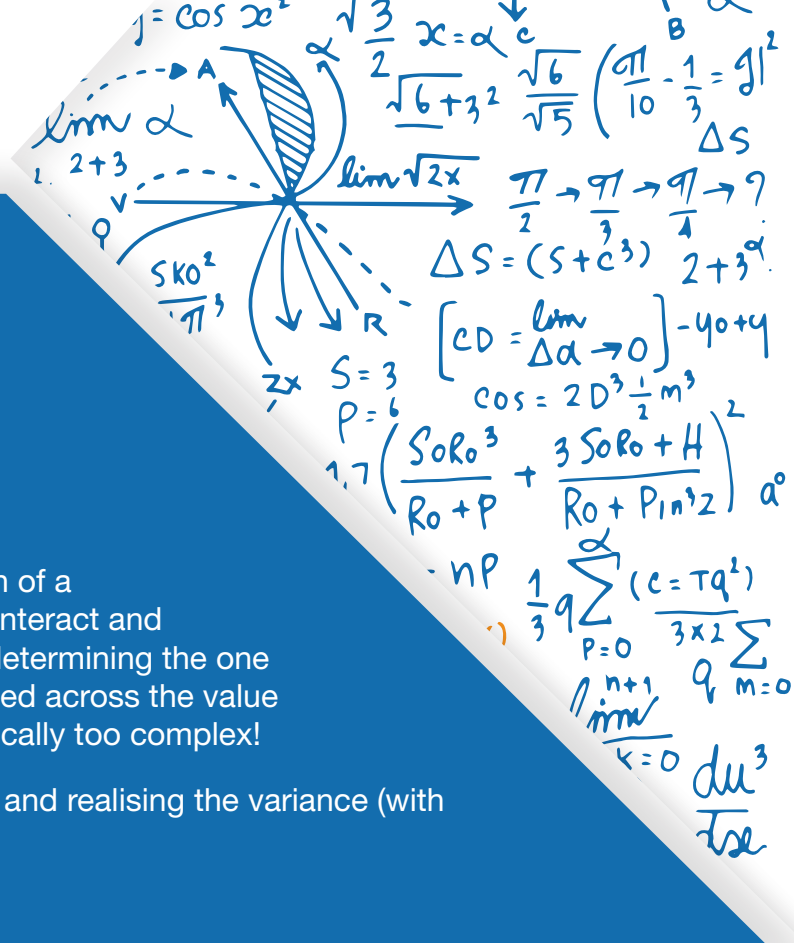


Supply Chain - A complex multivariate equation with multiple outcomes

The Supply Chain ecosystem is a perfect illustration of a complex system wherein a multitude of processes interact and depend on one another. The problem, however, is determining the one output that has all the governing processes optimised across the value chain to deliver the highest value. That's mathematically too complex!

Imagine manually solving these complex equations and realising the variance (with the best possible solution) to be significantly large.



Digital Twin - The digital overview of 'Complexity'

The Digital Twin is a detailed virtual replica of the entire Supply chain, that can track and analyse the deterministic characteristics of various processes at a granular level. The Digital Twin integrates at the process level and drives the flow of information right up to the Decision-level.

The Digital Twin is the solution to the complexity driving the Supply Chain. It represents the multivariate Supply chain equation in a differentiated form, allowing planners and decision-makers to study and analyse the domino effect of various cross-processes (both micro & macro).

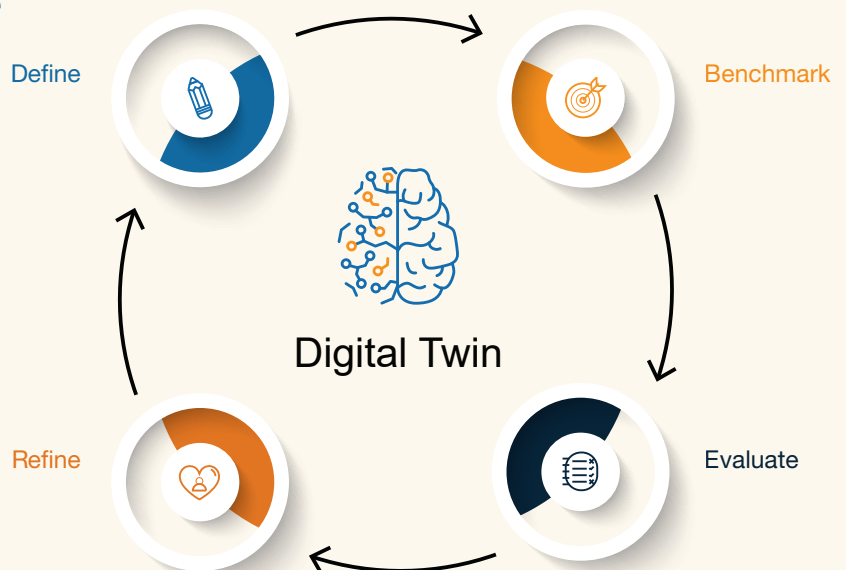
Simplifying the complexities of the Supply Chain ecosystem

Define the KPIs that matter the most to your business

Benchmark these KPIs to deliver the highest value

Evaluate the results to perform a root cause analysis of the existing gaps at each of the process, cross-process & end-to-end value chain levels

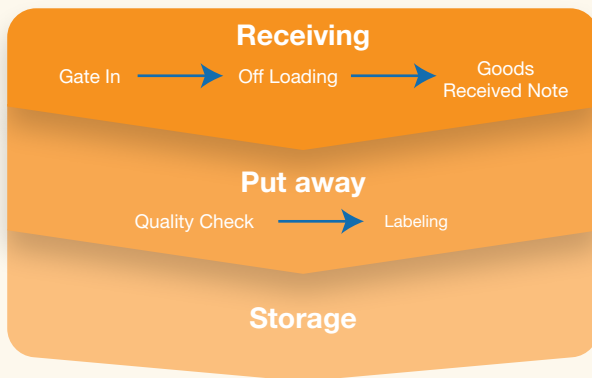
Refine and optimise processes at granular gaps to improve the overall business efficiency



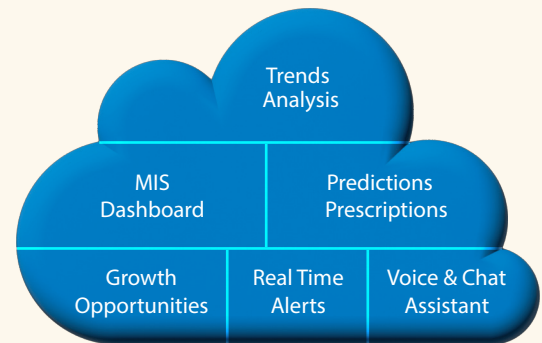
Value Creation

Process mapping: Map, track, analyse and optimise processes across the entire value chain

Warehouse Inbound
Logistics Mapping



End-to-end business process visibility: Integrate the disparate data silos existing at different levels of the business to create a consolidated data plane where all the micro and macro processes are integrated to allow complete transparency



Multiple what-if simulations: Manipulate the end impact of changes on multiple variables to track down the sensitivity of differences



Insights, alerts & triggers to manage risks better: Draft plans on a virtual environment before running them in the real-world environment to gather insights and address the current gaps. Configure and receive notifications to address any task failures on the go



Building Blocks of Digital Twin

Inbound Logistics		Receiving			Put Away		Storage
		Gate In	Off Loading	ASN ¹ VS GRN ²	Quality Check	Labeling	Storage
Efficiency + Utilization	Handling cost						
	Resource scheduling						
	Resource Utilization						
	Holding cost per unit (SKU/Box/Pallet)						
	Where to store ? Location of inventory in warehouse						
	Storage capacity Utilization						
	Missing rate (% , \$)						
	Pilferage rate						
Quality + Reliability	Quality of Information						
	Transport documents Complete(Yes/No)						
	Receipts match with order(Yes/No)						
	Product quality						
	Defective rate						
	Quality of labeling						
	Supplier reliability						

1. Advance Shipment Note

2. Goods Received Note

*This is the representative process flow and their respective. It is not a complete or exhausted KPIs.

*Resource is manpower, assets(machines, trolley etc)

*Quality shows how well an object performs its proper function, while reliability shows how well this object maintains its original level of quality over time, through various conditions.

Here's the **process breakdown** and **KPI Benchmarking** of **inbound Logistics** for a warehouse. From the point of receiving the inbound goods to storage of the same. Digital Twin is a digital replica of the entire process chain; it enables transparency and **end-to-end visibility** at process/task level, enhancing decision making and driving business insights.