White paper

Maximizing pipeline value: How the Accelerator™ Drug Development model can enhance eNPV

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Introduction

The drug development dilemma

Bringing a new therapy to market has never been more challenging or more urgent. For biotech and biopharmaceutical leaders, the stakes are immense: the average cost to develop a single new drug now ranges between $1.3 billion and $2.8 billion. Timelines stretch over a decade, often taking between 10–12 years from discovery to approval. Success rates are discouragingly low, especially in oncology, where only approximately 5% of drugs entering clinical testing ultimately receive approval.

The cost of fragmentation

Beyond these sobering numbers lies a structural problem: the way drug development is managed. Many companies still rely on a fragmented multi-vendor model, contracting separately for manufacturing, clinical research, laboratory services, and supply chain management. While this approach offers flexibility, in practice it often creates silos, duplicative processes, and handoffs that cost a company both precious time and execution consistency—all of which contribute to delays at nearly every stage.

Furthermore, when a company contracts separate vendors to work on a drug development program, the issue doesn't typically stem from the quality of service received from any individual vendor. Rather, the problem arises from the inability to efficiently hand off from vendor to vendor. This is because the focus and accountability of limited-scope and/or separate vendors tend not to extend beyond the individual scope of contracted services for that company.

In addition, any valuable knowledge and experience gained by the former vendor may be lost in the process, introducing unnecessary learning curves and slower startups for the next vendor in line.

Larger vendors also try to provide customers with a broader range of services by deploying a mix of both internal capabilities and subcontracted capabilities—meaning that many of the offered services would not be completed in-house. While this fragmented integration is common, and is cohesive and comprehensive in theory, its varying degrees of consistency and success make it a significant pain point.

For example, a CRO that provides outsourced clinical supply services as part of its project scope. Alternatively, a CDMO manufactures a drug substance in-house for their customer but executes the fill-finish through a subcontracted partnership. In these examples, both vendor oversight and management shift to the primary vendor—the CRO or CDMO respectively—not the customer. As a result, the customer will likely still experience all the inherent challenges that arise from using multiple vendors on the same project as if they never worked with the CRO or CDMO to begin with.

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Thus, the solution to better, more efficient integration isn't more vendors—no matter how closely a company works with those vendors.

For example, a 2024 analysis by the Tufts Center for the Study of Drug Development found that frequent and unplanned protocol amendments materially delay trials,[1] while a systematic review of 89 peer-reviewed papers identified start-up processes—such as contracting, ethics approvals, and site readiness—as chronic sources of timeline slippage.[2] Each month of delay is costly: lost exclusivity during late-phase trials can translate into millions of dollars in foregone revenue opportunities.

At the same time, external pressures are intensifying. Investors are demanding faster returns, while patients and physicians push for quicker access to new therapies. Novel modalities, complex trial designs, and global regulatory demands only add to the burden. For executives, driving greater efficiency in drug development has become a strategic imperative. The question is no longer whether efficiency matters—it's how best to achieve it and what it will cost if it fails.

It's well-documented that fragmented, multi-vendor models introduce additional risks—particularly during technology transfer—where mismatched expectations, documentation gaps, and redundant validation steps can create costly delays. As noted in a 2024 analysis, these breakdowns can extend timelines by months and drive millions in avoidable expenses when processes move between multiple manufacturing partners.[3]

What's different today is that the industry finally has the scale, infrastructure, and expertise to make integration across CDMO and CRO services work as intended, removing inefficiencies rather than shifting them.

The Thermo Fisher Scientific™ Accelerator™ Drug Development model exemplifies this new era of integration, unifying critical functions under one roof to help reduce time and risk and drive greater value for stakeholders. Independent research conducted by the Tufts Center for the Study of Drug Development confirms that this model meaningfully improves financial outcomes. In fact, the study found that across every scenario tested—specifically in oncology, a highly complex and failure-prone area of development—an integrated model delivered a positive expected net present value (eNPV), adding millions of dollars in potential value.

This paper explores how successful integration, validated through rigorous external analysis, is reshaping the financial calculus for leaders in drug development—and why now is the time to embrace a model designed for speed and value creation.

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Section 1

The Accelerator™ Drug Development model and expected net present value (eNPV)

Overview: The Accelerator™ Drug Development model

The path to value in drug development is not only about whether a therapy successfully achieves proof-of-concept to facilitate a sale or goes on to achieve market approval, but also how efficiently sponsors can reach their desired outcome. The Accelerator™ Drug Development framework was designed to address this reality. Unlike traditional approaches that rely on a patchwork of vendors, this model unites world-class CRO and CDMO services under one roof, creating a seamless development environment without the use of subcontractors.

This seamless integration is strengthened by digital infrastructure and AI-enabled systems that drive efficiency and connect data streams across development stages. By working with a single integrated partner, drug developers can take advantage of unified platforms and predictive analytics—capabilities that are difficult, if not impossible, to achieve across multiple vendors.

From a business strategy and asset management standpoint, this unified approach delivers advantages at both ends of the spectrum. When a therapy is not viable, the speed gained through integrated operations allows the go/no-go decision to be made earlier. This prevents further unnecessary investment and enables resources to be reallocated quickly to other projects or higher-potential assets.

For programs with strong prospects, the same efficiencies mean that regulatory submissions can be prepared and filed sooner. Not only does this get promising new therapies in front of patients faster, but it also grants additional months of market exclusivity—often worth tens of millions in incremental revenue.

The model also adapts to different strategic goals. For some companies, it creates a faster and more reliable path to proof-of-concept and an eventual licensing deal, while for others it supports the complex journey to global commercialization.

The Accelerator™ Drug Development model is not about reducing costs at the margins, nor does it alter the inherent scientific probability of success or failure for a therapy. Its true impact lies in changing the financial trajectory of development, helping companies realize value earlier, conserve capital when programs falter, and maximize revenue when programs succeed.

Distinctions between traditional NPV and eNPV

Traditional net present value (NPV) is a familiar financial tool used across industries to assess the profitability of an investment. It discounts projected future cash flows back to their present value, enabling decision makers to determine whether an investment is worth pursuing. While useful in stable, low-risk industries, NPV alone is insufficient in the context of drug development.

The reason is simple—NPV assumes that once capital is deployed, revenues will eventually flow as modeled. But in biopharmaceutical research and development (R&D), the reality is far different: most drug candidates fail. In fact, approximately 10% of investigational drugs that enter clinical trials ultimately achieve approval, with oncology programs around 5%.

NPV cannot account for these steep attrition rates. It treats a Phase I compound and a Phase III asset as if they share the same likelihood of success, when in fact the risks—and the potential returns—are vastly different. This is where expected net present value (eNPV) becomes essential.

By weighting future cash flows against the probability of technical and regulatory success at each stage, eNPV reflects the true, risk-adjusted value of a program. It captures three variables that matter most to biopharma leaders: time, cost, and probability of success.

Biotech and biopharma leaders' familiarity with eNPV adds to both its credibility and practicality as well. It can help executives decide whether or not to invest in a program, compare multiple projects to allocate capital, or adjust upfront investment or timelines to maximize financial returns. As a result, eNPV delivers a more realistic and strategically actionable picture of a drug's financial potential than traditional NPV ever could.

For biotech and biopharma executives, the benefits of using eNPV are clear:

- **A universal yardstick**—eNPV distills multiple variables into a single number, simplifying comparisons across programs.
- **Links science to strategy**—By quantifying risk and value, eNPV moves discussions beyond technical milestones and into board-level business decisions.
- **Captures risk-adjusted reality**—Unlike return on investment (ROI) or NPV, eNPV reflects the high likelihood of attrition, making it a more realistic forecasting tool.
- **Supports portfolio management**—eNPV guides decisions about which programs to double down on, which to partner, and which to exit.
- **Speaks the language of investors**—Analysts increasingly use eNPV to assess company health; improving eNPV strengthens financial positioning in the eyes of shareholders and potential partners.

Measuring the impact

According to the Tufts research, an integrated vendor framework, such as the Accelerator™ Drug Development model, demonstrated consistent, positive eNPV across oncology programs. Given that oncology is widely recognized as one of the most complex and failure-prone therapeutic areas, these results provide a strong, conservative validation of the model's financial impact.

In Phase III programs, for example, integration yielded up to $62.9 million in additional value for monoclonal antibodies and $25.1 million for small molecules, with an ROI exceeding 100x.[4]

These results underscore the central insight of this section: time is money, and in the high-risk world of drug development, eNPV is the metric that captures it. By reducing handoffs, streamlining operations, and moving programs forward with fewer delays, the Accelerator™ Drug Development framework enables leaders to make better investment decisions, shorten the time to market (or sale), and increase the financial value of their development pipelines.

Section 2

Successful integration: How the data speaks for themselves

At a glance: The Tufts study

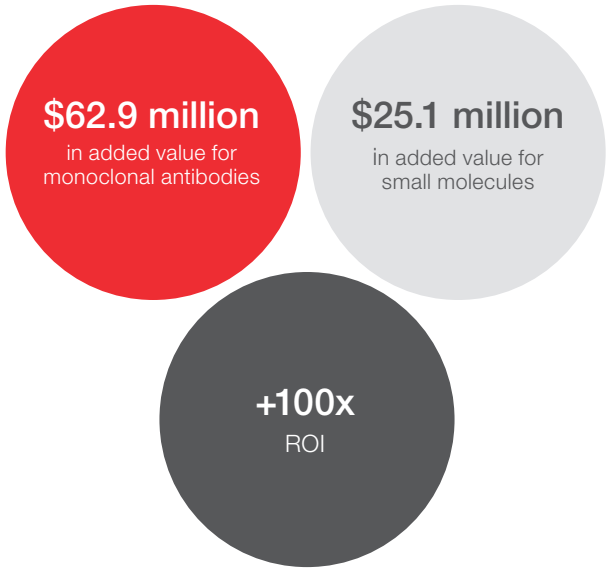
For years, the promise of integration in drug development was discussed more than it was quantified. That changed with a recent study commissioned by Thermo Fisher Scientific and conducted by the Tufts Center for the Study of Drug Development.

The research translates the advantages of unifying development, manufacturing, and clinical research services into measurable outcomes, demonstrating how a fully integrated approach across CDMO, CRO, and clinical supply functions—as embodied in the Accelerator™ Drug Development model—creates both financial and operational value.

Using oncology, a notoriously complex and failure-prone therapeutic area, as the test case, the study compared traditional multi-vendor outsourcing with a single, integrated model. The findings, which are currently under peer review, were compelling: every scenario analyzed showed positive eNPV. In other words, no matter the complexity or stage of clinical development, integration generated measurable financial benefit for sponsors.

Understanding risk: Why phase matters

The benefits of integration became most pronounced in later stages of development, when programs are substantially de-risked. In Phase III oncology trials, integration produced dramatic gains:



Source: Tufts Center for the Study of Drug Development[4]

The study also found that multi-phase integration further compounds these benefits. When integration is applied across Phase II and Phase III, for example, potential value creation more than doubles.

What is especially notable is that these results are conservative by design. The study assumed that integrated programs have the same probability of success as traditional ones. By selecting oncology as the test case—where approval probabilities are among the lowest across all therapeutic areas—Tufts demonstrated that any modeled benefit could be seen as a floor rather than a ceiling.

Beyond models: Real-world impact

While the Tufts data provide rigorous external validation, real-world examples illustrate how integration plays out in practice:

- **An emerging biotech avoided an 18-month delay in its first-in-human (FIH) trial** by consolidating manufacturing, regulatory, and clinical design expertise early on. The integrated approach accelerated study start-up by a full year, saving more than $1 million in projected costs.
- **A large biopharma simplified governance across hundreds of clinical sites and patients,** reducing start-up inefficiencies and saving $200,000 in operational costs.
- **A global Phase III biologic trial overcame complex cold chain supply challenges** spanning 20 countries and over 6,000 patients. By leveraging a single-vendor model, the sponsor avoided critical delays and met its aggressive first-in-patient targets on schedule.

These benefits are amplified by the operational simplicity of working with one integrated team. With a single point of accountability, companies gain the necessary visibility across manufacturing, clinical, and supply operations, reducing risk of costly surprises or wasted resources and strengthening confidence in their decision-making.

Additionally, these examples confirm that the value of integration is not theoretical. It is being realized today by companies ranging from resource-constrained biotechs to multinational pharmaceutical companies managing highly complex portfolios.

Tangible benefits: With integration vs. without integration

The financial and operational benefits of integration are best understood in contrast: with integration vs. without integration. When viewed side by side, the differences are clear: successful integration can lead to shorter timelines, reduced handoffs, and stronger financial outcomes.

In addition, conducting a drug program under a single governance structure eliminates delays caused by vendor fragmentation. This includes integrated data visibility across CDMO and CRO functions, which further contributes to clearer decision-making and potential value creation.

The Tufts study quantified these benefits with precision, but the strategic takeaway is simple: integration delivers both measurable value and competitive advantage by streamlining drug development.

With a single point of accountability, companies gain the necessary visibility across manufacturing, clinical, and supply operations, reducing risk of costly surprises or wasted resources and strengthening confidence in their decision-making.

Section 3

Key strategic takeaways for leaders

Integration point of view: Biotech vs. biopharma

The benefits of an integration framework like the Accelerator™ Drug Development model are not confined to one type of company. Instead, they speak to the needs of biotech and biopharma alike.

Biotech organizations often operate with limited capital and lean teams, so for them, avoiding costly delays, such as failed tech transfers, can mean the difference between advancing an asset or running out of funding. This also applies to the clinical trial itself, where unanticipated protocol amendments can introduce significant program delays and potential cost overruns.

Above all, biotechs prioritize speed to their next stage for funding and/or acquisition. However, this is a strategic objective that becomes more challenging to achieve when managing multiple vendors. The simplicity, operational efficiency, and streamlined communication gained from one contract, one invoice, and one team helps biotech teams stay agile, leveraging a single point of accountability to improve resource utilization and preserve capital.

Midsized and large biopharma companies, by contrast, face the challenge of managing global portfolios with many assets at once. For them, successful integration reduces the friction of scale—simplifying governance, harmonizing data, streamlining project management, and ensuring consistency while managing simultaneous clinical trials globally.

Because some biopharmas already have established internal development and manufacturing capabilities, they look for external support as a resource allocation strategy. Such guidance helps them prioritize which projects to handle internally and which to outsource. Not to mention, outsourcing makes it possible for companies to leverage new technologies and/or capabilities that they wouldn't otherwise have access to without making a potentially time-and capital-intensive infrastructure investment. Overall, external support through integration reduces complexity during portfolio expansion and smooths acquisition decisions and processes.

It's important to mention that for biotechs, integration is not only about execution speed, but also value creation. Progressing faster can increase the attractiveness of a biotech's assets to potential partners or acquirers. However for biopharmas, selective use of integrated services enables them to scale large pipelines efficiently while reserving internal capacity for priority programs.

But regardless of a company's size or focus, the evidence points to three major advantages of an integrated approach.

Time is money: Accelerating value creation

Ultimately, every month shaved off development timelines translates into financial benefit—whether the project succeeds or fails. The Tufts analysis shows that in Phase III alone, each month of delay can mean up to $8 million in lost revenue opportunity.

That's what makes a key facet of integration – the coordination of workflows—so valuable. For example, instead of waiting for one clinical trial phase to end before the next one begins, successful integration allows activities, such as manufacturing preparation and clinical readiness, to advance simultaneously. In turn, this streamlined approach eliminates the lag time ("white space") between phases.

Compressing the overall timeline of a drug program through integrated planning and unified governance elminates the natural delays that occur during vendor handoffs. Sponsors can capture revenue sooner, extend the period of exclusivity, and reinvest cash earlier into the next wave of innovation. For both biotech and biopharma companies, speed is more than a metric—it is a competitive advantage.

Failing faster lets you pivot smarter

In an industry where the majority of drug candidates do not succeed, the ability to recognize failure earlier is a strategic benefit. Integrated operations enable drug developers to align manufacturing and clinical data in real time, reducing uncertainty and exposing red flags sooner. Advanced analytics and AI-driven data analysis make this real-time alignment possible, flagging risks and opportunities earlier than traditional methods and systems can.

Moreover, this proactivity affords sponsors the agility to dedicate the right resources to the right higher-value programs. This means capital can be redirected quickly to higher-potential assets rather than tied up in programs that will never reach approval. For smaller companies, this discipline can preserve scarce financial resources, which is important given that each funding cycle relies upon capital efficiency and informed pivots. For larger organizations, it supports smarter portfolio prioritization across global pipelines.

Extending exclusivity extends market advantage

Faster development can accelerate launch—and also stretches the commercial window before generics or biosimilars enter the market. Modeling by Tufts suggests that even a one-year extension of exclusivity can increase an asset's commercial value by 35–110%.

For companies competing in crowded indication and therapeutic categories, the ability to secure just a few additional months of protected revenue can translate into hundreds of millions of dollars in enterprise value. Integration makes this possible by collapsing inefficiencies that traditionally erode valuable time.

Beyond ROI: The strategic benefits of speed

The value of integration extends beyond financial models. In competitive therapeutic areas, the first company to reach the clinic often faces fewer hurdles in patient recruitment, site activation, and regulatory engagement, which undoubtedly creates a notable advantage.

For smaller companies, this can mean securing funding or licensing deals on more favorable terms; for smaller and larger players alike, it can cement their drug's position in strategic markets, particularly for novel products.

Together, these takeaways reinforce a central point: integration is not a short-term operational choice but a long-range strategic vision. It is a forward-looking approach that shapes how organizations invest, prioritize, and position their pipelines for sustainable success. Leaders who understand and act on the eNPV advantages of the Accelerator™ Drug Development framework are not just solving near-term, day-to-day challenges one project component or vendor at a time—they are setting the strategic course for faster progress, smarter portfolio decisions, and greater long-term value creation.

Conclusion

Embracing the next era of drug development

Drug development has always been defined by uncertainty. Costs are high, timelines are long, and the odds of success are slim. For decades, companies have searched for ways to bring more predictability, efficiency, and value into the process.

Integration has been discussed often, but until recently, it remained out of reach. Now, due to frameworks like the Accelerator™ Drug Development model, integration is no longer just a perk—it's an industry imperative. This is a product of three major industry shifts:

The complexity of new modalities and emerging science has raised the stakes. Cell and gene therapies, RNA platforms, and novel oncology agents—just to name a few—bring enormous potential to the space, but also greater uncertainty. These assets carry unfamiliar risks and require deep cross-functional scientific and technical expertise. Thus, working in silos across multiple vendors inhibits cumulative learning, which is an obstacle that prevents companies from keeping pace with the demands of developing therapies we are still learning to understand.

Regulatory requirements and global trial diversity are growing more complex. Large, multinational studies must balance country-specific regulations and logistics, evolving guidance, and heightened patient diversity requirements. Coordinating within an environment that spans multiple vendors creates inefficiencies, communication gaps, delays, and unnecessary risk. Successful integration reduces those barriers by providing unified oversight and streamlined execution across geographies.

Modern trials are generating unprecedented volumes of data. This reality makes AI-enabled advanced analytics and digital integration essential tools for sponsors to draw insights, understand trial results, and drive informed and timely decisions. When layered onto a single-vendor model, these technologies unify data across manufacturing, supply, and clinical research, delivering the kind of visibility and speed that fragmented vendor models cannot replicate.

With these industry shifts, it's clear that drug developers can no longer afford fragmentation—because every month of delay represents lost opportunity in already fiercely competitive markets. Yet, these delays don't affect only drug developers, but also the patients who rely on their success. When therapies take longer to reach market or promising programs are abandoned due to lack of funding—patients are the ones who will ultimately feel the impact.

Partnering for what's next

The future of drug development demands speed, integration, and confidence in execution. Thermo Fisher Scientific offers a full suite of CDMO and CRO services as core capabilities, providing a seamless experience from the preclinical phase through commercialization.

Just as important, integration does not mean a rigid, one-size-fits-all approach. Companies can begin working with Thermo Fisher at any point in their drug development journey with a flexible, custom-built solution. And because Thermo Fisher has expertise spanning all major modalities and therapeutic areas, we actively help sponsors reduce complexity, improve financial outcomes, and accelerate therapies to patients.

Whether you are a biotech seeking to reach your next milestone or a global biopharma managing a diverse portfolio, the Accelerator™ Drug Development model adapts to your needs, helping your team shorten timelines, conserve resources, and enhance long-term value creation. Ready to discuss how the Accelerator™ Drug Development model can streamline your unique drug developpent journey? Contact us.

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