MACHINE C/O AND EPEI (MCE) SUITE

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CHANGEOVER, LOT SIZING & EPEI DECISION SUPPORT — IN EXCEL

Executive summary

MCE Suite provides a complete, structured environment for improving flow in machine-heavy operations and job-shops where changeovers, batch sizing, and product mix dominate daily performance. It brings advanced manufacturing logic into a familiar toolset, enabling teams to analyze changeover behavior, model lot sizes, evaluate EPEI-strategies, and set SMED targets to accelerate flow.

Such capabilities simply do not exist in today's enterprise tools like ERP, MES, APS, or OEE platforms. And traditional spreadsheets lack the rigor of the required methods and quickly break down as product mix expands and real changeover constraints come into play. MCE Suite bridges this gap with Excel-native functionality that integrates machine and setter capacity, changeovers, batch logic, product families, product mix, and demand patterns into one coherent model.

The problem

Manufacturers in machine-heavy environments and job-shops face recurring challenges when trying to create flow, caused by limited knowledge of and access to proper methods and tools and a lack of data. This typically results in variability, unbalanced WIP, poor flexibility, and long lead times.

Shop Floor Challenges

Manufacturers often struggle with oversized and variable lot sizes, long and unpredictable changeovers, breaking of setup procedures for priority jobs, unbalanced WIP, long and variable run lengths limiting flexibility, and insufficient insight into machine and setter workloads.

Engineering and Management Challenges

Engineering teams face limited visibility of actual changeover behavior, a lack of data across machines and products, and have difficulty putting EPEI and SMED principles into practice due to a lack of tooling, as their systems simply do not accommodate this.

These challenges create a clear need for a structured, realistic, and accessible environment for analyzing changeovers, evaluating EPEI, modelling lot sizes, setting appropriate SMED targets and improving flow in machine-heavy operations.

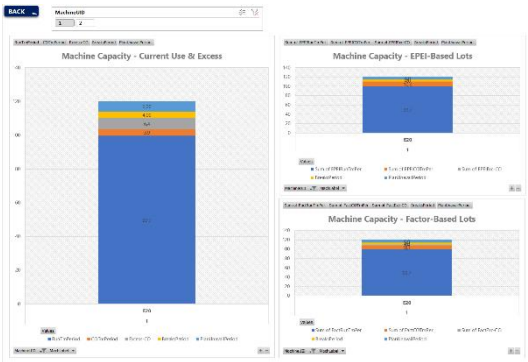
Why Organizations Seek Better Support for Flow

Teams typically look for better support when customers demand improved delivery performance, more flexibility, and faster response times, while operational complexity exceeds what spreadsheets and tribal knowledge can handle. Common triggers include:

- Customer dissatisfaction with delivery and product availability
- Product mix and demand changes disrupting current batch logic
- Pressure to increase flexibility and run smaller, more frequent batches
- Unbalanced WIP and chronic overproduction
- Lean, CI and SMED initiatives focusing on flow

These triggers reflect a broader shift: organizations need practical tools that help model material flow and machine capacity, understand changeover behavior, and make faster, more reliable decisions that improve performance.

Value Proposition



The MCE Suite provides a complete, structured environment for analyzing changeovers, modelling lot sizes, evaluating EPEI, setting SMED targets, and improving flow in machine-heavy operations and job shops.

Its modular architecture supports scalable adoption and enables teams to work concurrently across machines, products, setters, and changeover data. This creates better insights, more focus, clearer decisions, and more predictable operational outcomes.

At its core, MCE Suite delivers four key sources of value:

Reliability — Realistic modelling prevents infeasible product allocation and batch decisions.

Speed — Dashboards and one-click navigation accelerate analysis and simulation.

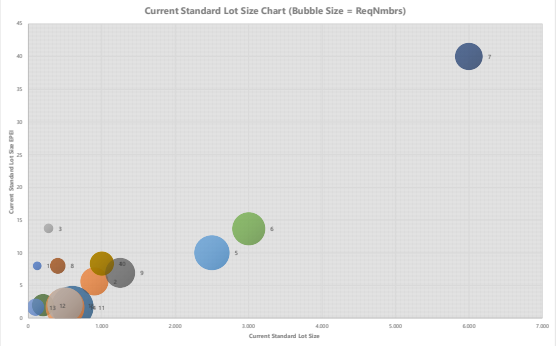
Scalability — Supports multiple machines, products and product families without redesign.

Accessibility — Excel-native deployment with minimal IT involvement.

Together, these attributes provide enterprise-grade capability with the flexibility and familiarity of Excel — enabling organizations to improve flow, stabilize operations, and accelerate continuous improvement initiatives in machine-heavy environments.

Key Capabilities

MCE Suite provides a structured and modular environment that reflects the realities of job shops and machine-heavy operations. Its capabilities span the full workflow from analyzing current changeovers and lot sizes, to simulating different EPEI strategies and scenarios, and setting appropriate SMED targets — enabling teams to decide and act with confidence.



- Actual Changeover Behavior — Setups per day, team, and shift; changeover times and variability; changeover matrix analysis; current EPEI intervals by product and machine
- Machine Capacity and Load — Lot run times, machine load, excess capacity
- Setter Capacity and Load — Setter and setter teams, machine servicing, constraints
- EPEI Strategies — Cycle-based lot sizing or factor-based lot-sizing
- Instant Simulation — Impact on machine/setter capacity, rejects, and material flow
- Realistic SMED Targets — simulating EPEI-aligned changeover and SMED targets
- Dynamic Reporting and Charts — Clear dashboards and print-ready reports
- Excel-Native Architecture — No external systems or integrations required

Who It's For

MCE is designed for teams responsible for designing and improving flow in machine-heavy departments and job shops:

- Industrial, Manufacturing, Process, and Method Engineers
- Operations and Production Managers, Supervisors and Team Leads
- Lean/CI Teams

IT & Procurement Considerations

MCE Suite runs entirely within Excel, keeping all operational data under full organizational control. Deployment is simple, maintenance is minimal, and total cost of ownership stays low by leveraging existing Microsoft Office infrastructure. It offers a secure, low-risk choice for organizations that prioritize data control, simplicity, and operational reliability.

Learn More

To see how MCE Suite can support your engineering and operations teams, request a demonstration or contact us to discuss your needs.