



**Leveraging Data Analytics and Data Culture:  
*Lessons from the Semiconductor Supply Shortage***

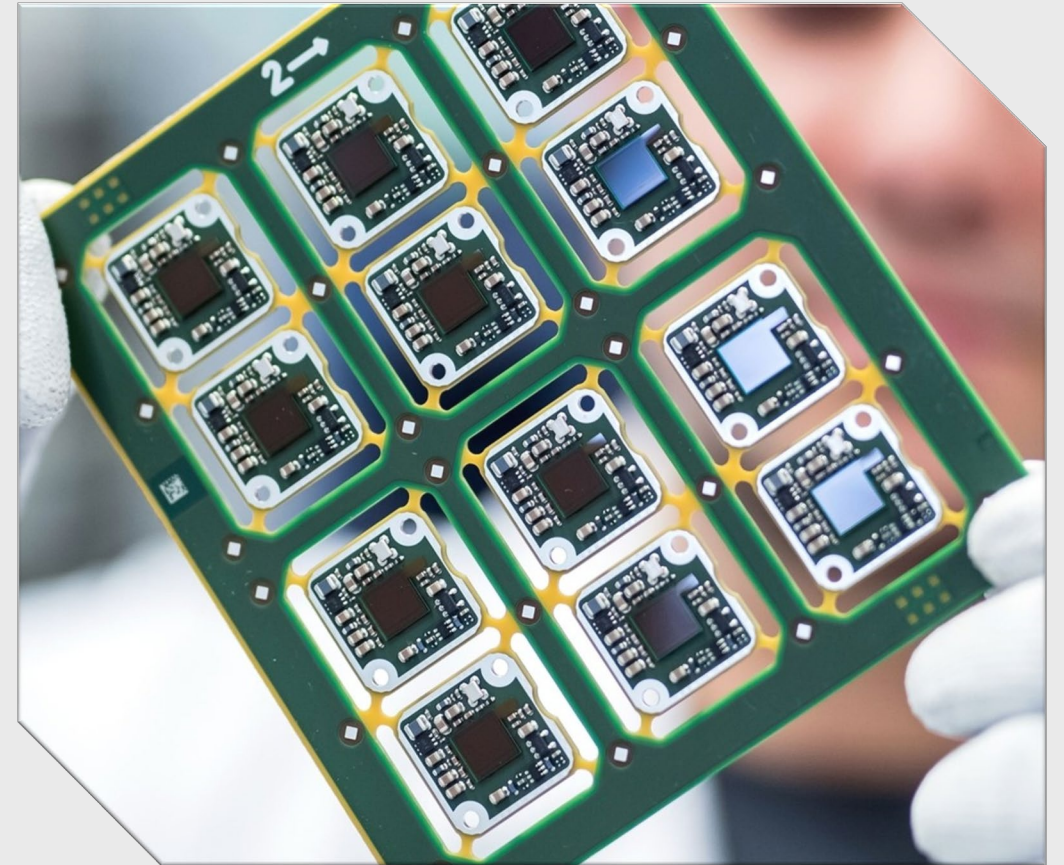
Upama Michel, CES Data Services

## Necessity is the mother of invention *-Plato*

- › Semiconductor crisis disrupted supply chain, creating havoc in various industries



- › DNA to innovate – developed “Intelligent Global Allocation System” for current and future shortages!



- › Main Impact (Mid 2020-Early 2021)
  - › Complete disruption in the global supply chain due to lock downs and restrictions.
- › Manufacturers' challenge
  - › High dependency on semiconductors leading to disruptions in production.
- › Lack of intelligent global allocation solution
  - › Missing solution to execute complex allocation logics on a global scale.

# Building a Smart Global Allocation System

## Ingest

- › *Connecting to standard reports like demand, supply, BoM etc., from SAP data warehouse/ Datalake*
- › *Creating flexible upload interface for manual reports like supply plans, dummy BoMs etc.*

## Process

- › *Integrating allocation mode*
- › *Determining the impact on production and inventories due to shortages in dependent components*
- › *Optimizing allocation to increase output*

## Recalibrate

- › *Correcting past deviations to continue as planned*
- › *Reacting swiftly to organizational changes*
- › *Optimizing suppliers' delivery plans*



# Initial Goals & Expected Outcome



## Not a blackbox solution!

Complete transparency with a full breakdown of **FAIR** global allocation, supporting data-driven decision making at all levels!



# Overcoming Development Challenges!



## Complex Business Logic

- › *Defining one standard size that fits globally*
- › *Integrating many expert logics to build a harmonious solution*



## Infrastructure Challenges

- › *Handling of historically accumulated monstrous data debts*
- › *Creating a stable solution with limited infrastructure*



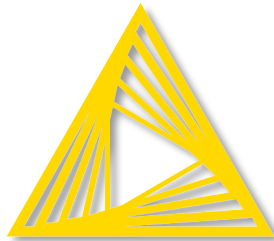
## Cultural Hurdles

- › *Building trust amongst business users, dependent on the new solution*
- › *Reacting swiftly to a demanding list of requests to ensure high adoption rate*

# Continental Engineering Services

## DIGITAL LEADER

- › Started digital transformation journey in 2017
- › Target group included data savvy business users
- › Tool of choice



## DIGITAL LEADER

### 1. Basic Data Wrangling with KNIME

- › Standard operations, e.g. Group-by, Join, Pivot
- › Domain related exercises (material nrs. instead of B2C)



### 2. Advanced Data Wrangling with KNIME

- › Complex node configs from real-life analytics projects
- › Automation, Datalake, Reporting, Visualization



### 3. Data Science Basics with KNIME

- › Machine learning, cross validation, variance reduction, ...





# Key Takeaways!

- › Expert collaboration between domain and technology transforms data into actionable insights, ensuring higher adoption rate!
- › With right data literacy program and tool, true data democratization is attainable!

