



KES DDOM Odyssey

DDOM World October 2024

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How did a Canadian end up in Tulsa Oklahoma

2000 APICS – ERP/MRP (Y2K)

2002 -2004 APICS BOD Vancouver chapter and instructor

2003 LEAN Sensei Consortium BC

2014 Ballard - DD Tech/CMG & DDMRP

2015 Demand Driven CDDL,
The Strategic Solutions w/ Chad & Carol

2020 Genesis - CMG & Full DDOM

KES noticed - Looking for a Project Management Solution to improve OTP.

2021 KES - CMG – Full ETO DDOM plus Engineering Project Management

2023 – KES Regional Director North America

2024 - KES Global SME Planning and Scheduling



KES (Koch Engineered Solutions)

Koch Engineered Solutions (KES) is a division of Koch Industries that focuses on providing innovative solutions and equipment for various industries.

Mission: To create value by providing comprehensive engineering solutions, high-quality equipment, and exceptional service.

Industries Served: KES serves a wide range of industries, including oil and gas, petrochemical, refining, chemicals, food and beverage, automotive, electronics, and more.

Core Offerings:

1.Process and Pollution Control: Solutions for efficient process control and minimizing environmental impact.

2.Mass Transfer and Heat Exchange: Equipment and technologies for improving efficiency in mass transfer and heat exchange processes.

3.Burners and Flares: Advanced combustion technologies for industrial applications.

4.Separation and Filtration: Solutions for separating and filtering various components in industrial processes.

5.Automation and Digitization: Cutting-edge technologies for automating and digitizing industrial operations.

KES

Portfolio of companies



DDOM Aligns Koch our principles

Operation DDOM aligns with our MBM culture and guiding principles.

- **Humility** - deal with reality constructively
- **Self-Actualization** - reach your potential, creatively solve problems and help others succeed
- **Principled Entrepreneurship** - mutual benefit between the company and customers make us the preferred partner
- **Continuous Transformation** – data and metrics to guide continuous transformation that adds the most value

Demand Driven Operating Model (DDOM)

Proactively manage & synchronize Project & Product Flow at a System level



Value proposition

Creating Visibility and Managing Variation

Strategic Advantage:

- **Market Responsiveness:** Provides a strategic advantage by enabling faster response to market trends and opportunities.
- **Competitive Edge:** Enhances competitiveness by delivering value through superior supply chain performance and customer satisfaction.

Data-Driven Decision Making:

- **Real-Time Insights:** Utilizes real-time data analytics for more accurate demand forecasting and decision making.
- **Performance Monitoring:** Continuously monitors supply chain performance, allowing for proactive adjustments and continuous improvement.

Enhanced Responsiveness:

- **Demand Alignment:** Synchronizes production and inventory with actual customer demand, reducing lead times and improving service levels.
- **Agility:** Increases the agility of operations, enabling quick adjustments to changing market conditions and customer needs.

Results of Variation

- Poor On time performance
- Declining profits
- High Inventory and WIP
- Lengths of projects were growing



DDOM Deployment Worldwide

Combustion and Mass Transfer

- **North America**
 - **United States**
 - Kansas
 - Oklahoma
 - **Canada**
 - Ontario
- **Europe**
 - Italy
- **Asia**
 - China
 - India



Strategic Alignment

Culture

- Innovation: identifying and closing gaps
- Economic Thinking
- Openness

Strategy

- System Optimization vs. Local Optimization: Focus on system constraint
- Focus and Finish: Choke work to materials and capacity availability

Tactics

- Utilize DDOM systems: Concerto, R+, DBR

Structure

- Assess gaps in Roles
- Modify or Create roles to ensure systems function

People/Talent

- Hire and place people where their comparative advantage creates the best value
- Create/Update Roles and Responsibilities

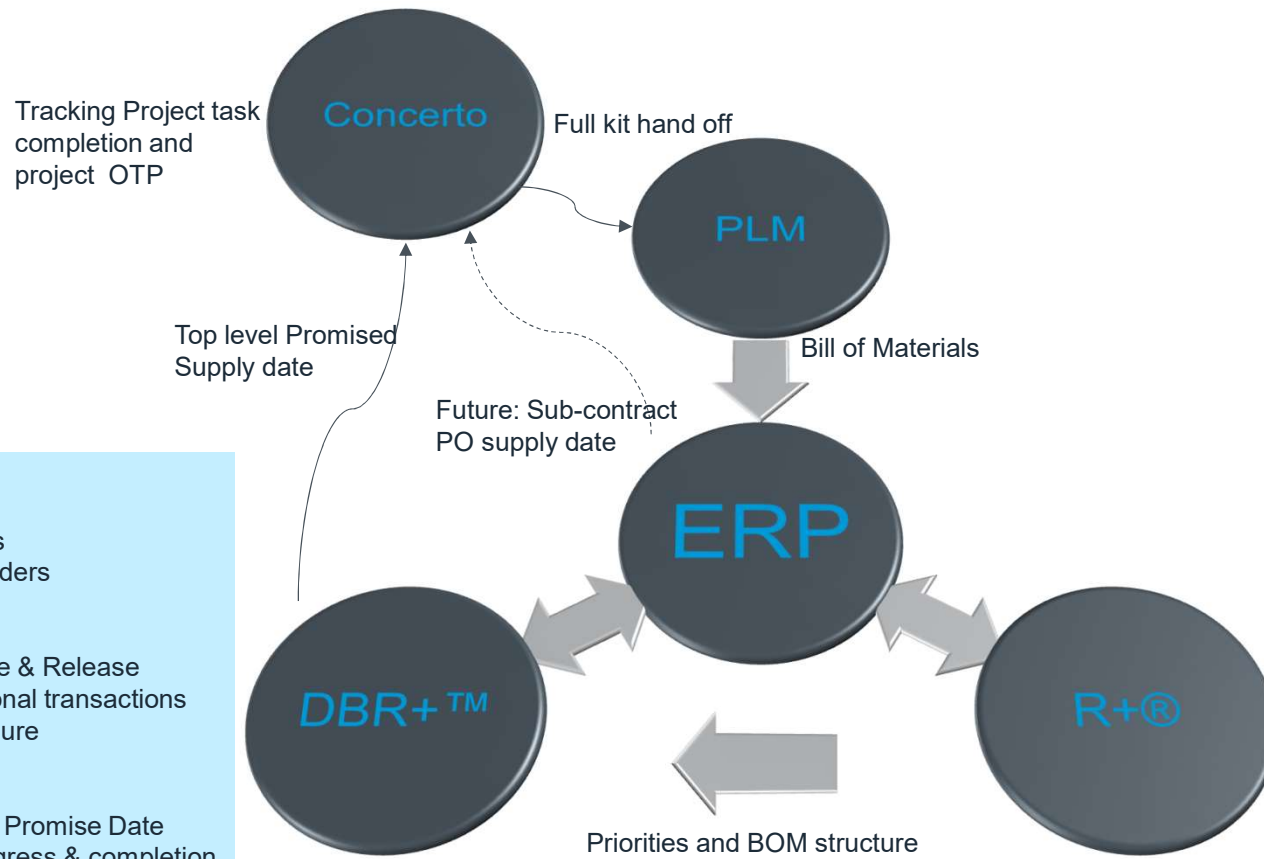
Process

- Train and Implement DDOM procedures
- Update business process procedures

Perform

- Measure and Monitor Flow metrics
- Model and Remodel as we learn

KES Information systems



Input:
 Items
 Routings
 Work Orders

Actions:
 Schedule & Release
 Operational transactions
 WO closure

Output:
 Planned Promise Date
 WO progress & completion

Input:
 Inventory
 BOM
 Items
 Demand :

- Sales Orders & Work Orders (production orders both planned and firm planned)

Supply:

- Inventory balances
- Released Purchase Orders and Work orders

Actions:
 Firm plan PO/WO's

Output:
 Firm planned PO and WO

Implementation

Phase Definitions:

PHASE 1:

Data Collection; Data Analysis; Build Flow Map, Workshop; Project Map

PHASE 2:

Implementation of the project Map Training & Modeling

PHASE 3:

Post Go Live Support – Learn to operate the DDOM

AUDIT:

Analyzing the state of our planning and scheduling Capability and create a project map for process improvement and remodeling.

PHASE 4:

Remodel and Implementation of the post go live project map.

Concerto



DBR+™



R+®



China

Italy

India & Tulsa

Wichita

Phase 1

Phase 2

Phase 3

Audit

Phase 4

- Data Collection
- Data Analysis
- Workshop

- Execute Implementation plan
- Training
- Modeling
- **GO LIVE!**

- Normalize processes
- Create feedback process
- Adjust Model

- Data Collection
- Data Analysis

- Implement plan from Audit

Challenges

Thoughtware and Software

Thoughtware

- Change from department efficiency (earned hours) to system flow
- Focus and Finish
- Managing by constraint

Software

- Using the system to communicate
- Understanding the information the systems are giving you
- Understanding what actions to take
- New roles and responsibilities to support flow

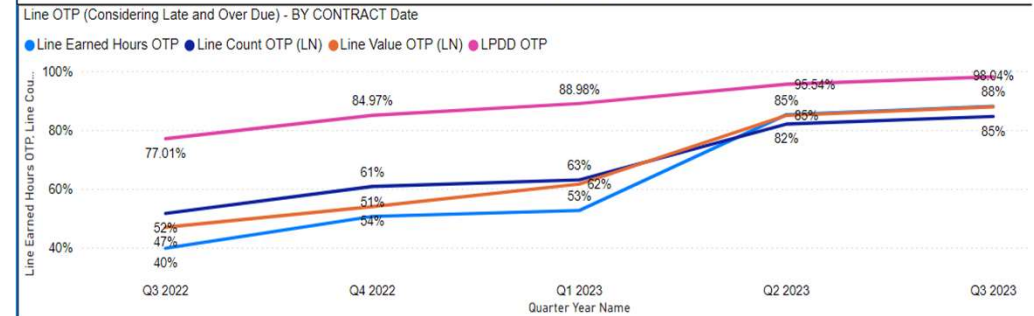
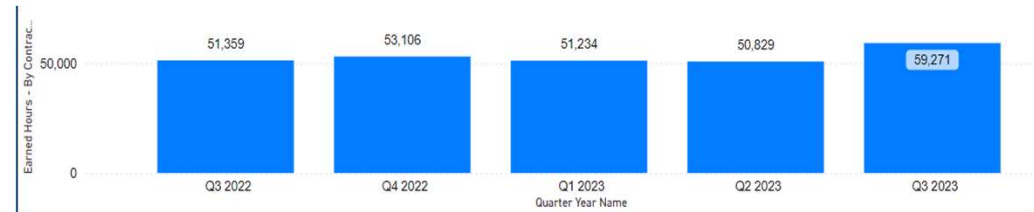
Breakthroughs

- Leadership teams **unanimously decided** to adhere strictly to the schedule.
 - **Discontinued the use of spreadsheets** and supporting tools, switching to exclusive use of DBR for scheduling.
 - **Creative ideas** were encouraged, leading to innovative visuals and process changes in production.
 - These changes **supported the focus-and-finish mindset** and **optimized material flow** through constraints.
- This had near term results in:
- **On-time performance improved** significantly within a month.
 - **Overall throughput increased** following the commitment to the schedule.

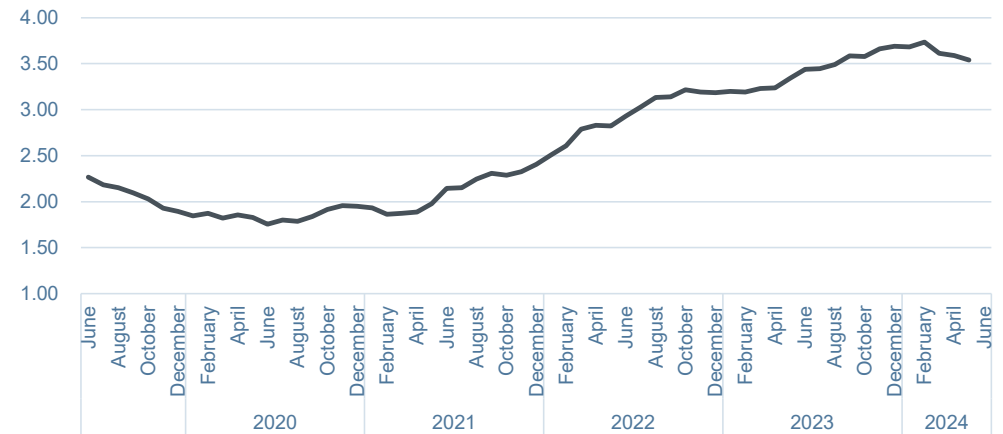
Results

Wichita 2023 Audit

- Results April 2023 (14months after go live)
- OTP is 98% for After Market (no change)
- OTP for projects is 95% (was 65%)
- Backlog of late projects 0 weeks (was 12.5 weeks)
- Sales Growth 20+%
- Inventory turns 3.7 (was 1.3)
- Start on-time to schedule is 95% and stock outs 3%
- WIP Reduction 40%
- Inventory dollar value no change not adjusted for inflation



Turns/Year

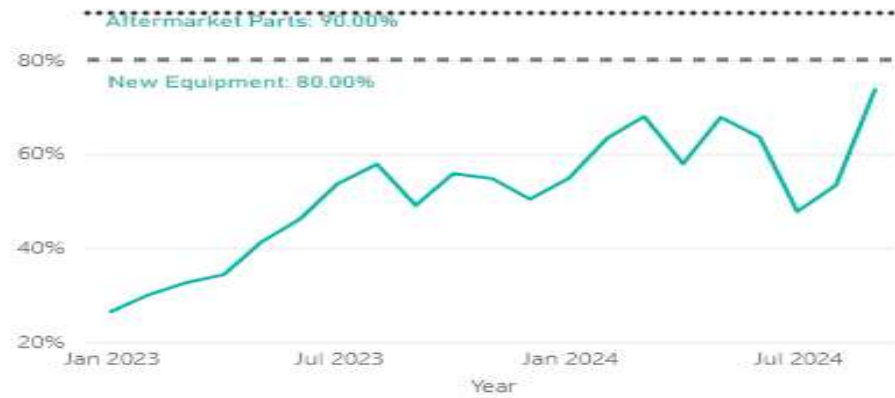


Results

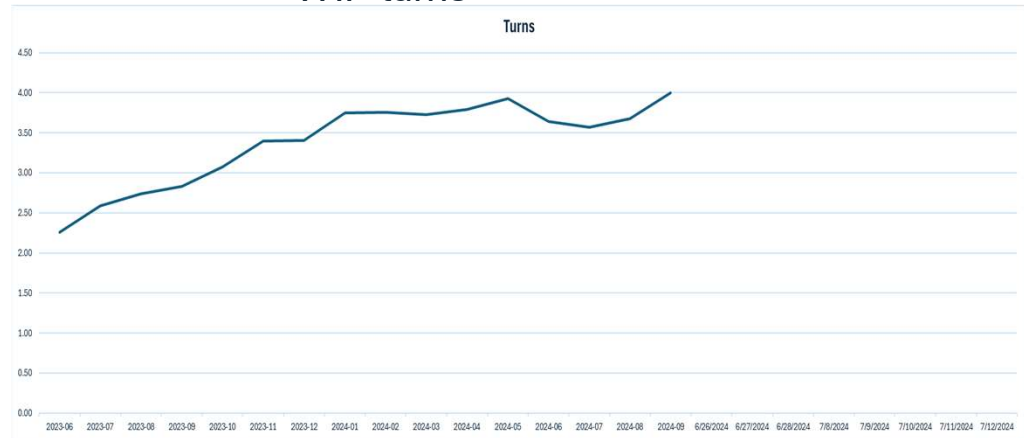
Tulsa 2023-2024

OTP is 50% for After Market (was 26%)
OTP for projects is 74% (was 26%)
Inventory turns 4.0 (was 2.26)
WIP Reduction 56%

SO Line Shipments



WIP turns



Keys to Success

Leadership Commitment and Consistency

Commitment

- Commitment to the strategy and tactics to achieve flow
 - Focus and Finish – Don't start something you can't finish
 - Choking work when backlog starts to build and no recovery plan is possible
- Eliminate excel sheets
 - Focus on system data

Consistency

- Transaction, Transactions, Transactions
- Consistent meeting rhythms
- Consistency in metrics aligning with Flow
 - No local efficiency metrics
 - Emphasis on flow and not labour utilization (especially on non-drums)
 - WIP Turns
 - On-time to Buffer
 - On-time to Start

Lessons Learned

- **CHANGE MANAGEMENT**, replacing Cost mentality with Flow mentality.
 - Needed to ensure leadership and supervisors were well versed in the differences and the impact on the metrics they need to manage with.
- **DATA, DATA, DATA**.....Data migration issues with a new ERP system
 - We had major data challenges that required a significant amount of time to clean up just to get the system into a state we could schedule with.
- **TRANSACTION PROCESS**
 - Although a relatively simple task, it's accuracy and timeliness are critical to having visibility
- **BOM Structure**
 - we assumed people understood MRP logic at the start.

Questions

