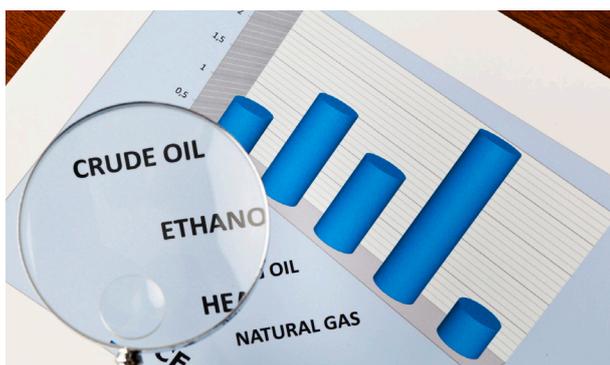


McKinsey Working Papers on Risk, Number 47



Next-generation energy trading

An opportunity to optimize

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Next-generation energy trading: An opportunity to optimize

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Next-generation energy trading: An opportunity to optimize

Introduction

The energy-trading industry has evolved with extreme rapidity in recent years, as companies have chosen their preferred strategic positions and then focused on building out their geographic and market presence. Amid intense competition, there have been high levels of investment in trading units and technology platforms, often with the profit-driven front office calling the shots. One consequence has been a proliferation of systems and processes, sometimes at the expense of efficiency.

New ways of looking at the energy-trading business are now challenging this model. Energy-trading companies face a changing regulatory environment, including the introduction of mandatory over-the-counter (OTC) clearing and thus higher capital requirements under European Market Infrastructure Regulation. The competitive landscape is also evolving rapidly—for example, new entrants have proliferated in commodity trading.¹

Some energy-trading companies have embarked on efforts to instill cost consciousness, streamlining staffing levels and introducing task forces to look for opportunities to become more efficient. Public announcements by a swath of European energy-trading companies make clear that the industry is at work tackling the most obvious elements of inefficient cost bases. In March 2011, for instance, the Swiss company EGL (now known as Axpo Trading) announced “cost-reduction measures in addition to a more focused strategy implementation in order to continue to sustain profitability.”² Many similar initiatives are under way or have been announced publicly.

The bad news for energy-trading companies is that they clearly lag behind investment banks on cost efficiency in their back offices, for example, measured by cost per trade. This is partly due to the different nature of the businesses. Equity, fixed-income, and foreign-exchange trading is a high-volume, low-margin business, while energy trading has been more of a low- to midvolume business with attractive margins.³ However, the gap is also somewhat connected to the different stages of evolution of these businesses.

The good news is that there is a huge opportunity for energy-trading companies to close the gap, altering their economic fundamentals and risk management at the same time.

At present, many energy-trading companies are facing the legacy of past trade-offs in which time to market and product innovation won out over considerations of cost and complexity. It is not a gross exaggeration to observe that if a star trader wanted a new system or application, he or she would generally get it, with relatively little scrutiny of the additional cost. That has begun to change, as this paper will explore. But another issue is that many energy-trading companies find themselves hampered by immense complexity—of systems, operations, locations, products, committees, and so on. As energy-trading companies seek to improve their management of costs, they will also inevitably address the underlying complexity of their operations in multiple dimensions. A new, better optimized set of trade-offs will emerge.

1 See *McKinsey Working Papers on Risk*, Number 39, “Commodity trading at a strategic crossroad,” November 2012.

2 The announcement continued: “[EGL is making] adjustments in energy trading in terms of size, structures, and processes ... In particular, the trading hub in Dietikon is still generating costs that are too high in relation to margin potential. In order to increase efficiency, EGL is merging the two trading hubs in Dietikon ... [and] the back office will undergo some selective adjustments as planned after reviewing processes, the organization, and systems.”

3 See McKinsey’s Capital Markets Trade Processing Survey.

Exhibit 1 Commercial activities at most energy-trading companies have expanded in the last few years.

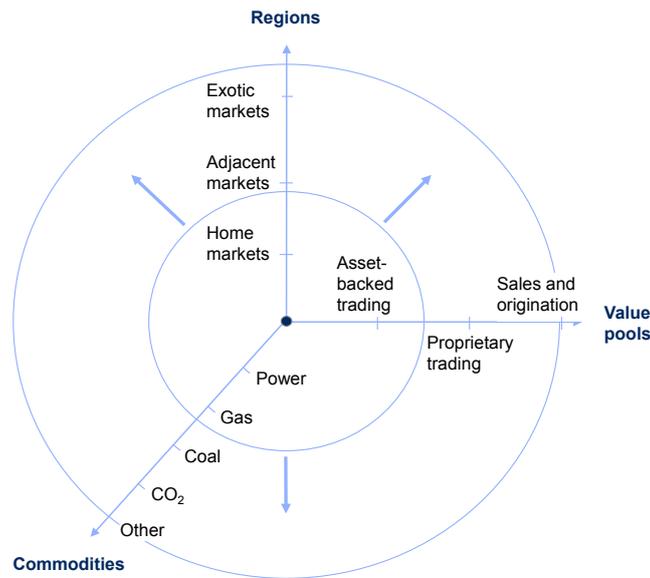


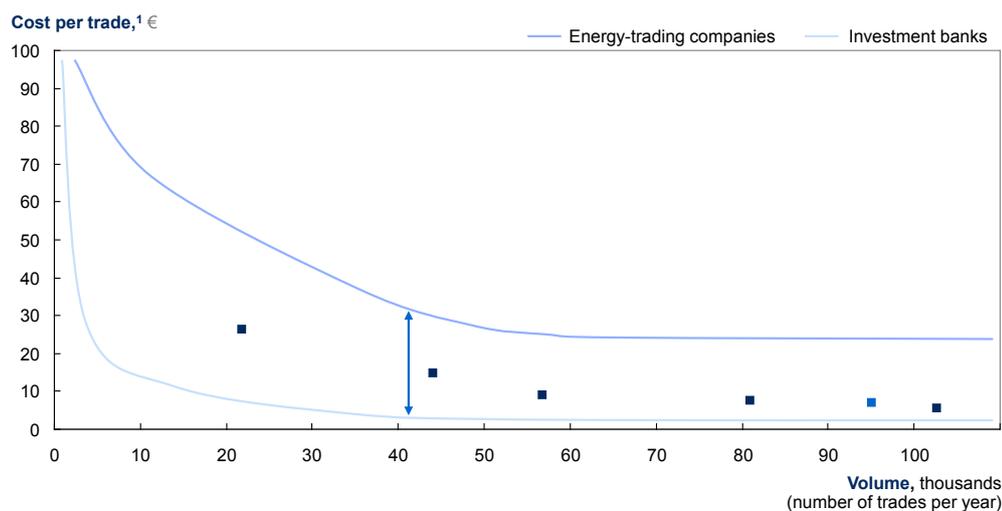
Exhibit 1 charts the growth of energy-trading activities and their inherent complexity. Although this view of industry changes has global relevance, some aspects are particularly pertinent to European and US entities that participate in the most liquid wholesale-energy markets. As markets have expanded, companies have responded in two ways: by increasing their footprint, acquiring assets, and opening trading floors in new geographies on the one hand and by becoming active in originating more complex, tailored products on the other. In 2007, for example, RWE entered into a novel ten-year swap of coal-fired and hydroelectric power capacity with Swiss EOS.⁴ So far, consolidation of trading activities within Europe has been relatively minimal—for example, E.ON started bringing its trading businesses together in one location as E.ON Energy Trading in 2008—and thus there remains significant scope for greater efficiencies, not least through the elimination of redundancies and overlaps between units or locations.

From plain vanilla to multi-flavored

It is important to define origination in relation to the distinction between standard and tailored or structured products. At one end of the spectrum are standard products traded in liquid markets, while at the other end lie structured products that might be extremely illiquid but that fulfill important risk-management goals and should be profitable. Seen from this perspective, origination requires a high degree of skill—insight, industry knowledge, an understanding of scenarios, and even an ability to structure the function so that the best ideas are accelerated into development and implementation.

⁴ See “RWE and the Swiss power company EOS to exchange hydroelectric and coal-fired power,” August 23, 2007 (rwe.com).

Exhibit 2 The cost-per-trade position for energy-trading companies can be compared with that for investment banks.



¹ Cost per trade is defined as the sum of middle office, back office/operations, IT, and third-party cost divided by the number of trades for a given product.

There is a growing awareness in the industry that the underlying complexity of operations undermines a company's effectiveness in this fiercely competitive business. Exhibit 2 is a stark illustration of the gap in cost per trade between energy-trading companies and their equivalents in investment banks.

It is imperative that energy-trading companies narrow or close that gap, but they have a long way to go. Anecdotally, many trading executives admit that they have allowed too many processes and procedures to clog up their operations. This is evident in numerous areas; with regard to new product or business approvals (NPAs), we heard stories like, "Our NPA process is quite inefficient and bureaucratic, and people hardly ever talk to each other to solve issues, preferring to hide behind formality." And regarding general operations, one executive told us, "By now, we have a zoo of different systems and processes across products and regions, as everybody is allowed to do things their own way—standardization has never been a priority." An often-overlooked consequence of complexity and cost inefficiency is that energy-trading companies run considerably higher levels of operational risk than is immediately obvious. In addition, the combination of complexity and limited transparency means that decision making can be challenging; ex ante, it is often quite difficult to know the cost consequences of commercial or strategic decisions.

Counting the costs

By and large, energy-trading companies have realized that they need a new and sharper focus on their costs. But the strategic importance of this insight goes much deeper. At its base, trading is a risk-management discipline. When business processes and structures are substantially less than optimal, the inability to account properly for risk-return trade-offs means that money is left on the table or that returns are in fact generated by taking much greater risk than is explicit. As traders begin to deal with their costs, they are also thinking in new ways about how they measure performance and allocate capital—in effect, they are addressing risk management in quite profound ways.

In this section, we briefly describe the main processes that characterize an energy-trading operation, suggesting potential issues faced by companies as they seek to improve cost and complexity management. Then we examine five key areas where complexity is an unavoidable element of the cost-optimization challenge. Additionally, we offer examples of typical approaches and methods used by players trying to tackle cost and complexity.

Examining processes

There are four major end-to-end processes across energy-trading businesses in which complexity and inefficiency can lead to poor overall results despite apparently good front-office performance.

First, NPAs are a crucial driver, but they depend on coordination between the front office and other key functions, including legal, risk management, the back office, and finance. Implementation of approved new products or deals requires strong processes and a deep understanding by IT of the interfaces between different systems needed to manage a product safely. Further, an effective NPA process will differentiate between standard products, which require one level of sophistication and control, and complex sales and origination products, which require greater attention. In trading companies with effective NPA processes, we often see a filter group that determines early on whether a new product or transaction request should be escalated for greater attention and scrutiny, meaning that time and effort is given to those products with the greatest need.

Second, there is often surprising difficulty around the new counterparty on-boarding process. Problems can arise because the legal or risk department takes a different view of a potential client than does the front desk. Legal or risk, for example, might want to assert special terms in the annex to master agreements such as standard documentation for the International Swaps and Derivatives Association (ISDA) and the European Federation of Energy Traders (EFET). In the current environment this might include, for instance, nonstandard credit requirements (usually in a so-called credit support annex). But it can also involve more general issues, such as excessive documentation requirements, or a process that takes a long time and causes a loss of goodwill with the client.

Third, the trade process from end to end—including deal entry, validation, confirmation, margining, nominations, settlement, and payments—is an essential capability if energy-trading companies are to compete. Typically, when companies review this process or a series of related processes, they discover numerous points of blockage or resistance. Often, these relate to points where one IT system must interact with or pass on to another system in order for the next phase of the trade to begin. In the worst instances, manual interventions are necessary, and these can seriously increase risk factors. There is deep complexity embedded in this overall process. For example, margin requirements must be captured and updated as positions change, which is by itself a major challenge. Less obviously, rounding up the required signatures to ensure timely settlement can be surprisingly difficult.

Finally, the risk and finance reporting process should be considered. In many trading companies, there is redundancy in the parallel reporting teams set up for what have been largely separate risk and finance functions. Better integration of these reporting teams and better alignment of reporting can lead to considerable cost savings.

Getting to grips with cost and complexity

It might be tempting for an energy-trading company to pursue some of the most obvious options for savings costs—indeed, a strategy of plucking the lowest-hanging fruit makes sense. The measures employed, such as reviewing IT licenses, cutting down brokers' commissions, and altering office space and personnel terms to reduce waste, can be quite simple. But the very existence of low-hanging fruit can also point to a deeper need for a more fundamental assessment of what it takes to be a truly cost-efficient operation.

In our experience, if the underlying problem of complexity is to be addressed, energy-trading companies must review their business from end to end. There are three main types of complexity. The first is externally driven and relates to the business of energy trading, with the associated optionalities and logistics. The second, also external, derives from shifting regulatory demands, with regional and national requirements meaning that significant resources are required for compliance purposes. Third, there is what we might call self-imposed complexity. This results from organizational decisions and structures created over time that lead to serious inefficiencies; perhaps the best example is when a risk ends up being traded at multiple desks, creating almost intractable control and reporting issues. It behooves energy-trading companies to consider strategies for each type of complexity while recognizing that they have less immediate ability to influence external sources—fundamental improvement begins at home.

How can players tackle the problem? One approach is to look at five specific areas of complexity and then seek ameliorative measures that collectively affect overall efficiency. Consider the following⁵:

- **Product and commercial cost and complexity.** What lurks in the front office and other commercial areas? At the most basic level, which trading activities are adding value? Highly profitable traders typically do not care about their costs. Indeed, the industry norm has been to focus on gross margin as the primary measure of trading performance. That is changing as energy-trading companies are beginning to take into account related costs, such as different process and risk costs. The scope for improvement is significant. Energy-trading companies are often part of larger corporate entities, which means that from a group perspective the ability to manage risk can be enhanced if there is greater transparency around the cost and efficiency trade-offs in the trading subsidiary's numerous processes. Asset-backed trading operations have their own complexities, but perhaps the biggest opportunity for optimization can be found in the interfaces between the traders and asset companies where there are serious operational challenges relating to transfer pricing and overlapping optimization efforts. Sales and origination is arguably one of the most challenging areas to optimize. On the sales side, particularly with industrial counterparties, many customers request or require specific contract details. The upshot for energy-trading companies is myriad nonstandard contracts and operational requirements for one-off or occasional actions. This greatly increases operational risk while eroding underlying profitability because it imposes large additional process and compliance costs. There is a significant opportunity to enhance performance by moving toward more standard industry contracts, for example, using ISDA master agreements or standard contract language. Simply improving the sales process so that customer requests for unique contract terms are discouraged can move a company toward better performance.
- **Support and control cost and complexity.** Support functions via the middle and back offices are vital for a successful trading business. But how efficient are their processes? What could be automated or standardized? Are there opportunities for outsourcing or offshoring that could change the economics of support by allowing consolidation? It is easy to overlook functions such as analytics or risk management, which represent an indirect cost of trading. Companies might consider reviewing the legal department, where there are often opportunities to reduce spending on external services and to negotiate on service levels and fees. In addition, they should consider support functions such as HR, where there can be significant cost savings from policies regarding expatriate contracts.
- **IT cost and complexity.** This is technically a support function, but it merits special attention because of its importance and prominence. Typically, there are numerous opportunities to eliminate complexity in IT. A starting point can be as simple as a review and prioritization of current projects or a systematic reduction

5 Working-capital optimization is one important lever for ensuring efficient inventory and collateral management, but it is not considered in detail in this paper.

in service levels, as “diamond service levels” are often the norm rather than the exception. The suite of applications can also be reviewed and reduced by looking at who uses applications or by doing a quick customer survey on real needs. Importantly, energy-trading companies must ask themselves whether they are undergoing too much change.

- **Organizational cost and complexity.** Complexity takes many forms—wrapped around support functions are multiple reporting lines, committees, governance structures, and so on. How many of them are essential, and how many are adding unnecessary complexity? Overly complex organizational structures often generate unnecessary layers or overlapping activities, leading to slower decision-making processes. It might seem simple, but an organizational review to delay and clarify or streamline responsibilities can be a powerful way to unlock value.
- **Location cost and complexity.** This is the most straightforward area, at least on the face of it. However, there is more involved than simply shutting down a few overlapping offices. Knowing which units can be combined or which locations make the most sense requires a detailed understanding of business dynamics, operational and locational efficiencies, and legal complexities. Often, personal interests and retention of critical talent are cited as reasons preventing location closures, but in our experience, these are excuses rather than real roadblocks.

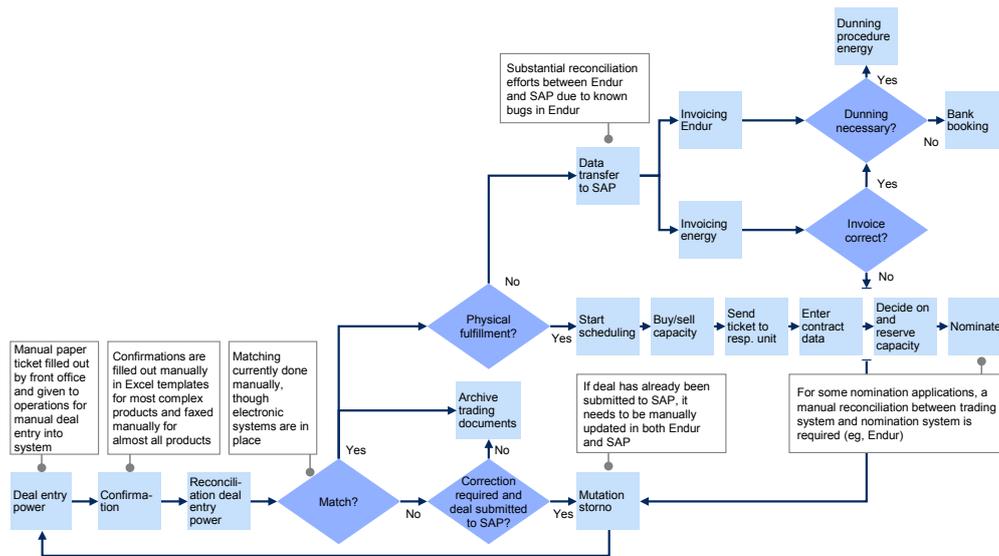
Approaching cost and complexity optimization

Clearly, optimizing cost and complexity is not a simple process. Energy-trading companies need to understand their full cost profile, which in turn means they must create transparency on how costs throughout the support chain are allocated to the desks or books and what impact this has on risk-return decisions in the front office.

In the proprietary trading, asset-backed trading, and sales and origination, energy-trading companies can identify specific actions to be included in an optimization program that spans the five dimensions described earlier. But the ultimate impact comes from the combination of efforts for company-wide improvement—a consistent program rather than a series of otherwise unrelated measures. In this section, we explore examples of possible improvements.

In proprietary trading, for instance, gross margin is being superseded by more granular measures such as total process cost, in effect replacing the gross with a net view of the trading margin. Adding process costs and other indirect costs gives a much more accurate picture of the economics of trading. But it, too, only goes so far. Although traders are typically given a set amount of risk capital with which to trade, which varies by market and commodity, even the more sophisticated players are only beginning to assess whether they correctly price for risk or capital. Some energy-trading companies, for example, attach a cost of credit risk to activities in OTC markets or a cost for net working capital. But there is relatively little systematic dissection of appropriate risk and capital costs for different trading types and a general fog around where to find appropriate benchmarks. Again, complexity is the enemy of insight. Practical tools can help. Some benchmarking is possible via cost-per-trade and cost-transparency surveys; these aim to allocate all costs to specific business or trading activities, using a simple full-time-employee-equivalent measure when there are costs that are difficult or impossible to allocate directly. The results show detailed cost breakdowns for each front-office activity, as well as a profitability analysis. The implications for strategy and investment choices are obvious.

Exhibit 3 A simplified example illustrates the end-to-end trade-process recording and problem areas in physical-power deals in illiquid markets.



A more detailed approach involves mapping the trade process for key products to identify potential weaknesses (performance gaps) and then developing and implementing structured improvement measures. This offers another window into complexity, as Exhibit 3 shows. Energy-trading companies often have legacy systems requiring constant workarounds and manual interventions, which inhibit cost efficiency.⁶

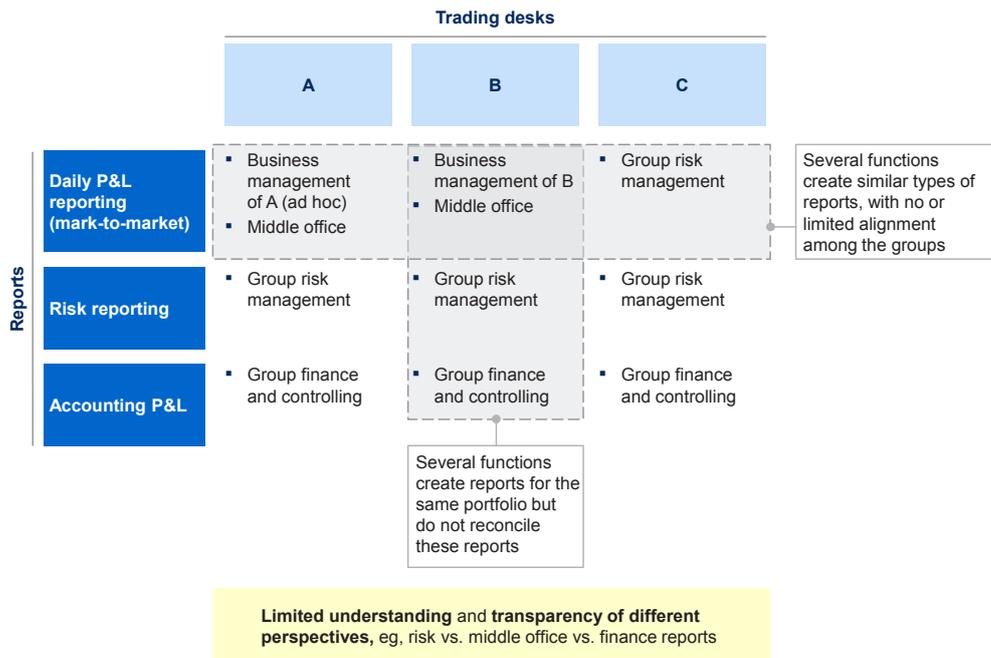
Another approach that can help traders assess their cost efficiency is to imagine a clean sheet of paper, assume a current head count of 100 full-time equivalents, and then move through each function, exploring the actual head count required. Some operations have the potential to reduce their employee costs by more than one-fifth. It is clear that the overall potential for cost savings is substantial.

The same approaches can be adopted for key support functions in the middle and back offices, as well as for critical IT infrastructure. Traders can fundamentally challenge their processes and systems, asking whether each component is necessary, adds value, or helps to define and manage risk. A simple example is to consider risk and finance reporting, which includes daily P&L reports but also risk and accounting reports that can be owned by different parts of the business. Energy-trading companies typically produce numerous reports, many of which use different numbers that require complicated and time-consuming reconciliations.

A review of reporting structures can identify redundant reports, which in turn can help to pinpoint governance structures that are inefficient or unnecessary (Exhibit 4). In many cases, energy-trading companies have scope to do fewer things, particularly if they increase transparency regarding the cost impact of projects or proposed changes. In effect, there are three potential improvements: generating fewer reports, generating reports less frequently, and simplifying reports so that they consume fewer resources. An effective process will include seeking and gaining approval from the users of the reports.

⁶ McKinsey is currently conducting a market risk operations survey to assess leading practice both qualitatively and quantitatively and to identify specific opportunities for improvements.

Exhibit 4 A simplified example of reporting shows where several functions create similar reports.

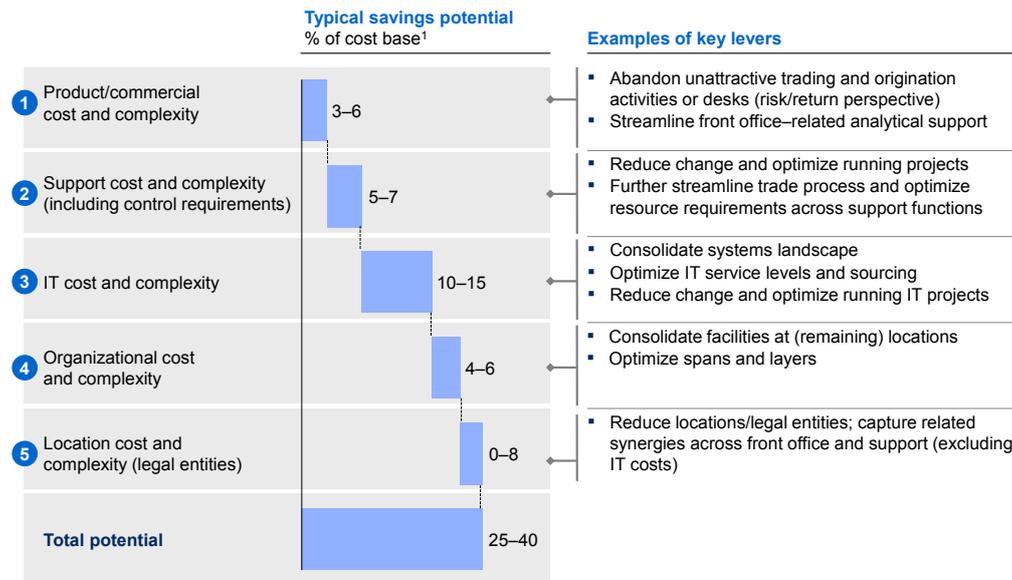


In sum, several levers can improve overall cost efficiency, with the benefit of greatly reduced complexity. However, this is not to suggest that such remedies are easy. Concerted and focused effort is required across an organization.

What helps a company to succeed? The following are a few key factors:

- Have the board set top-down targets for each function and trading desk to prevent “not-in-my-backyard syndrome” and to avoid placing a disproportionate burden on the support functions.
- Set top-down targets at around 120 to 130 percent of the aspired savings level, thereby creating a buffer for ideas and measures that cannot be fully realized.
- Give responsibility for developing savings ideas and measures to each function and trading-desk head, applying a push-pull principle (supplier of service and benefit recipient).
- Systematically list ideas and measures based on the perceived or actual trade-offs between cost and service delivery and ease or feasibility of implementation.
- Complement the cost and complexity program with elements that support cultural change and cost ownership (including the adjustment of front-office incentives) within the organization.

Exhibit 5 The savings potential from cost and complexity optimization is significant.



¹ Total cost base of energy-trading company excluding fuel and electricity purchases, restructuring costs, and bonus pool; figures are rounded.



The measures listed above convey the extent of the opportunity for energy-trading companies to reduce operational complexity and become more cost-efficient. Exhibit 5 shows how big the impact can be overall.

Clearly, each trading company differs from its rivals. What works well for one might be a visible weakness for another, and so the potential for optimization depends on a given company’s specific situation. One player might be subject to a set of local agreements with trade unions that are not binding on a rival based in a different location; while the scope for impact is highly variable, it is nevertheless significant for most competitors.

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