Data and digital

The PPD Clinical Trial Forecasting Suite

Introduction

The Clinical Trial Forecasting Suite is an artificial intelligence (AI)-powered platform that increases the accuracy of clinical trial forecasting and optimizes clinical trial planning. It employs deep machine learning models and proprietary data to predict milestones, streamline site selection, forecast patient enrollment, and anticipate potential delays. Continually refined with real-time data and user feedback, the Clinical Trial Forecasting Suite also offers scenario-based insights and strategies to keep trials on track, reducing delivery timelines by an average of 12 weeks relative to traditional processes.

Key differentiators

- **Predictive capability powered by AI**—Our innovative platform uses deep machine learning for real-time forecasting, facilitating proactive trial delay management.
- **Proven trial acceleration**—The AI driving the Clinical Trial Forecasting Suite has been tested across more than 400 studies, yielding average time savings of 12 weeks when compared to traditional timeline management and forecasting processes.
- **Dynamic, adaptive learning**—The algorithms get smarter over time, continually evolving with real-time data integration and user feedback to keep forecasts accurate and up to date.
- **Optimized site selection and enrollment**—Data from multiple sources, including our proprietary performance data, are evaluated to help users select optimal sites, predict enrollment trends and mitigate risks early.
- **Seamless integration**—The Clinical Trial Forecasting Suite works within our trial management systems, benefiting customers who partner with us for full-service outsourcing (FSO).
- **Goes beyond static forecasting**—The deep learning models incorporate data in real time. Instead of relying on historical projections, users can re-forecast scenarios as new information becomes available for real-time course correction.

The capabilities outlined in Table 1 represent the industry standard for clinical trial planning and forecasting. We believe our initial release (launched in November 2024) matches or exceeds the capabilities of our peers and other industry data providers operating in this space. This belief is further strengthened by our extensive research and in-house development of several predictive AI-driven point solutions. Our long-standing investment in modeling has allowed us to validate and refine these solutions over a significantly longer time frame than many of our competitors. We have also been an industry leader, shaping the business needs and modeling approaches of other data providers as they develop their own go-to-market products.

Table 1. Industry standard for clinical trial planning and forecasting capability.

Global strategy and startup	Forecasting and re-forecasting
• Global site strategy development	• Patient enrollment
• Diversity and demographic consideration	• Real-time scenario generation
• Critical milestone forecasting	• Intelligent "actuals-driven" re-forecasting

The time savings our current capabilities provide are derived from the AI models that power our point solutions, which have been integrated to form the foundation of the Clinical Trial Forecasting Suite. The reported time savings are based on an analysis of over 400 full-service outsourcing (FSO) studies managed by the PPD™ clinical research business of Thermo Fisher Scientific. As we move into late 2025 and beyond, we anticipate that increasing automation will enable even greater efficiency and allow more substantial time savings in specific operational areas.

2025: Progression and enhancements

Study specialty expansion

Our models currently deliver highly accurate forecasts across Phase Ib–IV studies, excluding: cohort/basket trials, normal healthy volunteer (NHV) studies, functional service provider (FSP) engagements, government-funded studies and limited-service studies. Our planned expansions will introduce support for vaccine and hematology/oncology studies, enabling deeper analysis of nuanced performance criteria. This enhancement will significantly improve our ability to generate more granular global strategy scenarios. In addition, the introduction of cohort modeling will come with a dedicated user interface that will eliminate the capability gap in our first release and provide users with an intuitive way to navigate cohort-based forecasting.

Country mix suggestion engine

Country mix selection is currently determined by the best-fit site strategy. Our upcoming AI-driven enhancement will reverse this process in accordance with user feedback and proactively suggest the optimal country mix by first analyzing country-specific criteria in parallel with site-level considerations. This approach will provide a more strategic, data-driven foundation for global trial planning.

AI-guided chat (Chat with My Data)

This new implementation will enable users to interact with their data more intuitively. Users will be able to ask questions like "What impact would adding Country X versus Country Y have on my scenario?" Users will also be able to receive step-by-step guidance on platform navigation and functionality (e.g., "How do I perform X?"). This AI-guided chat feature will enhance the user experience, increase decision-making efficiency and improve overall accessibility to critical forecasting insights.

Additional 2025 developments

Transition to a unified AI-driven ecosystem

In 2025, we will retire all other forecasting point solutions related to core clinical trial delivery. This marks a significant step towards building a fully unified, AI-driven global ecosystem that lays the groundwork for further advancement in 2026.

Full automation of site list finalization

We will fully automate the site list finalization process, which will eliminate the need for multiple back-and-forth validation steps once best-fit sites are identified. AI will drive the entire process with the goal of reducing the standard finalization timeline by approximately two weeks, streamlining operations and improving study startup efficiency.

2026: The key to our vision

We are not just building a forecasting tool for core clinical trial delivery. This capability, while foundational, is only the beginning. Our vision extends beyond industry-standard forecasting to redefining how clinical trials are planned and executed.

Our solution will expand **horizontally** by moving further left towards earlier strategic planning and further right towards post-trial insights and operational optimization, going beyond what our peers and competitors are developing. It will also expand **vertically**, integrating across all services to provide one unified view of scenario impacts. In addition to predicting trial feasibility, our solution will actively shape how trials are executed by optimizing operations in real time and driving smarter and more efficient decision-making across the entire clinical development life cycle.

Ambitions and ongoing exploration

Ballparking and financial impacts

We will look to integrate scenario generation with historical and real-time financial analysis to provide almost instant visibility into the financial implications of clinical trial delivery within our AI-driven ecosystem. A key feature will be a push-button ballparking tool that will enable rapid financial assessment across the entire trial life cycle from early ideation and pre-award planning to evaluating the financial impact of protocol amendment mid-study. This capability will empower teams with data-driven financial insights, which will improve decision-making speed and accuracy while optimizing trial budget planning and execution.

Experience-driven analysis

We are eliminating inefficiencies and time-consuming manual steps in the identification of best-fit clinical trial leadership. AI will analyze historical experience data alongside core system insights to assess geographical fit, availability, and alignment with study timelines and delivery needs. This will ensure that leadership resourcing is optimized in real time, which will reduce delays, enhance trial execution efficiency, and ensure the right expertise is allocated to the right trials without the traditional gaps in visibility or manual decision-making bottlenecks.

Laboratories, supplies and CDMO integration

Our AI modeling capabilities are already advancing the integration of PPD™ Laboratory services and ancillary supply data into core milestone, site activation and enrollment forecast scenarios. By connecting these elements as part of our AI-driven global strategy, we are building what could become the largest dataset of its kind. This will demonstrate trial delivery leadership and provide partners with unparalleled visibility into how nuanced changes in supply shipments impact trial timelines and vice versa. This integration will also enhance our already-ultracompetitive historical performance data by refining site selection and country strategy with even deeper insights.

With the combined power of our clinical research business and Thermo Fisher Scientific, our AI models will expand by incorporating data from Patheon Pharma Services. This will unlock the following capabilities:

- More granular timeline and scenario modeling across a broader spectrum of business offerings
- Deeper site, country and global strategy insights, expanding our investigator performance data footprint
- Enhanced visibility into rate-limiting factors, such as saturation through investigational product (IP) shipments, ensuring trials are proactively managed for efficiency and success

To learn more about the Clinical Trial Forecasting Suite, talk with your account representative or learn more at ppd.com/digital

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