



“Are Manufacturers Ready for Supply Chain Artificial Intelligence (AI)?”

Featuring

Sree Rajagopalan

Founder & CEO, Murano Corporation

Jerry Kopecky

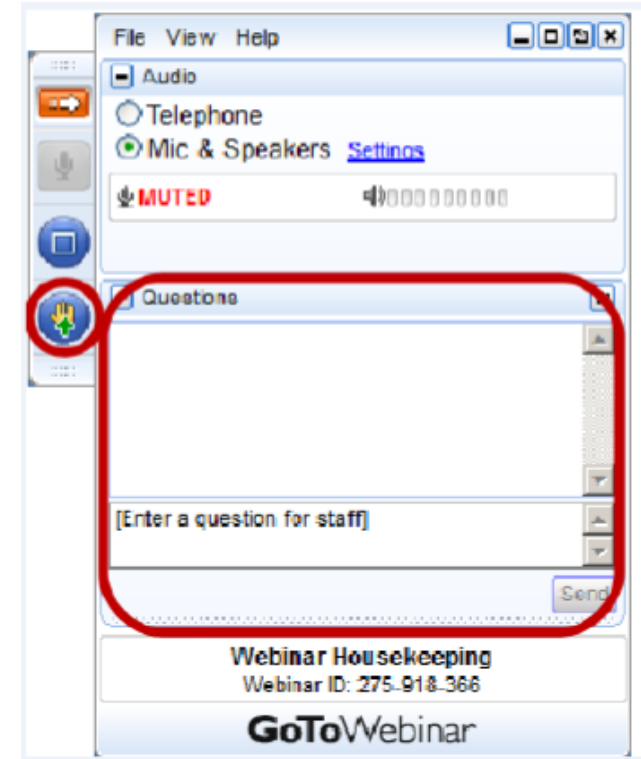
Senior Product Director, Murano Corporation



The Value Chain Integration Company

Ground Rules

- ✓ All attendees muted.
- ✓ Please submit questions via the Chat Toolbar.
- ✓ PDF & recording will be sent out after today's session.



Sponsor



Serving the Georgia area since 1964

- Membership
- Research & Publications
- Education
- Professional Certifications

Sponsor



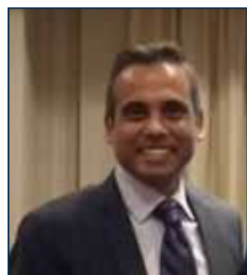
Specializing in helping organizations find top talent in:

Engineering

Manufacturing

Supply Chain

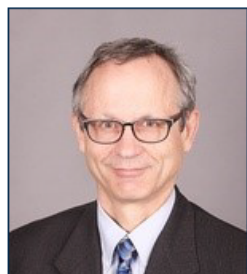
Today's Featured Speakers



Sree Rajagopalan

Sree Rajagopalan is the Founder and CEO of [Murano Corporation](#) and has **NO** shame in admitting that he is a Geek who loves all things Supply Chain. With 20+ years of experience in the industry and as a former IBM professional, his mission is to reduce Supply Chain inefficiencies in the B2B space by utilizing Artificial Intelligence (AI) and increasing data visibility.

How does he do this? Through an innovative, affordable and customer-friendly Cloud technology that dynamically transforms organizations. With a team of industrial engineers and software developers, Sree has created a Supply Chain Management solution that connects data and improves processes in an organization and the entire Supply Chain.



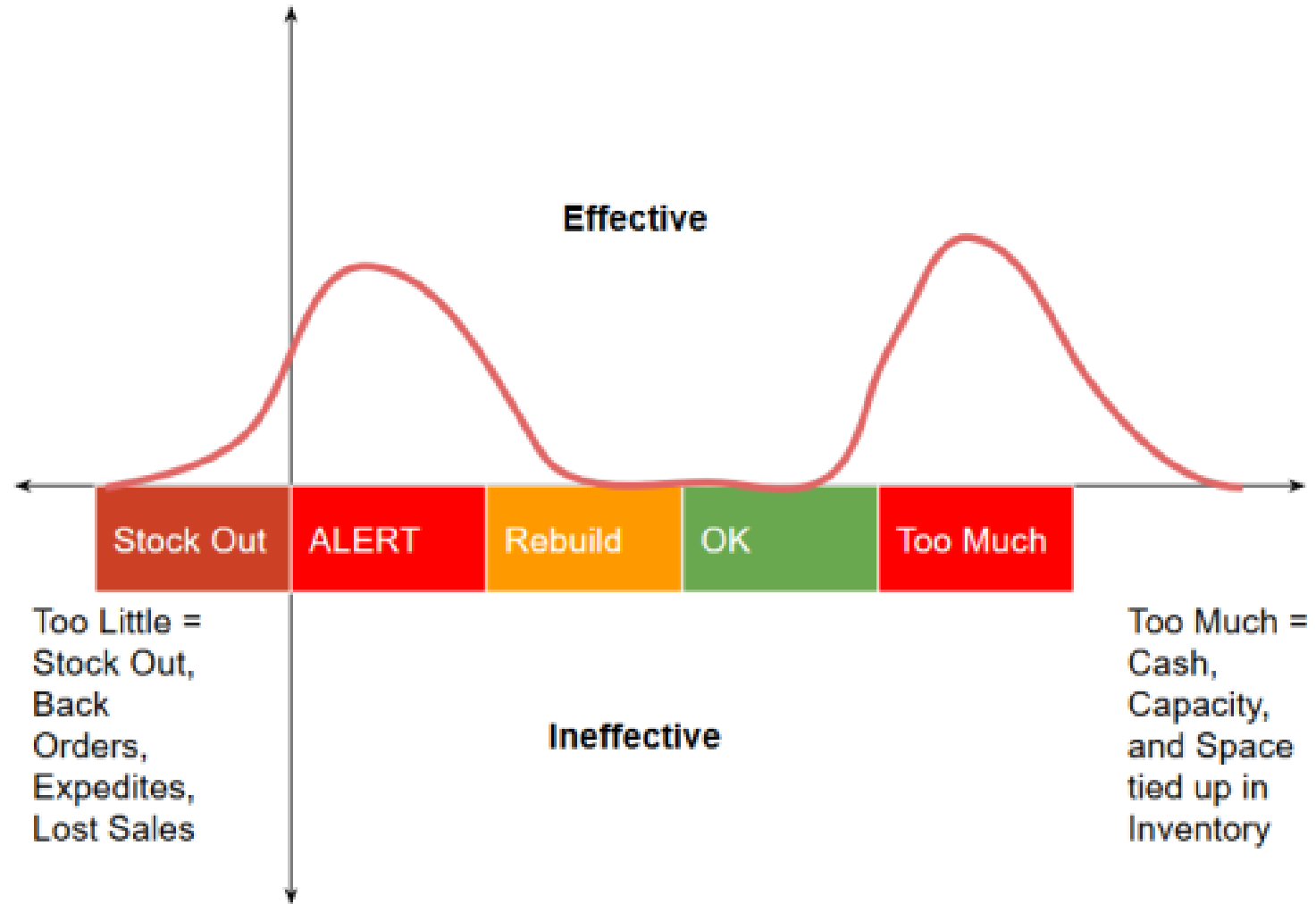
Jerry Kopecky

Jerry Kopecky is a business IT Architect who recognizes the importance of tools to assist people working in their business' supply chain with expert knowledge in multi-platform operating environments, computing architectures and implementation of network computing structures.

He worked for IBM for many years in their ERP and architecture businesses, connecting applications to get usable information out of customer's data (i.e., SAP data structures). Jerry has prior experience in building, developing, and delivering both packaged and homegrown solutions plus designing effective, stable IT solutions to mitigate business problems or interconnected business processes. He can evaluate and compare alternative solutions, to present their strengths and weaknesses and to make appropriate recommendations.

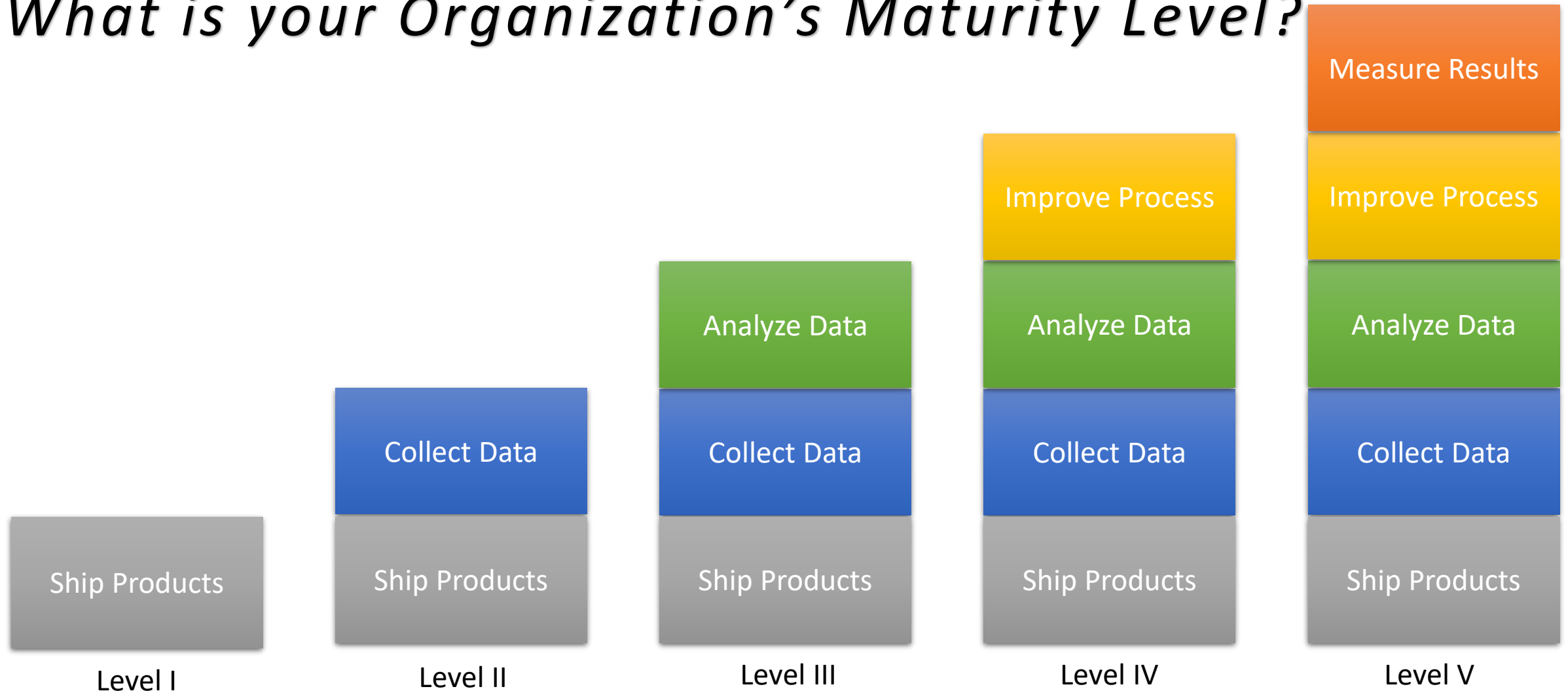
Bi-Modal Inventory Distribution

Supply Chain AI Optimizes Inventory



ORGANIZATIONAL/TECHNOLOGY MATURITY

What is your Organization's Maturity Level?



sup·ply chain ar·ti·fi·cial in·tel·li·gence (AI)

uses automation for problem solving, continuous learning, and pattern matching. The key innovation in Supply Chain AI is predictive intelligence which is invaluable in using data to foresee disruptions, forecast demand, inventory planning, and utilize resources more efficiently.



No Paper



No Spreadsheets



Integrated Data



Analytics



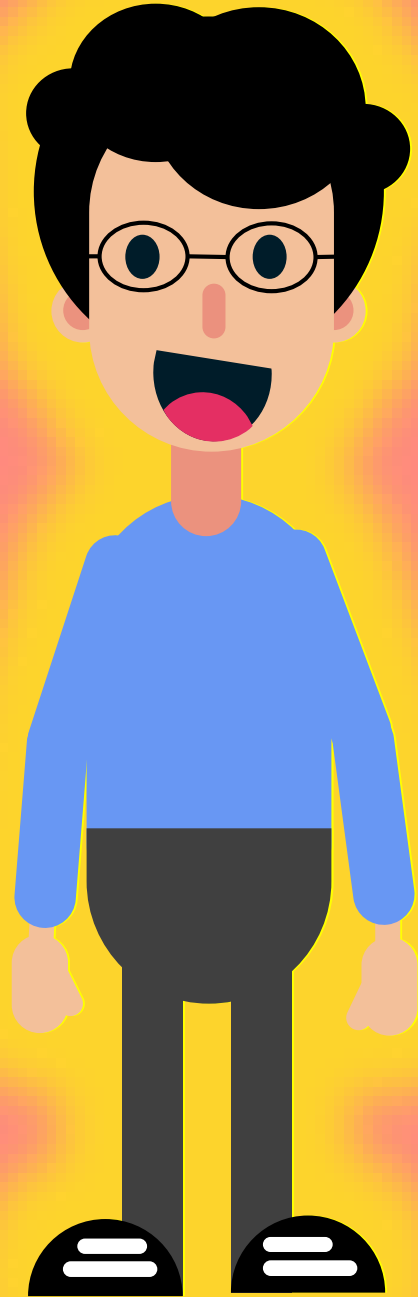
Predictive Intelligence



Machine Learning

Let Computers Do What They Do Best and Humans Do What We Do Best

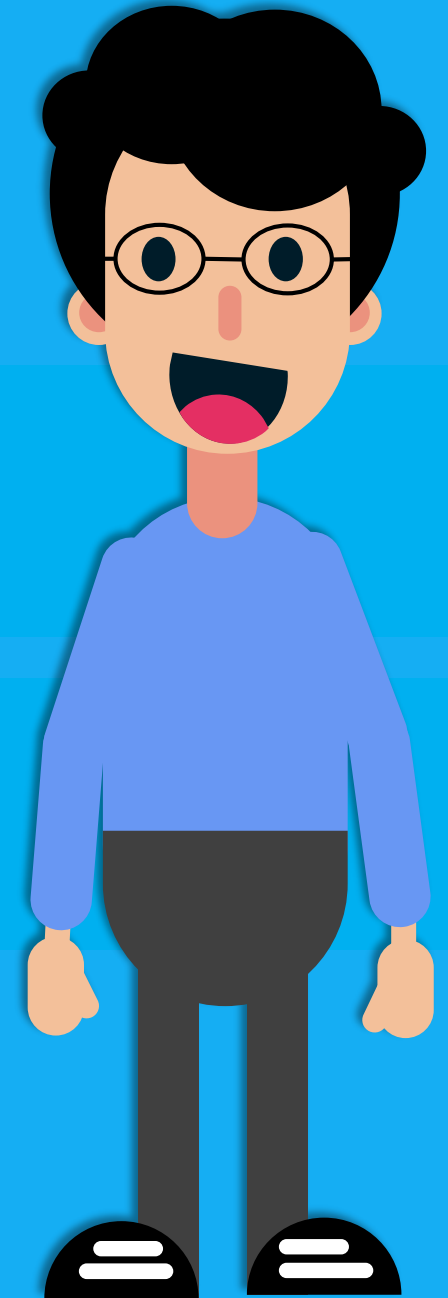
**THE FUTURE IS
NOT HUMAN
REPLACEMENT**



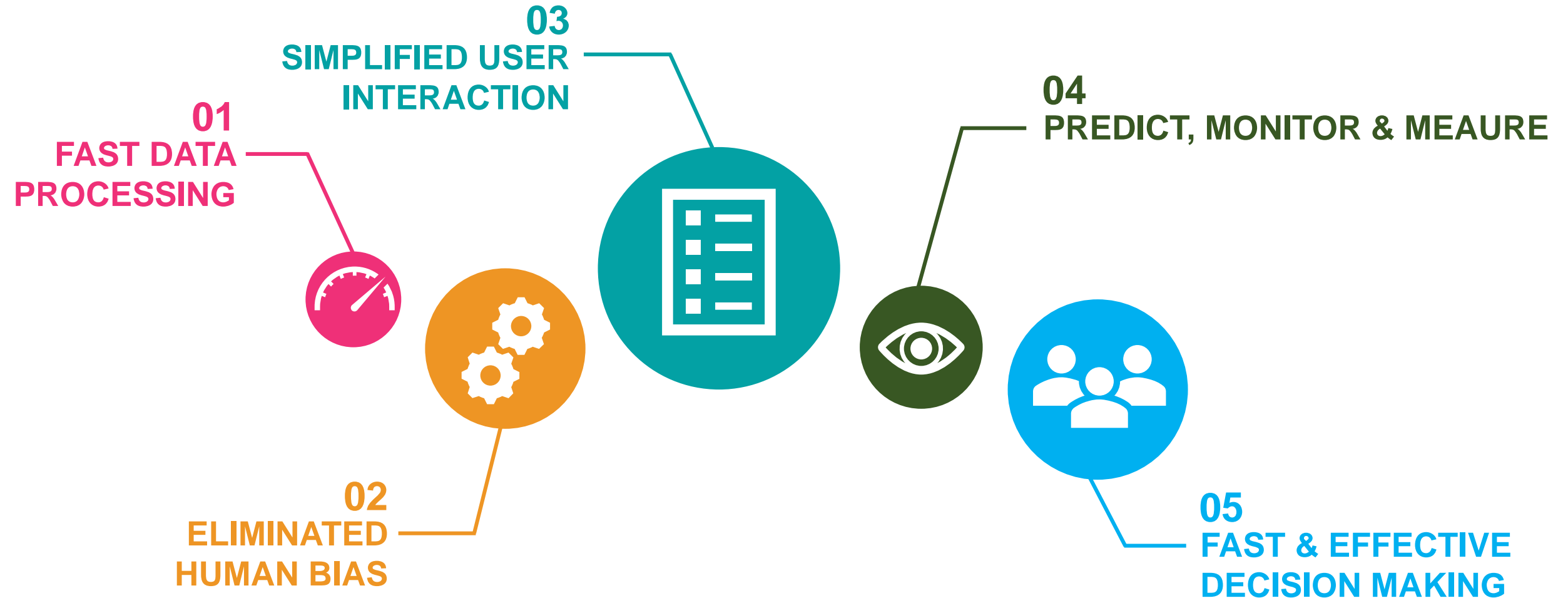
**BUT HUMAN
ENHANCEMENT**



AUTOMATION & AUGMENTATION

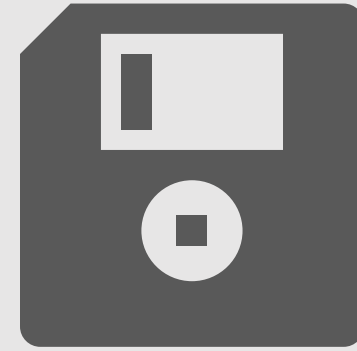


INTELLIGENT AUGMENTATION





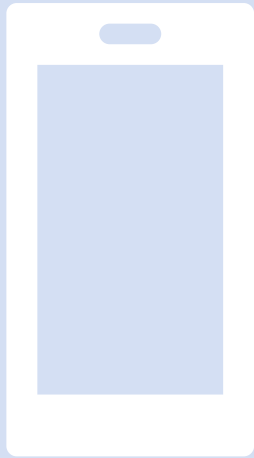
Landline



ERP Software

I N N O V A T I O N M A T R I X

I N N O V A T I O N M A T R I X



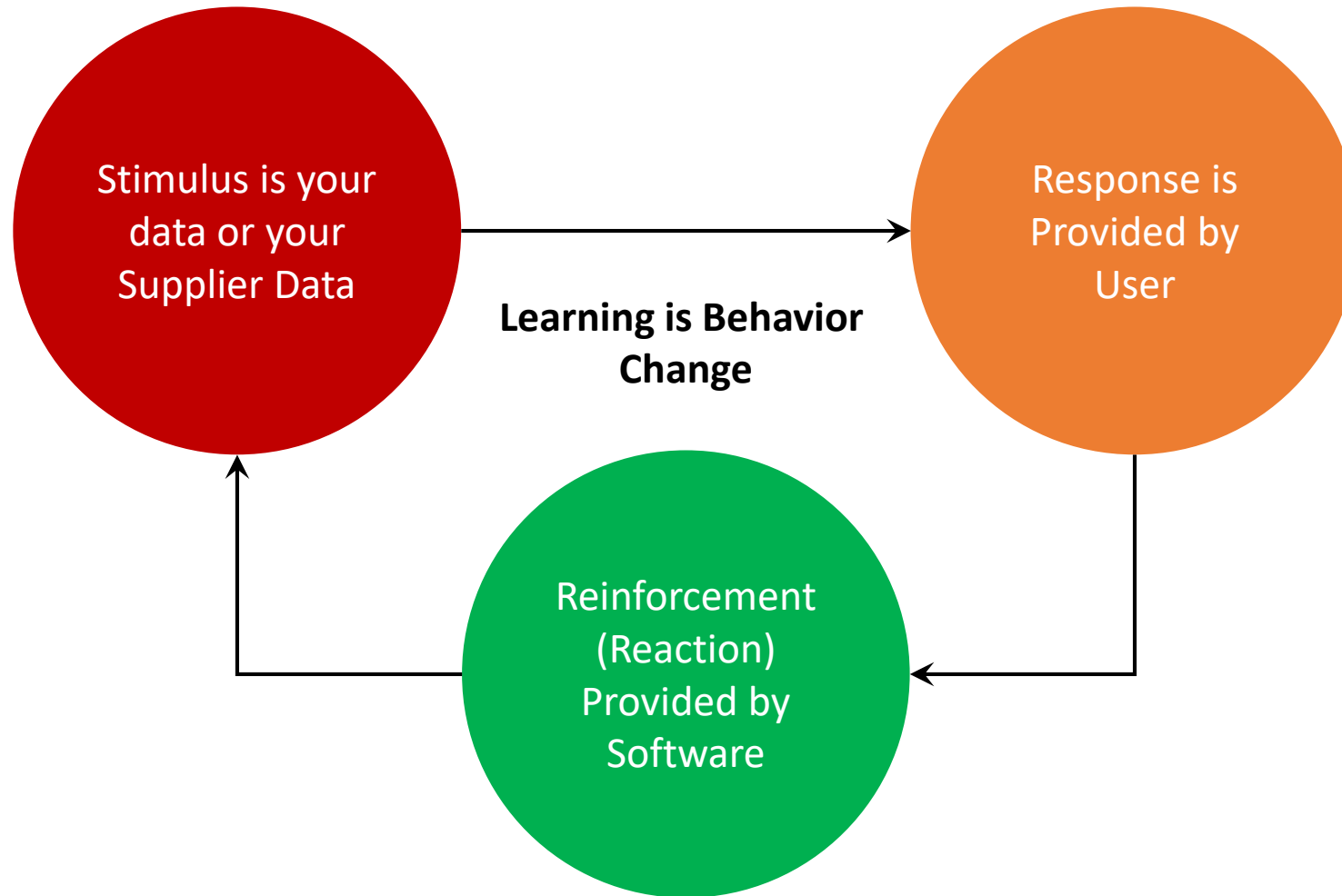
SmartPhone

I N N O V A T I O N M A T R I X



Supply Chain Artificial Intelligence (AI)

Supply Chain AI: Psychology of Learning for AI



Four Levels of Supply Chain AI

Data	Level 0
Input(s)	<ul style="list-style-type: none">▪ Customer Demand▪ Bill of Material▪ Internal Inventory
Output	<ul style="list-style-type: none">▪ Production Order▪ Purchase Order
Accuracy	Low
Timely	Low
Storage	Spreadsheet
Collection	Human
Analysis	Human
Review	Human
Action	Human
Warning	Unavailable

Four Levels of Supply Chain AI

Data	Level 0	Level 1
Input(s)	<ul style="list-style-type: none"> Customer Demand Bill of Material Internal Inventory 	<ul style="list-style-type: none"> Customer Demand Bill of Material Internal Inventory Supplier Inventory Customer Inventory
Output	<ul style="list-style-type: none"> Production Order Purchase Order 	<ul style="list-style-type: none"> Production Order Purchase Order
Accuracy	Low	Medium
Timely	Low	Medium
Storage	Spreadsheet	Database
Collection	Human	Computer
Analysis	Human	Human
Review	Human	Human
Action	Human	Human
Warning	Unavailable	Computer

Four Levels of Supply Chain AI

Data	Level 0	Level 1	Level 2
Input(s)	<ul style="list-style-type: none"> Customer Demand Bill of Material Internal Inventory 	<ul style="list-style-type: none"> Customer Demand Bill of Material Internal Inventory Supplier Inventory Customer Inventory 	<ul style="list-style-type: none"> Customer Demand Bill of Material Internal Inventory Supplier Inventory Customer Inventory
Output	<ul style="list-style-type: none"> Production Order Purchase Order 	<ul style="list-style-type: none"> Production Order Purchase Order 	<ul style="list-style-type: none"> Production Order Purchase Order
Accuracy	Low	Medium	High
Timely	Low	Medium	High
Storage	Spreadsheet	Database	Database
Collection	Human	Computer	Computer
Analysis	Human	Human	Computer
Review	Human	Human	Human
Action	Human	Human	Human
Warning	Unavailable	Computer	Computer

Four Levels of Supply Chain AI

Data	Level 0	Level 1	Level 2	Level 3
Input(s)	<ul style="list-style-type: none"> Customer Demand Bill of Material Internal Inventory 	<ul style="list-style-type: none"> Customer Demand Bill of Material Internal Inventory Supplier Inventory Customer Inventory 	<ul style="list-style-type: none"> Customer Demand Bill of Material Internal Inventory Supplier Inventory Customer Inventory 	<ul style="list-style-type: none"> Customer Demand Bill of Material Internal Inventory Supplier Inventory Customer Inventory
Output	<ul style="list-style-type: none"> Production Order Purchase Order 	<ul style="list-style-type: none"> Production Order Purchase Order 	<ul style="list-style-type: none"> Production Order Purchase Order 	<ul style="list-style-type: none"> Production Order Purchase Order
Accuracy	Low	Medium	High	Higher
Timely	Low	Medium	High	Higher
Storage	Spreadsheet	Database	Database	Database
Collection	Human	Computer	Computer	Computer
Analysis	Human	Human	Computer	Computer
Review	Human	Human	Human	Computer
Action	Human	Human	Human	Computer
Warning	Unavailable	Computer	Computer	Computer

SUPPLY CHAIN AI



INVOICE MATCHING

FINANCE

Discovers invoice errors by matching quantity and price of purchase orders, goods receipts, and invoices to ensure financial accuracy.



DEMAND SENSING

SALES

Predicts demand fluctuations for specific parts to help adjust raw material purchasing and production planning.



SUPPLY PLANNING

PURCHASING

Tracks inventory and helps predict material stock outs by measuring average daily consumption and raw material lead time.



DEFECT PATTERN TRACKING

MANUFACTURING

Matches related defects from specific suppliers to help predict part failures and future disruptions due to poor supplier quality.



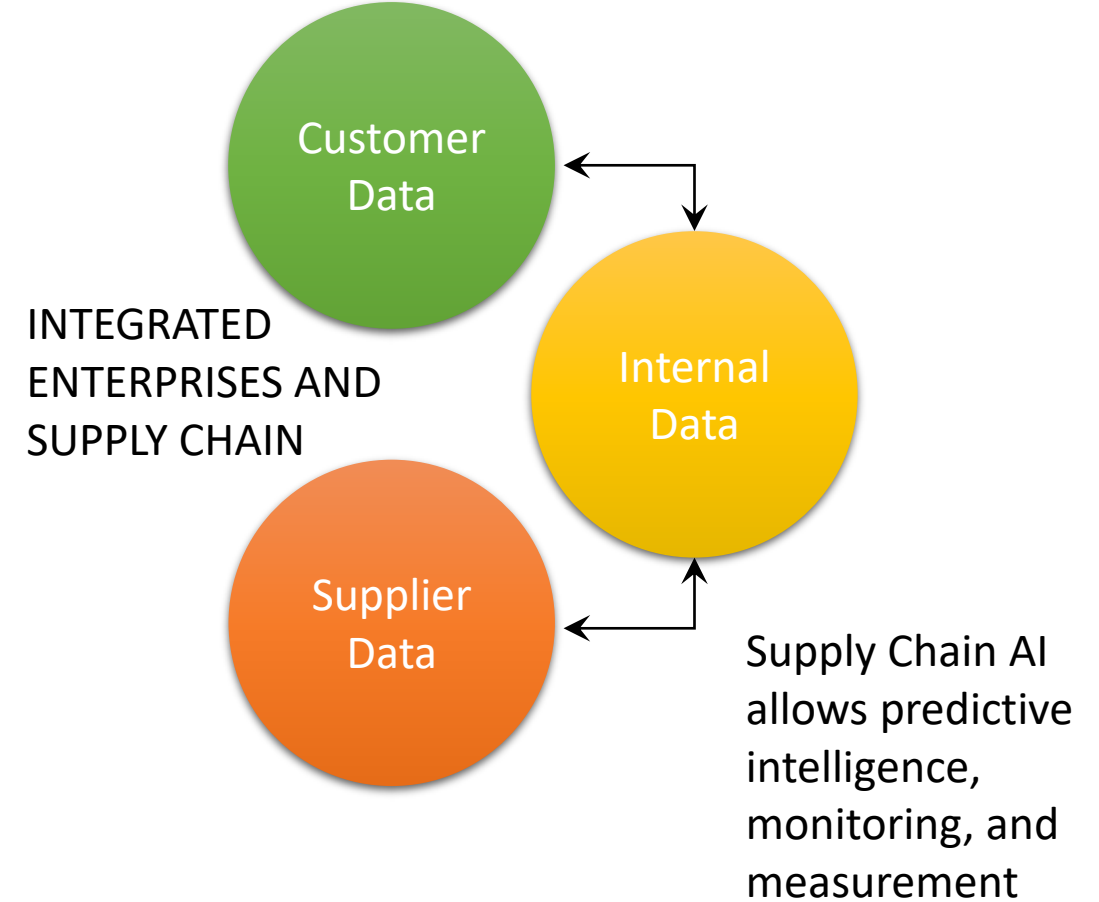
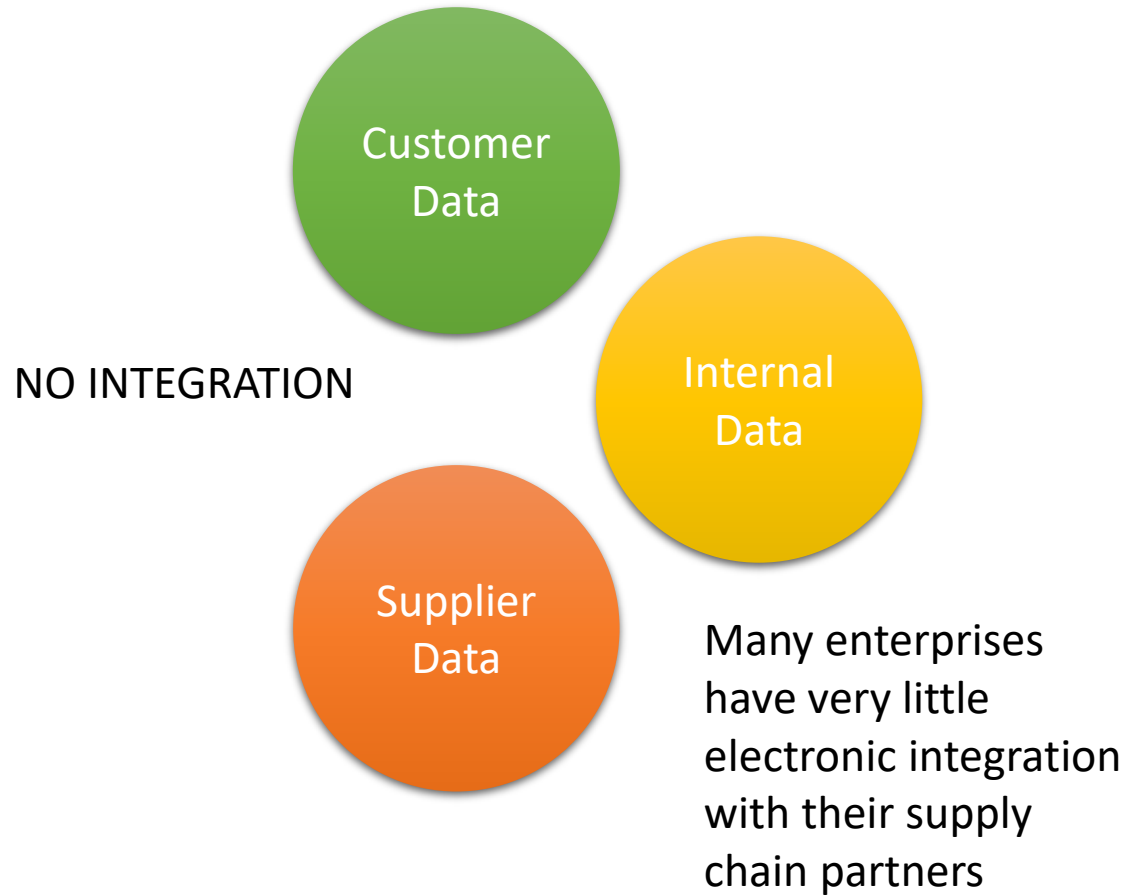
DAYS OF SUPPLY PLANNING WITH AI



Technology: Convergence of Data

Combining External and Internal Data Sources

Accurate and Timely
External Demand &
Internal Inventory



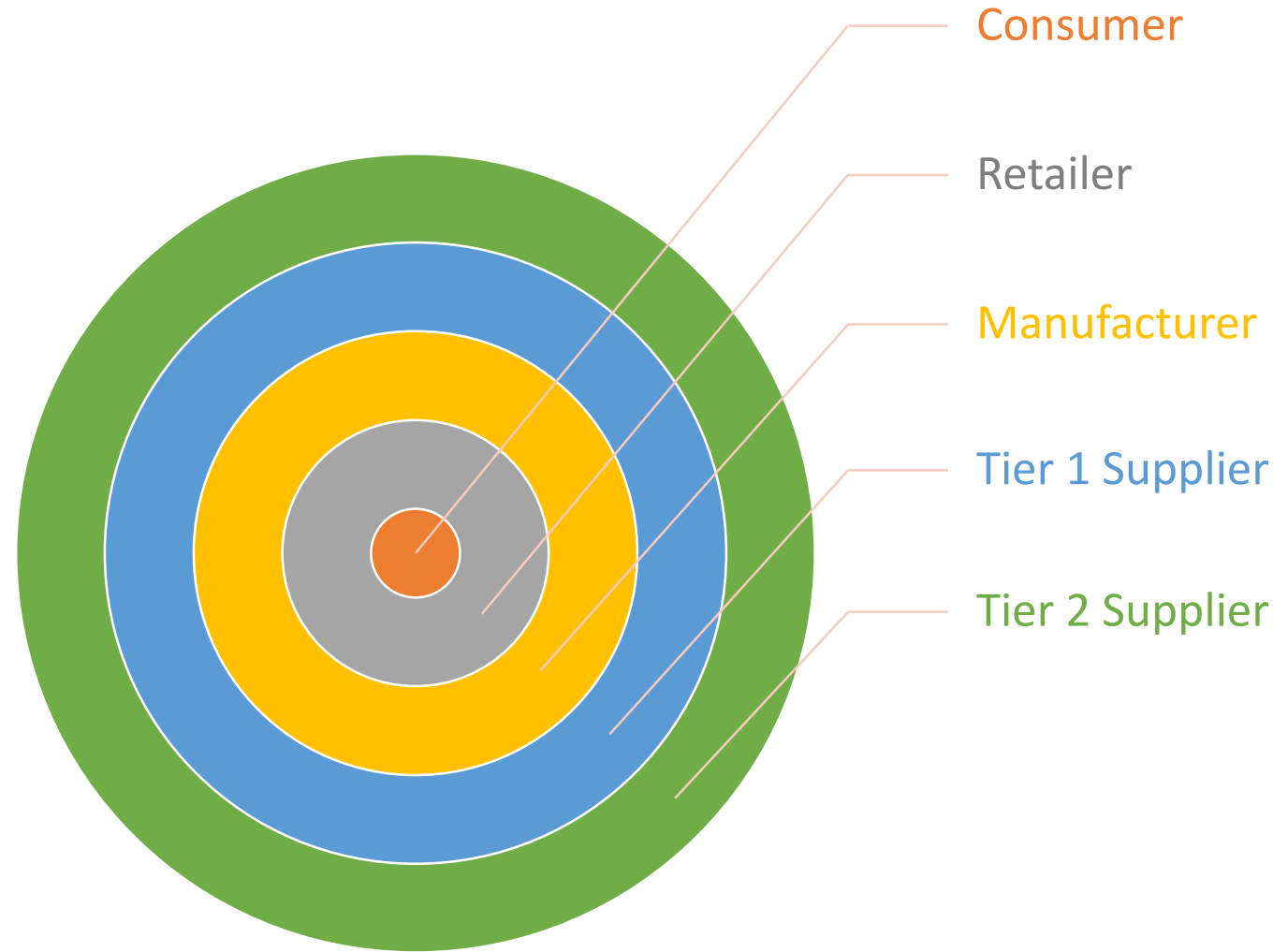
Integrated Business Planning (IBP)

Combines Collaborative Planning, Forecasting and Replenishment (CPFR) with Sales & Operations Planning (S&OP)

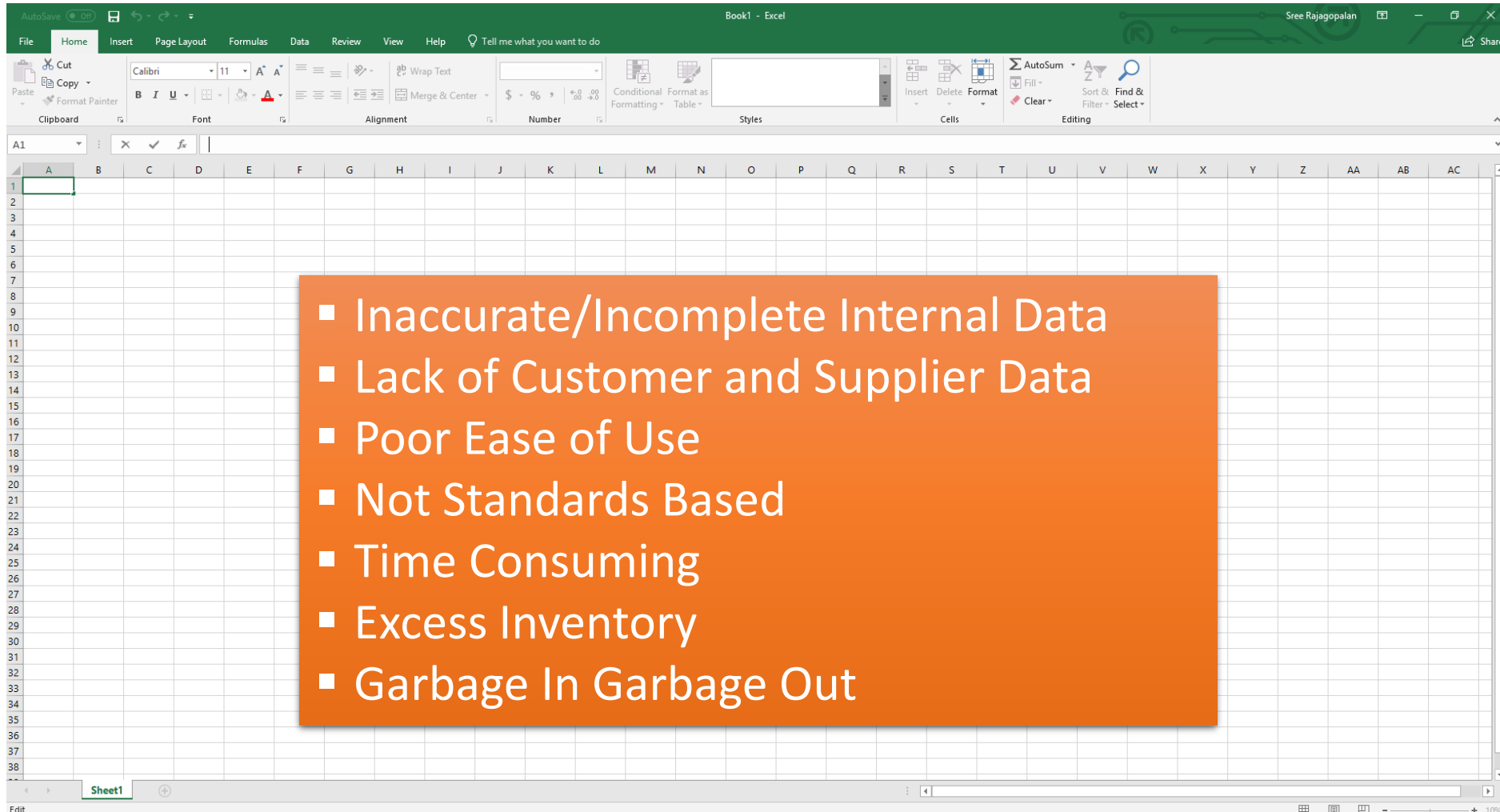
Manufacturer Benefits	Typical Improvement
Lower Inventory levels	10%-40%
Faster Replenishment Rates	12%-30%
Higher Sales	2%-10%
Better Customer Service	5%-10%

Source: AMR Research (2009)

- Manufacturer shares forecasts, shipment schedules, purchase orders electronically with their upstream supply chain partners
- Supply chain partner combines OEM forecasts and orders with internal inventory and replenishment data to predict future stock outs
- Demand Driven Planning Strategy
- Key Metric: Days of Supply



Demand Planning without Supply Chain AI Leads to High Safety Stock Levels



The image shows a screenshot of the Microsoft Excel application interface. The title bar indicates the file is 'Book1 - Excel' and the user is 'Sree Rajagopalan'. The ribbon is set to 'Home', and the active cell is A1. Overlaid on the spreadsheet is an orange rectangular box containing a bulleted list of seven points:

- Inaccurate/Incomplete Internal Data
- Lack of Customer and Supplier Data
- Poor Ease of Use
- Not Standards Based
- Time Consuming
- Excess Inventory
- Garbage In Garbage Out

Supply Chain AI Recap

Are Manufacturers Ready for Supply Chain AI?

- **Data:** Where is my Inventory? Within four walls and Integrated with Outside.
- **Simple Reasoning:** When will we run out of Inventory?
- **Decision-Making:** Who will be my best suppliers? Who will be my worst suppliers?
- **Judgement:** Will we overpay our suppliers?

Speaker Info

Sree Rajagopalan

sr@muranocorp.com

919-314-2897 (O)

Jerry Kopecky

gk@muranocorp.com

773-255-5209 (O)

Upcoming Events

Naval Research and Development Establishment
(NRDE) AI Summit Panelist
Oct 15-18, San Diego

Honda of South Carolina – North American
Assemblies LLC Combined Plant Tour
APICS Savannah/Charleston
Oct 26, 2018

<https://www.apicssavannah.org/events>



Learn More. Lead More.

Sign up for all of our webinars by texting
“**SUPPLYCHAIN**” to **42828**. We'll take it from there.



SPOTLIGHTING THE *Best* IN ALL THINGS SUPPLY CHAIN
The people, the technologies, the best practices and the critical issues of the day.

Next Steps



1. Questions on today's presentation? Reach out directly to Scott Luton:
EVP@apicsatlanta.org
2. Next Supply Chain Now Radio sessions on:
 - Engaging Millennials
 - Supply Chain Control Towers
 - Using Big Data in Demand Planning
 - For more information: info@apicsatlanta.org
3. APICS Regional Supply Chain Leadership Forum on October 19th & 20th
4. Plant tour of Honda South Carolina/North American Assemblies in Timmonsville, SC on October 26th
5. Interested in APICS certification? Check out our classes hosted by Georgia Tech Supply Chain & Logistics Institute.