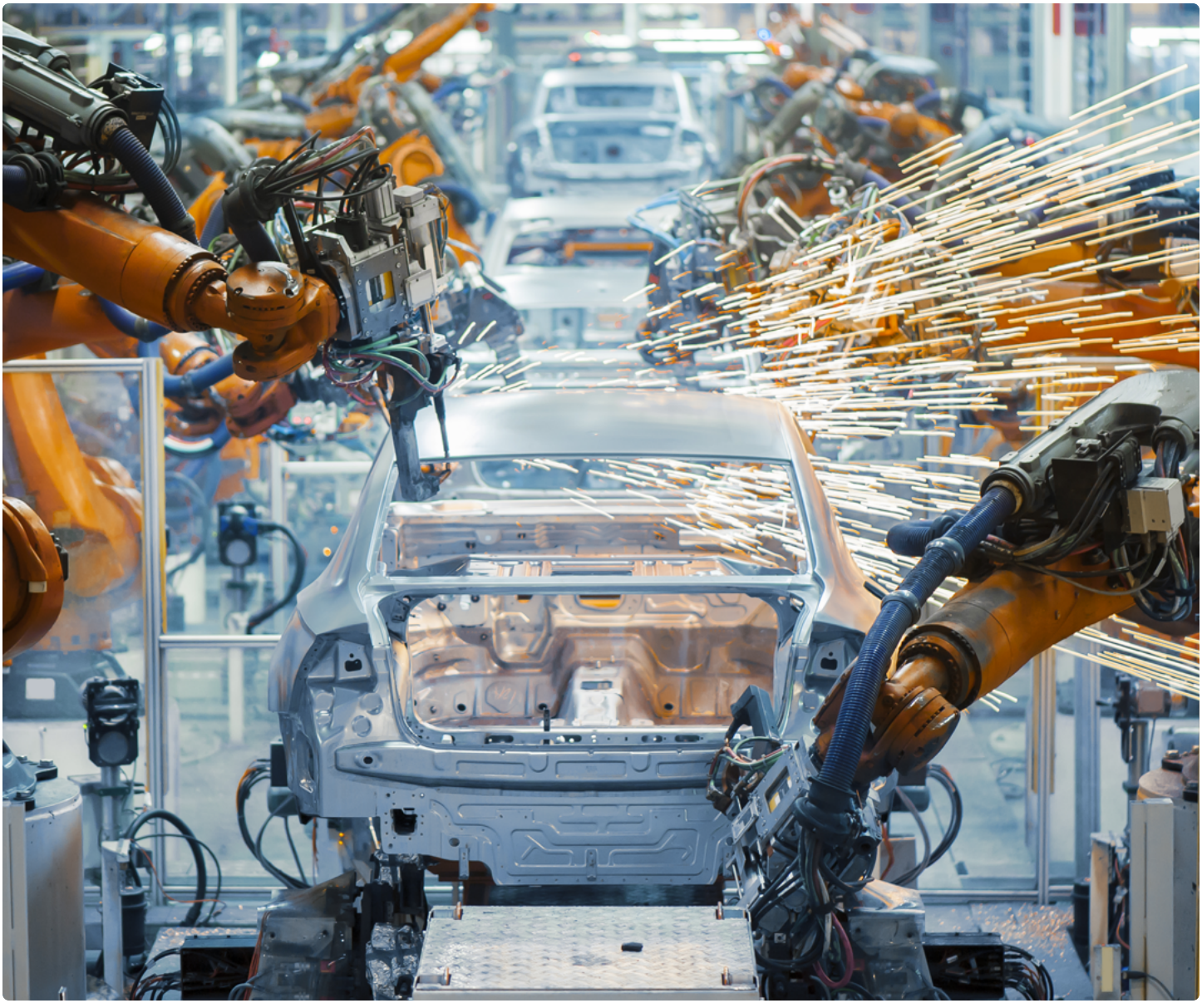
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Clear to Build with Palantir Foundry

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Challenge

Global supply chain volatility has created enormous challenges for manufacturing organizations. Supply-side raw material constraints burden material managers and supply chain experts alike with complex questions, such as:

- → What am I clear to build?
- → How do I allocate limited raw materials to production orders? To sales orders?
- → How do my allocation decisions impact revenue?
- → What do I need to do in order to de-bottleneck a given SKU? My entire network?

In a global manufacturing organization, these questions are difficult to answer, as they require visibility across a spider-web of interconnected Bills of Materials (BOMs), potentially hundreds of thousands to millions of raw materials, and finished SKUs, and a rapidly shifting supply and demand picture. Answering these questions in real time is critical, but to try to stay ahead of the curve, organizations should try to run complex what-if scenarios and simulations to proactively mitigate future disruptions.



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Modules



Module 1 →
Supply Chain Digital Twin

An organization's critical supply chain data is often scattered across multiple systems — multiple ERPs, TMS, internal data lakes, spreadsheets, and more. Foundry has over 200 built-in connectors that enable rapid ingestion and integration of source data, regardless of whether it's stored in a unified datalake or disparate ERPs and spreadsheets across the organization. The Digital Twin is then constructed on top of this data, creating core concepts of Entities & Events, Models, and Actions.

ENTITIES & EVENTS
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We model the following entities and events in the Digital Twin to represent both real historical and future supply chain operations. The list is not exhaustive and can be expanded or reduced based on industry and organizational need.

Entities	→ Material / Plant / Inventory / Customer / Vendor / BOM (Header and Item) / Batch (If necessary)
Events	→ Purchase Order / Sales Order / Production/ Process Order / Stock Transfer Order

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MODELS
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Models layer onto entities and events to represent interactions between components and the impacts of those interactions. The set of models deployed or configured varies from customer to customer, depending on industry and objectives. Some example models include: Clear to Build Projection, Sales Order Allocation based on FIFO or based on Max. Revenue, On-Time-In-Full, Out of Stock Risk, and much more. These models are critical to subsequent simulations and what-if scenarios, and enable operators to ask the Digital Twin represent questions and understand impact.

ACTIONS
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Finally, the Digital Twin incorporates the concept of Actions, which enable users to write-back to source systems as they execute supply chain operations from within the Foundry Platform. This ensures that Analytics and Operations exist in a closed-loop, driving maximum value for the business by ensuring that decisions identified in the Digital Twin are implemented on the ground.



Module 2 → Clear to Build

This module provides core Clear to Build functionality along with a wide range of visibility, simulation, and alerting capabilities across the entire materials management space.

VISIBILITY
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Operators have a range of critical questions they must ask on a daily basis that are simple to ask but often hard or impossible to answer:

→ “How much can I produce today given current inventory?”
→ “How much will I be able to produce in subsequent days as purchase orders, sales orders, and production runs continue?”
→ “What do I need to do in order to de-bottleneck production of a given finished good?”

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VISIBILITY

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This Module of the Clear to Build+ Toolkit unpacks the BOMs to create a global material dependency graph describing how material flows from raw to WIP to finished goods. Leveraging this model, the toolkit can use inventory and sales projections to determine the clear to build status for each finished good. Layered on top, operators can define their preferred prioritization strategy for when multiple finished goods compete for the same raw material.

SIMULATION

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Visibility provides the end-to-end truth about the current and future state of material availability and clear to build. This visibility sits on top of the Foundry Platform's Scenarios capability, which enables users to simulate arbitrary future states of the supply chain, such as what-if scenarios on suppliers and delivery capabilities, production and capacity capabilities, or end customer demand plans and forecasts. The simulation captures not only the local impact of the simulation, but the propagated impact across the end-to-end supply chain, ensuring that operators understand the global impact of any decision prior to real-world execution.

ALERTING

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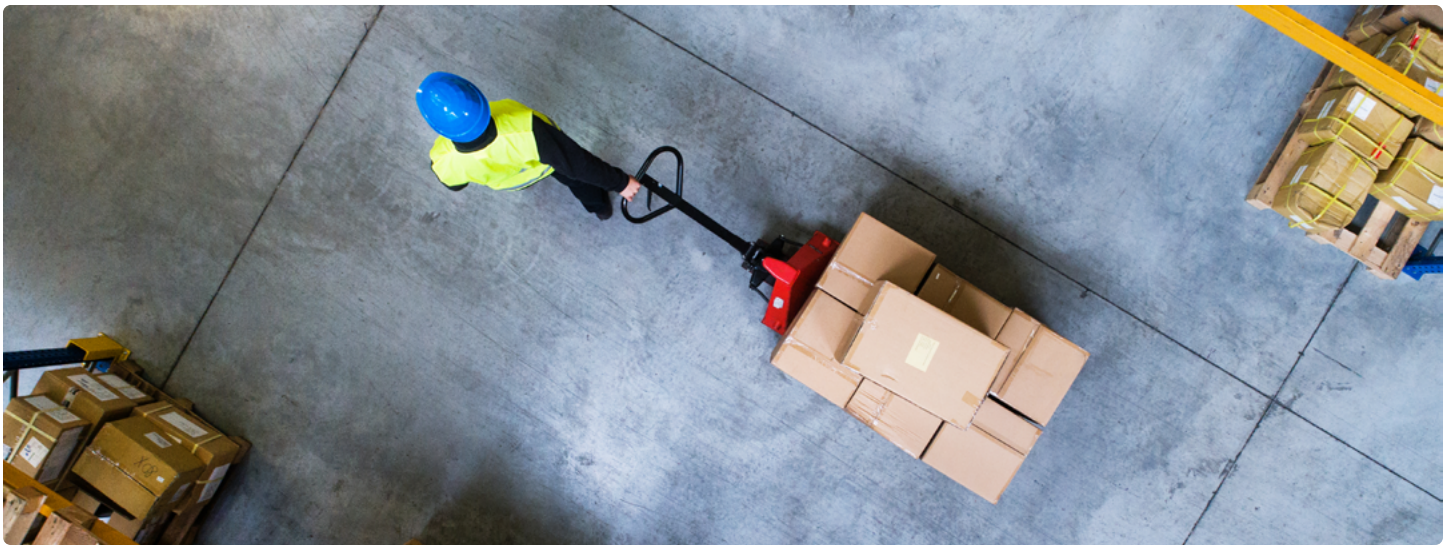
Finally, alerting ensures that managers, analysts, and operators across all functions in the supply chain proactively understand potential issues and can quickly focus their attention on the most pressing issues. Automatically generated simulations and scenarios enable operators to evaluate available mitigation options at the click of a button, saving valuable investigation time and ensuring operators once again know the global impact of all mitigation options and make the business-optimal decision. A history of alerting records can also identify repeat offenders as well as surface solutions with precedent.



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Module 3 → Sales/Production Allocation

In many cases, supply or production capacity is simply insufficient to meet all outstanding demand. Making the right decision on what to produce or what sales order to fulfill is a complex, cross-functional and cross-value-chain endeavor. This Module enables operators to make those hard decisions with ease - enabling business experts to focus on the business strategy, and not the data analysis.



ALLOCATION STRATEGIES ↘

Deciding how to allocate limited raw materials or production capacity is often both a quantitative and qualitative exercise. Aspects such as revenue or profit generation can be quantified to create a concrete objective, but customer satisfaction, market share, and more often remain core business objectives and need to be considered when allocating.

By default, the following allocation strategies come pre-configured to get the allocation process moving quickly:

- → Maximize revenue
- → First-in first-out by order date
- → First-in first-out by planned delivery date

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ALLOCATION EXECUTION
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Execution of an allocation decision is often very tedious in source systems, requiring cancellation or delay of potentially hundreds of production runs, sales orders, etc. In parallel, these changes need to be communicated to a wide swath of stakeholders, from key account managers to material managers and production planners.

This module supports both aspects by providing:

→ Direct write-back to source systems (further detailed in Module 4).
→ Easy-to-use alerting and UI solutions for end operators to understand the latest state of the allocation process as it relates to their daily work.



Module 4 → Write-back

Palantir Foundry is an operational platform designed to not only to make your supply chain smarter, but also more effective. The same 200+ connectors that enable easy connection to source systems also enable easy write-back to those systems. This ensures that analyses, simulations, and decisions identified within Foundry are executed in daily business.

INSTALLATION AND INTEROPERABILITY
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Many organizations have made significant steps in recent years developing and executing on a digital and data strategy. Palantir Foundry and the Clear to Build+ solution are designed to operate in complex IT environments. Foundry works equally well interacting with existing data lakes and data warehouses or source ERP and other operational system. Foundry is further designed to work alongside existing supply chain point solutions to ensure that existing investments are an accelerant to value creation.

As a SaaS, Foundry can be installed in a matter of days and the Clear to Build+ solution deployed in a matter of weeks.

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Conclusion

Recent conditions have demonstrated global volatility has and likely will persist through the indefinite future. The complexity of our supply chains that enables the functioning of your business at scale, also makes them highly vulnerable to major disruptions. The Clear to Build+ solution in Foundry can enable organizations of all shapes and sizes to navigate this highly complex supply chain environment. Safeguard your business against disruptions and equip it for agility into the future.

To request more information or a demo, reach out to your existing Palantir sales representative, or send an email to business@palantir.com.



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