



Closing the forecast accuracy gap:

A strategic blueprint for predictive demand planning in pharmaceuticals

Executive summary

The commercial pharmaceutical landscape is undergoing rapid transformation, exposing the limitations of traditional demand planning. Tender-driven volatility, unpredictable market access timelines and evolving patient behaviors have rendered conventional forecasting models often are on manual, spreadsheet-based workflows and static historical trends inadequate. While these methods provide operational discipline, they fail to deliver the foresight required to navigate today's complex, risk-prone markets.

Predictive analytics and demand sensing now represent a paradigm shift in pharmaceutical forecasting. By integrating machine learning, causal modeling and near-real-time data, organizations can anticipate demand for drivers before they disrupt the market. This white paper introduces a consulting-led transformation framework—anchored in a **demand planning and forecasting maturity assessment model** and a **predictive transformation framework** that empowers commercial organizations to improve forecast accuracy by **~15%**¹, cut demand-planner workload by **20%–30%**¹ and reduce supply-chain costs by **2%–3%**^{1,2} while strengthen cross-functional alignment across commercial, finance and supply chain.



Why forecasting must evolve in pharma

Demand forecasting in pharma has traditionally relied on established S&OP routines, historical sales patterns and planner expertise—methods that proved effective in stable environments. Today's landscape is far more complex: Tender-driven volatility, accelerated regulatory pathways, unpredictable market access timelines and shifting patient behaviors have introduced unprecedented uncertainty. Static, retrospective models can no longer capture this variability, leaving organizations exposed to misaligned supply, lost revenue and weakened competitive positioning. Pharma companies must transition from reactive, cycle-based forecasting toward adaptive, predictive models that continuously integrate real-time market signals a strategic imperative for sustaining growth and ensuring patient access.

Current landscape: The reality of commercial demand planning and forecasting

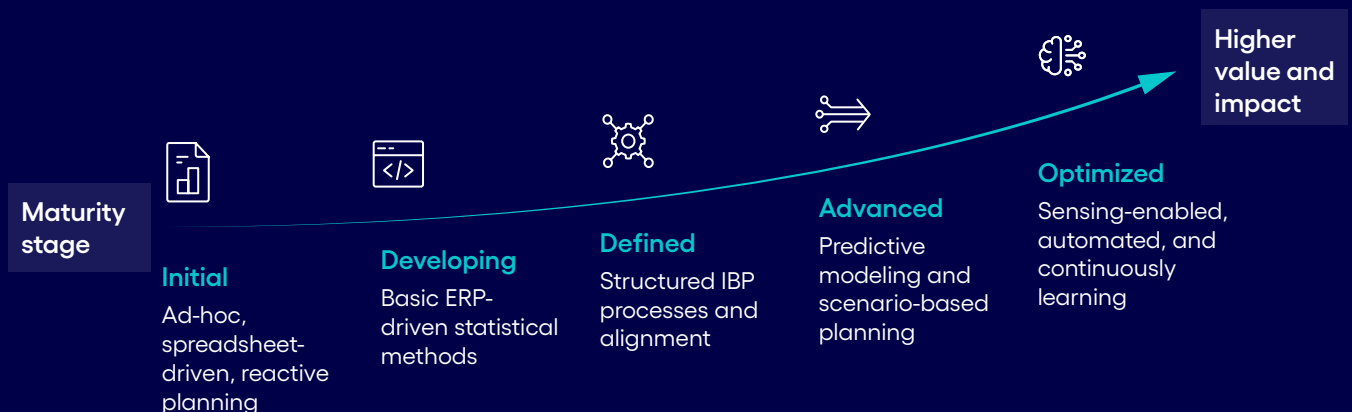
Today, forecasting in most pharma organizations remains structured but reactive. Industry benchmarks show that typical three-month-ahead forecast errors are high accuracy is only about 60%–65%,³ planning cycles remain monthly or quarterly and many organizations still depend on spreadsheet-based methods. Several persistent challenges impede performance: Critical data is scattered across ERP, CRM and distributor platforms with inconsistent hierarchies, and latency in secondary sales data prevents real-time adjustments. Planners dedicate disproportionate time to cleaning and reconciling data, while rigid quarterly cycles fail to absorb short-term demand shocks. Commercial and finance teams frequently maintain different forecast baselines, weakening integrated business planning, and predictive models are often perceived as opaque “black boxes,” hindering trust and adoption.

Cognizant's demand planning and forecasting maturity assessment framework

Predictive transformation begins with a clear understanding of the organization's current state. Our proprietary **demand planning and forecasting maturity assessment framework** provides a structured lens for evaluating capabilities, identifying readiness gaps and benchmarking against best practices. It assesses maturity across four dimensions: **process and governance, data and technology, people and capability, and performance and KPIs** mapped against defined levels from **foundational** (manual, reactive, siloed) to **leading** (predictive, real-time, integrated), providing a roadmap for progression and a baseline against which outcomes can be measured.

Statistical maturity journey

Evolving from ad-hoc to intelligent, predictive and autonomous decision making



From insight to impact: Building the next-gen forecasting model

Once maturity gaps are established, transformation progresses via a two-tier predictive transformation framework that integrates predictive analytics and demand sensing into a single continuous learning loop.

Tier 1—predictive analytics establishes the long-term causal forecast baseline by explaining **why** demand shifts will occur, combining internal data (sales, promotions) with external drivers (competitor actions, market dynamics), scenario simulations and machine learning that refines accuracy each cycle.

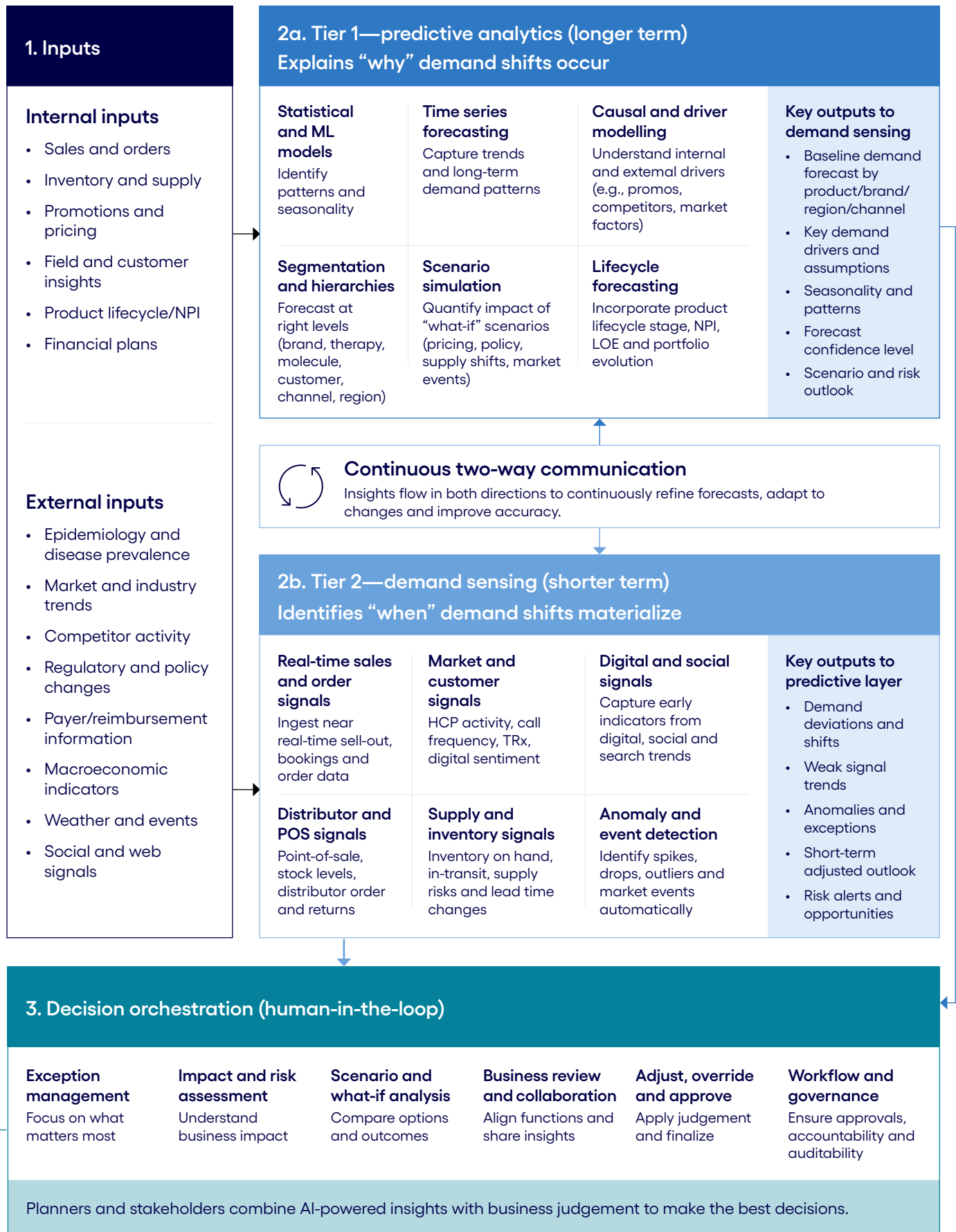
Tier 2—demand sensing enables short-term agility by identifying **when** shifts are materializing—integrating distributors, sales data and tender data to refresh forecasts daily or weekly, applying anomaly detection, and triggering automated alerts before deviations escalate. Together, the two tiers establish a self-correcting forecasting ecosystem that senses, predicts and adapts in real time. Indicative applications include early detection and redirection of short-dated inventory, smart replenishment with product-specific safety stock, demand-based allocation during shortages to ensure patient access and digital scenario simulations that prepare planners for disruptions before they occur.



Two-tier demand planning and forecasting framework for pharmaceuticals

Bridging foresight (why) and agility (when) to deliver a trusted, consensus demand outlook

How it works—end to end flow



4. Consensus demand outlook (trusted output)

Consensus demand forecast

Unified and agreed forecast

Confidence score and risk indicators

Know how confident we are

Segment/product/customer forecasts

Detailed outlook by dimension

Scenario outlooks

Optimistic, base and pessimistic views

Alerts and key insights

Act on important changes

Single source of demand truth for the entire organisation.

5. Downstream stakeholders—How they use the outlook

Commercial and sales

- Set targets and quotas
- Manage customer commitments
- Identify growth opportunities
- Plan promotions and pricing

Supply chain/operations

- Plan production and procurement
- Optimize inventory placement
- Manage capacity and logistics
- Ensure service-level targets

Medical and market access

- Epidemiology insights
- HCP demand trends
- Patient access planning
- Market access strategy

Finance

- Revenue forecasting
- Budgeting and financial planning
- Cash flow projections
- Scenario and risk evaluation

Quality and regulatory

- Regulatory change impacts
- Compliance and traceability
- Audit trails and documentation
- Oversee data oversight

Executive leadership

- Track performance and trends
- Monitor risks and opportunities
- Strategic decision-making
- Business alignment

6. Continuous learning and improvement



Track forecast vs actuals



Identify drivers of variance



Capture learnings and feedback



Improve models and signals



Strengthen accuracy and responsiveness



Better outcomes every cycle

The framework learns, adapts and improves every day—delivering smarter, faster and more confident demand decisions.

Benefits and outcomes

20%–30% improvement in forecast accuracy, driven by causal modeling and continuous machine learning refinement ⁴

20%–30% reduction in demand-planner workload, enabled by automation and real-time data integration ¹

Stronger cross-functional alignment across commercial, finance and supply chain through a unified forecast baseline

Greater agility and resilience improved service levels, lower inventory costs and reduced obsolescence risk

Conclusion: From forecasting to foresight

The commercial pharma environment has outgrown the capacities of traditional forecasting. The challenge has shifted from data scarcity to managing latency and synthesizing disconnected intelligence into actionable foresight. Combining the maturity assessment with the two-tier predictive transformation provides a proven roadmap to diagnose current-state gaps, deploy predictive and demand sensing capabilities, and establish a continuous learning culture for planning—transitioning organizations from merely managing demand to strategically anticipating it, and turning forecasting into a strategic differentiator that fuels commercial success and resilience across the value chain.

Authors

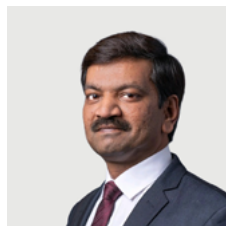


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