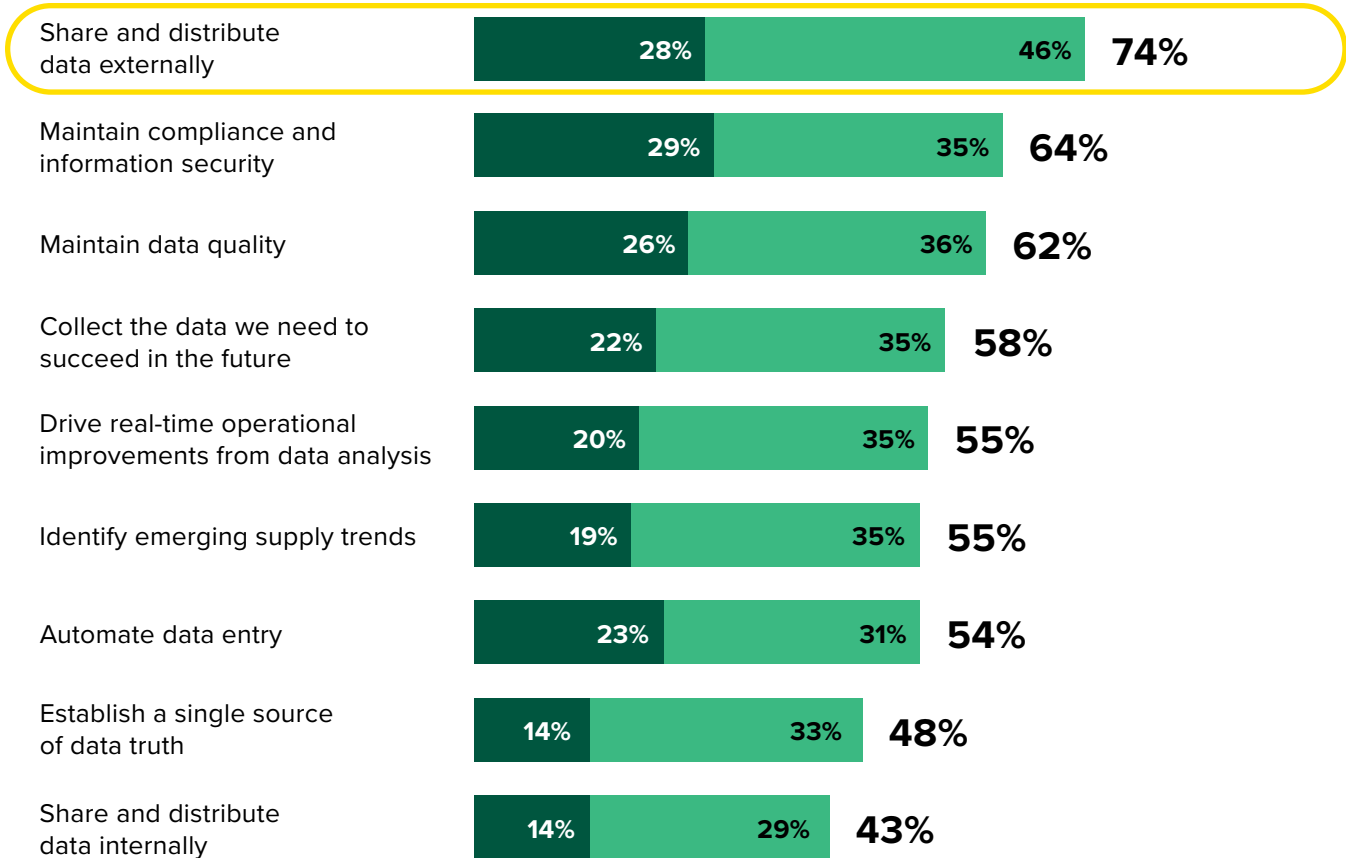


Base: 308 global technology strategy decision-makers at downstream oil and gas companies
Source: A commissioned study conducted by Forrester Consulting on behalf of DTN, October 2021

Figure 5

“How challenging is it for your organization to execute on each of the following?”

● Very challenging ● Challenging



Base: 308 global technology strategy decision-makers at downstream oil and gas companies

Source: A commissioned study conducted by Forrester Consulting on behalf of DTN, October 2021

DATA ACCURACY AND DISTRIBUTION ARE KEY TO SUPPLY CHAIN COLLABORATION SUCCESS

Accurate and real-time data and insights shared securely and appropriately will positively affect relationships along the entire supply chain, empowering all groups to do their jobs better.

- **Seamless communication means happy partners and a healthier bottom line.** Nearly three-fourths of decision-makers agree that more efficiently and securely communicating with supply chain partners is a priority for their business, with 77% agreeing that more effective collaboration is essential to revenue growth.

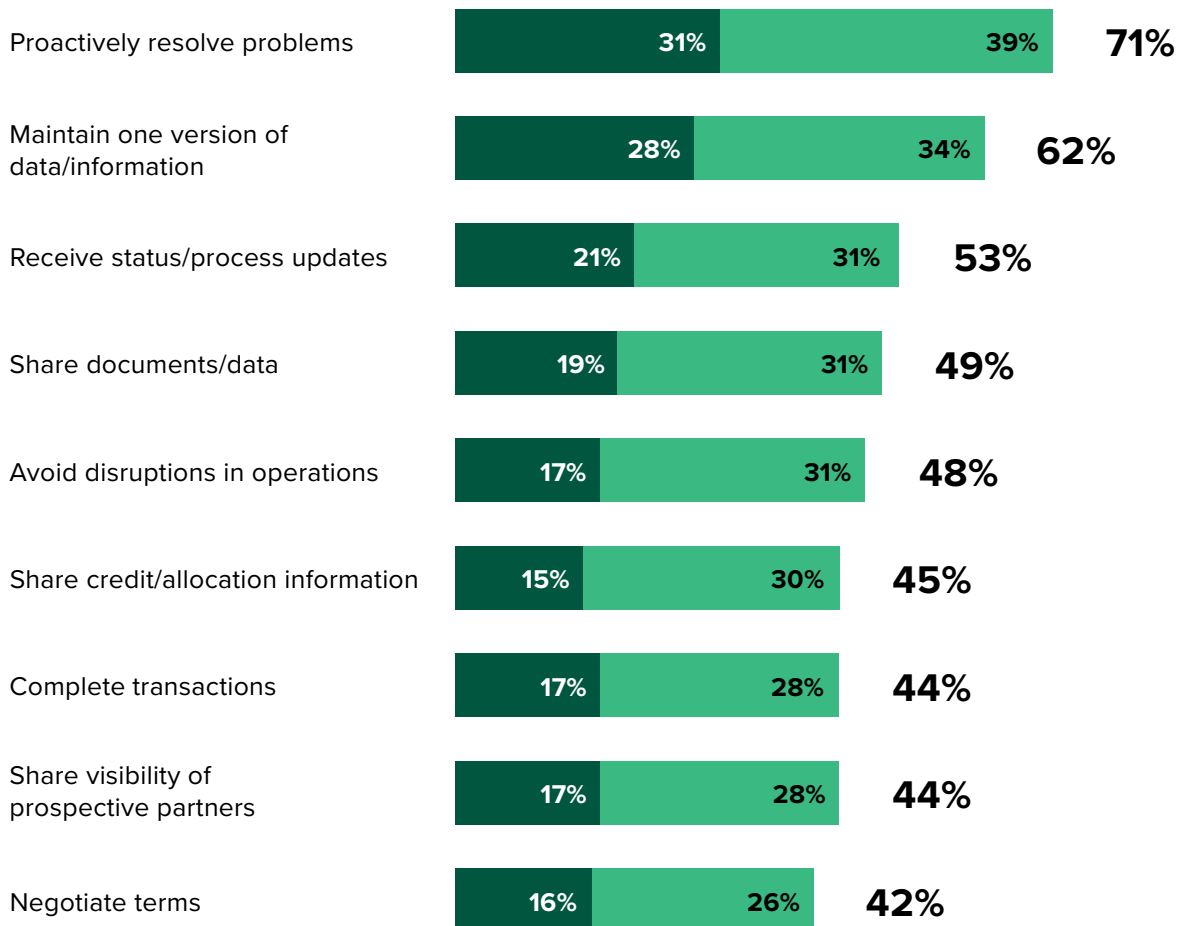
- **Firms want to minimize operations disruptions, but they struggle with proactively resolving problems and staying informed.**

Companies want to improve data accuracy, proactively resolve problems, and maintain business continuity with their supply chain partners the most, but these are the same areas of collaboration they find most difficult. If more than half of respondents struggle to maintain one version of data or receive status updates from partners, it's no surprise that more than 70% struggle to proactively resolve problems with partners (see Figure 6). Disruptions are a given.

Figure 6

“How easy is it to collaborate with your supply chain partners in the following ways?”

● Very difficult ● Difficult



Base: 308 global technology strategy decision-makers at downstream oil and gas companies

Source: A commissioned study conducted by Forrester Consulting on behalf of DTN, October 2021

- **Leveraging digital modernization to enhance data accuracy and distribution will improve supply chain collaboration exponentially.** To resolve issues, firms must leverage digital modernization to target common data obstacles and disruptions with supply chain partners, such as maintaining security and compliance, automating data entry and distribution, leveraging new software applications to maintain and create one source of truth, and identifying trends and insights to boost efficiency.
- **Downstream oil and gas supply chain partners must modernize together.** Modernization cannot happen in silos. Nearly half of respondents believe their supply chain partners have been slow to digitally modernize. Poor integrations between legacy processes and systems will result in breakdowns in the supply chain and individual financial loss. Digital modernization will require wider industry involvement to update as a whole.

Better Operational Intelligence Is The Key To Unlocking Benefits

Digital modernization will not be easy, but the results will be rewarding. Decision-makers don't have the tools and expertise they need but will look to solutions and providers with the robust capabilities needed to address current and future challenges. Our study found that:

- **Improving operational intelligence is critical to digital modernization success.** Operational intelligence helps companies improve their situational awareness and business decision-making through data delivered in near real time via data streams from connected systems and databases. Sixty-four percent of decision-makers agree that operational intelligence needs to improve to achieve their digital modernization business goals. Improved operational intelligence means better data analytics, alerts when there are issues, and informed and faster problem-solving. For downstream oil and gas firms, it would minimize miscommunication, wasted trips, and delays due to compliance issues, incorrect lifting numbers, differing product codes between partners, and more, saving significant time and money.
- **Firms are facing a tools and expertise gap.** Figure 3 shows that the second most popular digital modernization challenge is not having the right skills in place. Firms not only face a skills gap, but they also lack the right tools to assist them in their modernization. While 83% of decision-makers agree it would be valuable to have operational intelligence solutions that produce real-time data insights to achieve digital modernization priorities, more than a third of respondents don't have a solution today.

More than 80% of those who have an operational intelligence solution have at least three or more solutions. Nearly all respondents say their current operational intelligence stack is missing at least one important feature they care about, especially timely status updates, streamlined

83%

agree that it would be valuable to have operational intelligence solutions that produce real-time data insights to achieve digital modernization priorities.

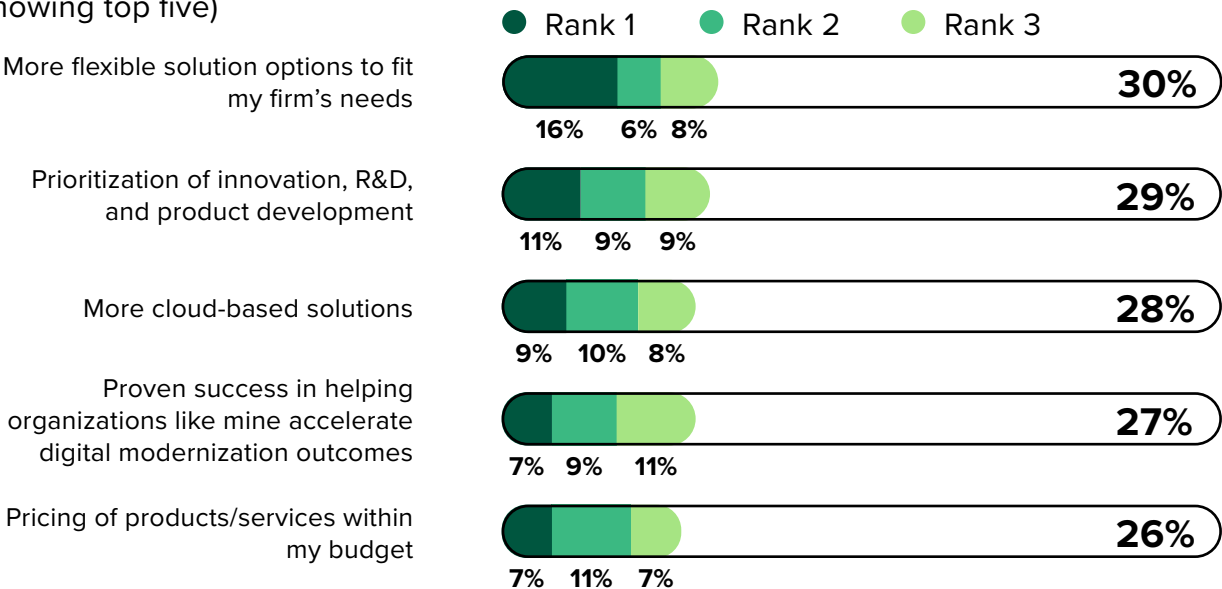
insights distribution, seamless integration with existing processes and solutions, and the flow of data into business intelligence systems to gauge performance. Decision-makers are looking to put data and insights into action, and they need the right solutions, analytics, and expertise to make improvements efficiently.

- Many firms seek more knowledge and investment.** While more than 40% report their digital modernization budgets will increase in the next year, 41% believe their organizations are not investing enough in this area. To encourage organizations to leverage operational intelligence solutions to achieve digital modernization goals, decision-makers want better knowledge of technology options, more leadership support and funding for digital modernization efforts, and knowledge of what tools competitors are using.
- Operational intelligence solution providers can help.** Respondents are looking for providers that have solutions that are flexible; prioritize innovation, research design, and product development; and are cloud-based (see Figure 7). Partnering with a provider means that

Figure 7

“Which of the following are most important to your organization when selecting an operational intelligence solution provider?”

(Showing top five)



Base: 308 global technology strategy decision-makers at downstream oil and gas companies
 Source: A commissioned study conducted by Forrester Consulting on behalf of DTN, October 2021

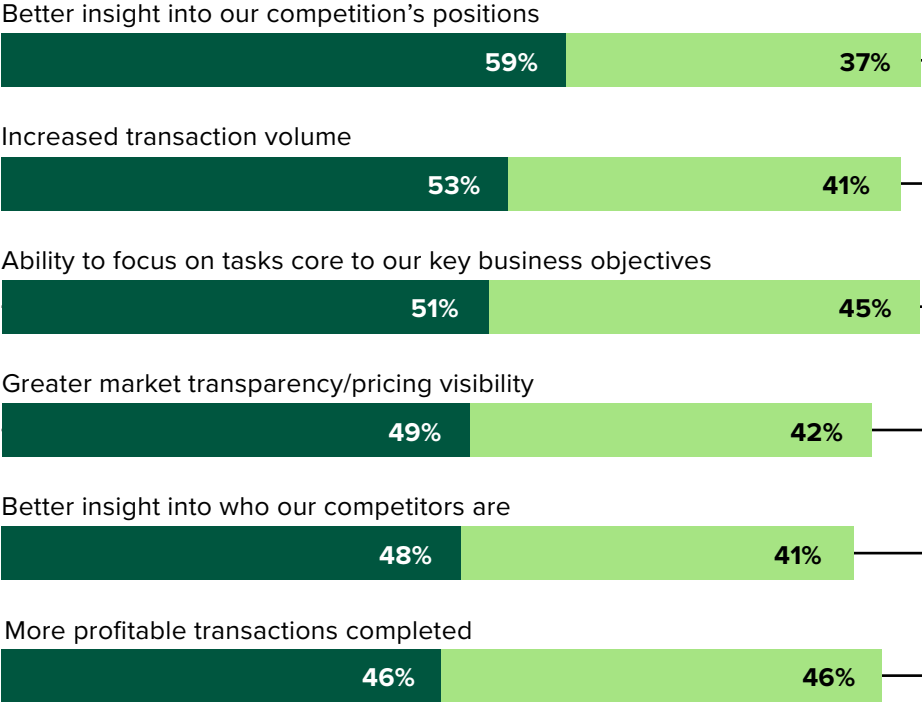
firms can tap into operational intelligence more easily, enabling greater profitability and productivity. Moving forward, decision-makers hope to uncover better insights into competitors' positions and greater transaction volume (see Figure 8). If providers can establish benchmarks for firms to compare and optimize their operations against, they can accelerate change above and beyond to stay competitive.

- **Companies expect continuous business benefits from improving operational intelligence.** Decision-makers in organizations with operational intelligence improvement efforts underway have experienced better analytics, insights, and operational effectiveness (see Figure 9). Having a better handle on data will improve partner

Figure 8

“What benefits have you experienced or would you expect to experience by partnering with an operational intelligence solution provider?”

- This is a benefit we **hope to** realize.
- This is a benefit we have **already** realized.



Base: 308 global technology strategy decision-makers at downstream oil and gas companies
 Source: A commissioned study conducted by Forrester Consulting on behalf of DTN, October 2021

communication, and it should help organizations improve business continuity and meet regulatory requirements by providing data and intelligence for remediation and accurate incident reporting.

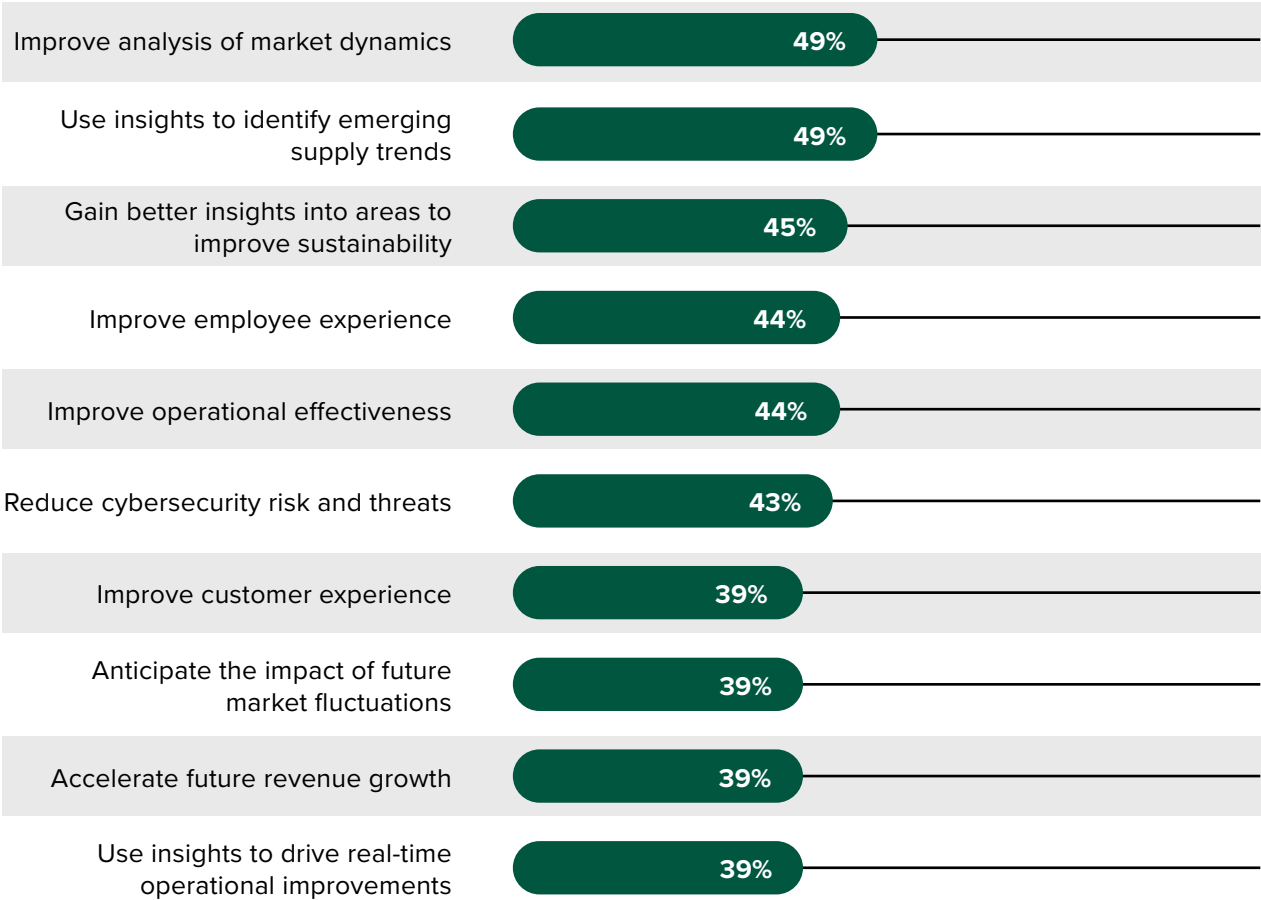
As systems mature, respondents hope to gain better supply chain communication/collaboration, operational efficiencies (e.g., reduced manual processes and data entry), better data intelligence, and financial gains (see Figure 10).

Figure 9

“What benefits have you experienced from improving operational intelligence in your digital modernization efforts?”

(Showing top 10)

● This is a benefit we have **already** realized.



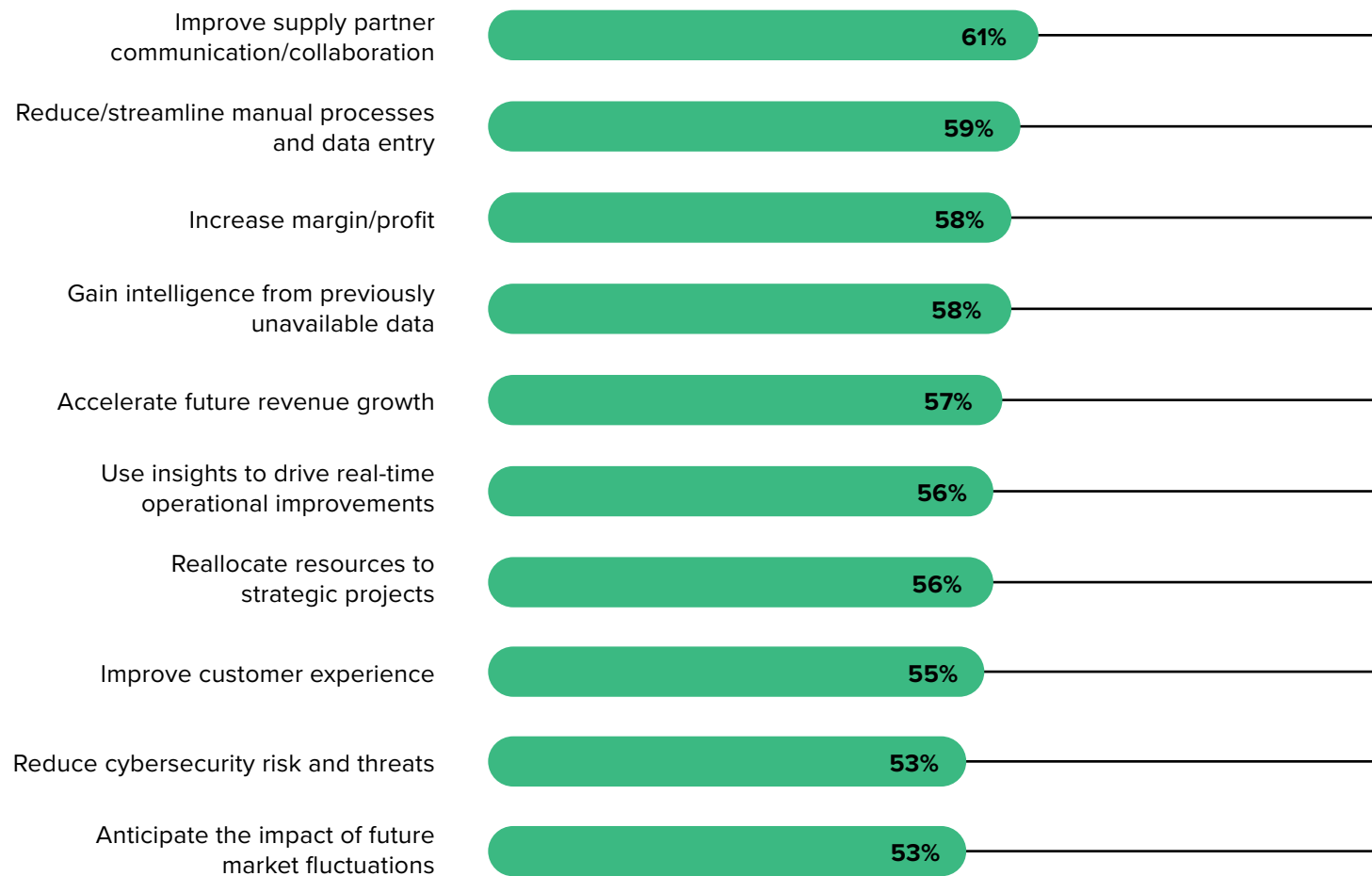
Base: 308 global technology strategy decision-makers at downstream oil and gas companies
Source: A commissioned study conducted by Forrester Consulting on behalf of DTN, October 2021

Figure 10

“What benefits do you expect from improving operational intelligence in your digital modernization efforts?”

(Showing top 10)

● This is a benefit we **hope to** realize.



Base: 308 global technology strategy decision-makers at downstream oil and gas companies

Source: A commissioned study conducted by Forrester Consulting on behalf of DTN, October 2021

Key Recommendations

Forrester's in-depth survey of downstream decision-makers about their current challenges, priorities, and digital modernization and operational intelligence plans yielded several important recommendations:

Inventory your existing operational intelligence capabilities.

By starting with a cataloged understanding of your current environment, you will build both sponsorship for plugging the gaps with individual systems owners as well as the opportunity to better integrate the systems and expose the data for decisions and execution.

Seize your real-time data opportunity.

Our study revealed that in most firms, real-time operational intelligence is sorely lacking. This is where digital modernization can have an immediate and material impact — putting the intelligence into the hands of people on the ground. Working off one version of the truth will unite your teams on the decisions to be made and actions to be taken.

Offer the appropriate insights to partners.

With your confidence in the intelligence growing, consider which bits would improve your collaboration and effectiveness with key partners. In crafting a solution, be sure it supports your ability to share some data in real time with partners, through dashboards or notifications, for example.

Highlight the immediate benefits to build support.

Armed with a modern digital approach and more actionable operational intelligence, you will yield immediate benefits in awareness, planning, execution, and supplier collaboration. By exposing these benefits, you will raise awareness and build support for investment in better solutions.

Look for modern solutions that will grow as your needs grow.

Today's ecosystem-driven markets are improved with technology and intelligence solutions suited to your specific needs. Seek solutions that listen carefully as your needs grow, respond with new capabilities and solutions, such as better integration among systems and scalable cloud solutions, and have an eye on authentication and security.

Link your investments in digital modernization and cybersecurity.

With cyberattacks being the biggest threat in today's ecosystem, better operational intelligence will contribute to the awareness and intervention needed to respond to attacks and anticipate threats. Be sure to bring security professionals in early to help you craft a safe and effective solution.

Appendix A: Methodology

DTN commissioned Forrester Consulting to conduct an online survey of 308 global technology strategy decision-makers at downstream oil and gas companies in the US, the UK, Canada, France, and Germany to understand their organization’s adoption of digital modernization. Respondents were offered a small incentive as a thank-you for time spent on the survey. The study was completed in October 2021.

Appendix B: Demographics

COUNTRY	
US	38%
Canada	35%
UK	12%
Germany	8%
France	7%

ROLE IN OIL & GAS INDUSTRY	
Carrier with fleets of 20-plus tankers	40%
Supplier	21%
Terminal	20%
Wholesaler	19%

TITLE	
C-level	12%
Vice president	28%
Director	41%
Manager	19%

ANNUAL REVENUE	
\$300M to \$399M	15%
\$400M to \$499M	19%
\$500M to \$999M	55%
\$1B to \$5B	11%

DEPARTMENT	
Operations	25%
IT	19%
Finance	18%
Sales	17%
Marketing	14%
Line of business/product	7%

TECHNOLOGY STRATEGY RESPONSIBILITY LEVEL	
Final decision-maker	55%
Team member	27%
Decision influencer	19%

Note: Percentages may not total 100 because of rounding.

A scenic landscape featuring a winding asphalt road that curves through a valley. The road is flanked by dense evergreen forests and rolling mountains in the background. The sky is a soft, hazy grey, suggesting a misty or overcast day. The overall mood is serene and quiet.

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