

WHITE PAPER

# Accelerating Manufacturing Cycle-Times.

Key Strategies to Enhance Agility,  
Improve Customer Service,  
and Reduce Inventory



## EXECUTIVE OVERVIEW

---

In today's world of unprecedented supply chain volatility, characterized by COVID-19, Suez Canal blockages, and economic instability, businesses face unprecedented challenges in meeting customer demands and staying competitive. The disruptions caused by these events have underscored the critical importance of minimizing manufacturing-cycle time—a key factor in enhancing agility, responsiveness, and resilience. Don't be fooled by periods of stability, they will be fleeting. We cannot accurately forecast the magnitude of disruption that future periods of supply chain volatility will cause. Still, one thing we can be certain of, volatility is a characteristic of the global supply chain that is here to stay.

**Against this backdrop of uncertainty and unpredictability, reducing manufacturing-cycle time has become more than just a strategic imperative—it's a survival mechanism.**

This white paper explores the significance of accelerating manufacturing cycles in the face of supply chain disruptions and economic instability. By unlocking the potential of your people and reimagining processes, businesses can navigate the complexities of today's volatile supply chain landscape without the need for capital investment.



# THE PROBLEM

---

In today's fast-paced business environment, organizations face a myriad of challenges when it comes to manufacturing-cycle time. Prolonged cycle times hinder operational efficiency and pose significant risks to competitiveness and profitability. The problem we are addressing is multifaceted:

## Market Demands and Customer Expectations

With consumer preferences evolving rapidly and demand for customization increasing, businesses must deliver products faster than ever before. Lengthy manufacturing cycles can result in missed opportunities and dissatisfied customers.

## Write-Offs

Prolonged manufacturing cycles also increase the likelihood of write-offs due to changes in market demand, quality issues, or excess inventory. Write-offs impact profitability and signal inefficiencies in inventory management and production planning.

## Scheduling Inefficiencies

Complex supply chains, outdated processes, and manual workflows contribute to scheduling inefficiencies that prolong manufacturing cycle times. Moreover, in an attempt to optimize efficiency, assets are often scheduled to maximize labor utilization, which results in scheduling items in production that the customer does not need.

## Obsolescence

Extended manufacturing cycles heighten the risk of obsolete products due to evolving technology, new product developments, or emerging competitors. Failure to accelerate manufacturing cycles can result in missed opportunities and investments lost to outdated products.

## Expiring Products

For industries with perishable or time-sensitive products, prolonged manufacturing cycles pose a significant risk of inventory expirations. Expired products not only incur financial losses but also damage brand reputation and customer trust.

# THE CHALLENGE

---

While reducing manufacturing-cycle time offers significant advantages, businesses often face several challenges in achieving this goal. Common obstacles include:

## Complex Operations

Manufacturing plants with multiple operations and subteams will be more complicated to untangle. It is easier for teams to focus only on their department and what they believe they can control.

## Resistance to Change

Implementing new methodologies and technologies may be met with resistance from employees accustomed to existing workflows, team structures, and scheduling techniques.

## Senior Leadership Support

Businesses have many commitments to deliver, and without clear senior management support advocating for a change of focus, true operations transformation can not happen.

## Quality Assurance Concerns

Accelerating manufacturing cycles may change the batch management process through a manufacturing plant. This must be taken into careful consideration and will result in a Quality Advantage if executed correctly.

## Over-Reliance on Existing Operational Excellence Programs

Managing performance and taking action to resolve top issues of the previous day has been a cornerstone of OpEx programs for many years. A mature program will complement cycle-time reduction efforts, but a narrow focus on 'issues of yesterday' that are not truly relevant will only get in the way.

In our experience, we often find that too much emphasis is placed on looking BACKWARDS, e.g. looking at yesterday's performance which naturally detracts from where teams should be looking FORWARDS.

The 'over-reliance on existing Operational Excellence programs' point warrants further elaboration. Good existing programs will have multi-tiered performance management reviews that are conducted daily to review performance, take action, and escalate where help is needed. This is great for obtaining data points, understanding top performance losses, and allocating corrective actions.

Too much emphasis on departmental daily performance can lead us to declare some as 'winners' and others as 'losers.' Over the years we've been taught that inter-departmental competition is healthy and breeds performance. But in reality, if the customer is not served on time there is nobody there to buy the thing we are making, so in this instance we are all 'losers' and on the contrary if the customer is served on time, we are all 'winners'.

In the next section, you will learn about our Operating Principle and Operating Model. Corridors of supply look at the present (NOW) and at customer due dates (FORWARD). This simple shift of focus creates a customer-centric workforce.

Read all the way to The Change Management Principle, and you will learn how to use that healthy inter-departmental competition to serve your customers on time, every time.

# THE OPPORTUNITY

---

Manufacturing cycle time is defined as the time it takes to convert raw materials into finished products and deliver them to customers. In manufacturing facilities with multiple steps in their production process, such as solid dose tablet manufacture, each stage— from mixing and granulation to compression, coating, and packaging—plays a crucial role in determining the overall cycle time.

We are often led to focus on traditional 'performance improvement,' which is a cornerstone of operational excellence programs, e.g. identify top losses + reduce them = performance improvement. But this approach is going to have a negligible impact on your overall manufacturing-cycle time. It is the time when you are not handling your product that is the main effect. For those that have experience of lean it is the 'waiting' or 'idle' time in between each production stage that makes the difference here. By scheduling operations in a continuous flow, where the completion of each step seamlessly transitions to the next, (similar to the principle of 'one-piece flow,') manufacturing facilities can realize several advantages.

**In industries where time-to-market is critical, such as pharmaceuticals, accelerating manufacturing cycles can provide a significant competitive advantage. By bringing products to market faster, businesses can respond to market shortages and subsequently capture market share, generate revenue sooner, and establish themselves as leaders in their respective industries.**

**First**, by minimizing the idle time between production steps, the time to serve the customer is dramatically improved. This streamlined workflow reduces the risk of bottlenecks and ensures a smoother, more synchronized production process from end to end.

**Second**, shorter manufacturing-cycle times enable manufacturing facilities to respond more quickly to fluctuations in demand, market trends, and customer preferences. By improving agility and flexibility in production scheduling, businesses can better adapt to changing conditions and capitalize on immediate opportunities in the market.

**Third**, reducing manufacturing cycle time enhances inventory management by minimizing the need for large stockpiles of work-in-progress inventory. With shorter cycle times, businesses can maintain optimal inventory levels, reduce carrying costs, release cash from the balance sheet, and mitigate the risk of obsolescence or expiration of intermediate and finished products.

# OUR SOLUTION

---

Our solution is based on 4 key pillars:

1

## The Operating Principle

### Create Corridors of Supply

Streamline production by grouping products with similar frequencies to enhance flow, minimize downtime, and maximize asset use.

2

## The Operating Model

### Engage Employees, Solve Problems, Serve Customers

Transform leaders into coaches, foster collaborative problem-solving, and prioritize timely deliveries to boost customer-centric performance.

3

## The Change Management Principle

### Recognize and Reward

Cement change with recognition and rewards, driving interdepartmental cooperation and aligning efforts with customer deadlines.

4

## The Implementation Methodology

### Active Participation and Ownership

Engage in a hands-on approach with workshops and coaching, involving active participation and ownership for lasting success.

In this section we hope you learn something new (if you haven't already) and gain insight into steps you can take yourself. If you can implement our methodology from this white paper — great — if not, we are here to help!

To help with some terminology, our operating principle is called **Corridors of Supply**, and its operating model is driven and sustained by **Engaged Employees** that **Solve Problems** and **Serve Customers**.

Read on to learn more.

# 1 THE OPERATING PRINCIPLE

## Create Corridors of Supply

---

### How we define and use a corridor is fundamental to the subsequent operating model.

Corridors are groups of products produced at a similar frequency. Corridor groupings are based on Demand patterns and not on machines or manufacturing processes. Common groupings are

1. High Frequency, high volume (few products)
2. Intermediate frequency and volume
3. Low frequency and volume (many products)

Different materials along a Flow Path will have different frequencies. The key is to always select compatible frequencies. These should be multiples of the same base. For example, some products are produced every 3 weeks, others every 6 weeks, others every 12, and so on (always in a multiple of 3 weeks).

The goal is that products of the same molecule, API, or core ingredient be in the same or adjacent corridors (this will optimize the cleaning requirement for each product changeover) and that all the products in one corridor be in the same range of annual volumes, e.g., 'high frequency, high volume', as stated in the opening paragraph.

If this is achieved, multi-stage products can flow quickly from one process stage to the next (e.g. Blending, Compression, Coating) without interruption, similar to the lean principle of one-piece flow. An asset (one piece of equipment) may be attributed to multiple different corridors. This is the feature of the model that allows for maximum utilization of assets whilst prioritizing cycle time.

The #1 Rule is that if the equipment is tied up in one 'corridor,' it can't be used in another corridor (this avoids the problem discussed earlier where assets are scheduled to maximize efficiency and subsequently end up producing what is not immediately required). The approach is to 'grab' an equipment train (set of assets in a multi-stage production environment) for one corridor, schedule everything back to back, and then allocate the equipment to another corridor.

When correctly executed, the end result is a seamless flow from asset to asset and a conversion of raw materials to finished products in the shortest possible time.

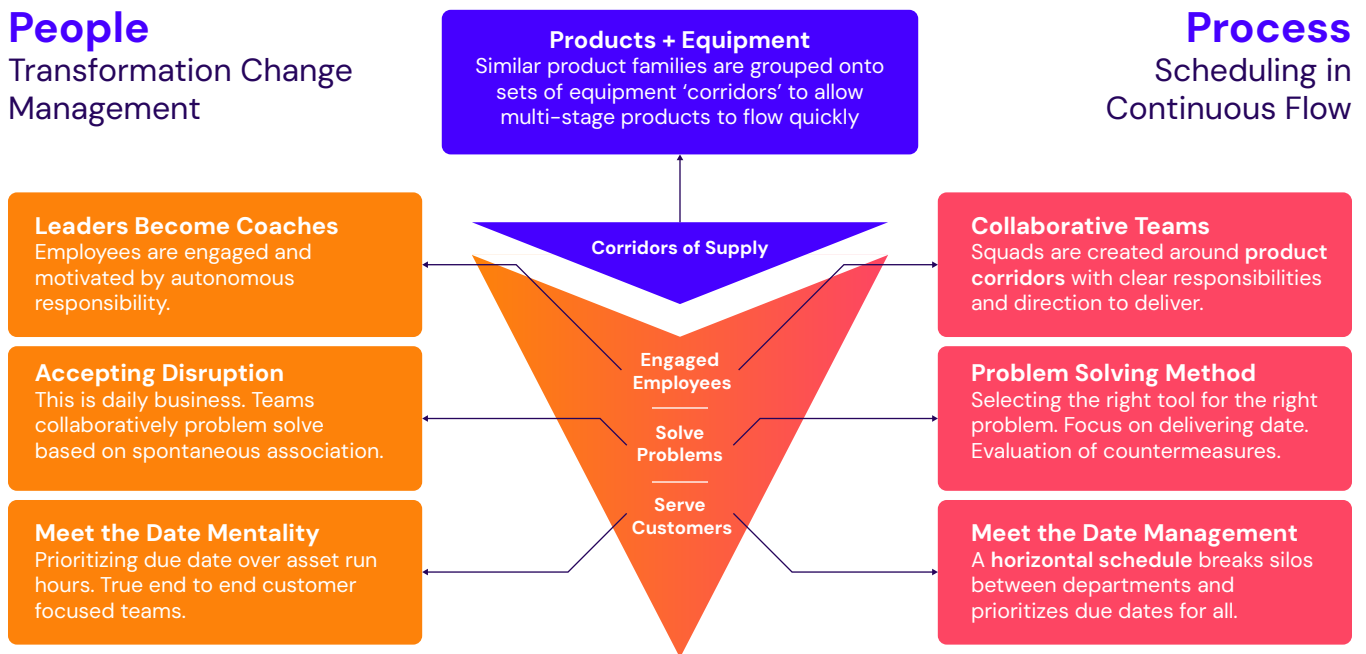
# 2 THE OPERATING MODEL

## Engage Employees, Solve Problems, Serve Customers

This is the model of operation once the operating principle has been established.

Once the Corridors of Supply operating principle has been designed and implemented, an operating model is required to drive and sustain the results. For this, the method is simple – we build a framework where Engaged Employees Solve Problems and Serve Customers:

### MANUFACTURING CYCLE-TIME REDUCTION



The infographic shows each section of the operating model split into two parts: People and Process. Below is an expanded explanation of each element to help the reader better understand the mode of operation on a day-to-day basis.



## Engage Employees

### Leaders Become Coaches

Employees thrive when they have autonomous responsibility. If managers act like dictators and constantly issue orders, any improvements in manufacturing cycle time will be short-lived. Effective leaders coach their teams to unlock their full potential.

### Collaborative Teams

Squads are formed around corridors of supply with clear responsibilities and goals aimed at meeting due dates. True cross-functional autonomous teams are established to work together towards this common objective.

## Solve Problems

### Accepting Disruption

Disruption is a normal part of business in a world of supply-chain volatility. This volatility can come from external and internal sources within the manufacturing site. Teams work together to solve problems through spontaneous association, using their existing experience and insights to find solutions.

### Problem-Solving Method

Squads can address issues by choosing the right tool for the right problem while ensuring they meet due date commitments. This approach helps them evaluate different response actions and ensures the resolution of one problem does not cause delays in multiple orders.

## Serve Customers

### Meet the Date Mentality

The first paradigm shift is shifting the focus to prioritizing due dates over asset run hours. Historically, operational teams have focused on maximizing labor and asset utilization to improve financial absorption at the manufacturing site. This approach, however, prioritizes bottom-line cost-saving over top-line growth through customer delivery, which is slowly killing your business.

### Meet the Date Management

Implementing a horizontal schedule breaks down departmental silos and prioritizes due dates across the board. This is the second paradigm shift. It provides visibility of the end-to-end schedule within the manufacturing plant, encouraging teams to assist upstream or downstream as needed within their Squad.



# 3 THE CHANGE MANAGEMENT PRINCIPLE

## Recognize and Reward

---

### How do you make it stick? It's the question we always face.

Everything is great when the support is on-site driving change, but what happens when business as usual returns? Our answer is The Change Management Principle of Recognize and Reward.

#### Recognition

This is by far the most important thing any leader can do to positively enforce a new behavior. You will know the most appropriate way to do this, many geographic regions in the world respond to different recognitions in different ways. Good leaders do this every day without thinking about it, others need a little encouragement to sustain this behavior. Whatever the capability of your leaders, we can assist in getting everyone to where they need to be.

#### Reward

Remember the second paradigm shift? A horizontal schedule breaks silos between departments and prioritizes due dates for all. Well, if you reward and incentivize the entire manufacturing cycle-time—from the first to the last step—teams will understand that this is what truly matters and recognize that they have the power to influence it. Operators see it is in their best interest to help the process step where an order has become 'stuck' and meet the date. In fact, when implemented and communicated correctly, we have seen operators down tools in one department to head down-stream to another department to make up for a labor shortage and ensure all assets could run as scheduled and meet the date. It truly is a paradigm shift.

# 4 THE IMPLEMENTATION METHODOLOGY

## Active Participation and Ownership

**At Zinata, we believe in a straightforward and effective approach to implementation.**

Our success is directly tied to yours, which means active participation, ownership, and belief in the end state is essential. Before embarking on this journey, it's crucial to consider a few key questions:

**If your company's management style is 'directive,' are you prepared to relinquish control?**

**Can you trust your team to perform and empower them to deliver value to customers?**

**Are you ready to foster a culture of coaching and collaboration, allowing your team to combine their skills to overcome daily disruptions?**



The prerequisites mentioned above primarily focus on changes in people's behavior rather than technical processes. The significance of the change management challenge should not be underestimated.

## **Our change management approach is not merely a standalone plan but an integrated methodology within the overall strategy.**

Every leader within the organization must advocate the change for truly sustainable results. Our team consists of Prosci-certified change leaders who have successfully implemented the ADKAR methodology for years, due to its simplicity and effectiveness.

We assist you in designing and planning the necessary change management steps before commencing the implementation process. Each client is unique, so we tailor this part to suit your needs. Once sufficient change awareness and desire for the initiative are established, we proceed with the implementation process.

Implementation revolves around a series of workshops, with change management intertwined throughout. Each workshop represents a specific milestone in the process and is followed by a period of practice:

# 1

## **Leaders Become Coaches**

Workshop with leaders, followed by a coaching period.

# 2

## **Pilot Area and Staffing**

Workshop with leaders.

# 3

## **Role Clarification**

Workshop with the team.

# 4

## **Process Simplification & Modification**

Workshop with the team.

# 5

## **Practicing Working in Collaborative Teams**

One or more workshops (depending on scale), followed by a coaching period.

# 6

## **Diagnosis and Refresher**

Workshop with the team, with a return to Step 4 as needed.



## SUMMARY

---

Congratulations on reaching this point! You now possess the foundational understanding necessary to initiate transformative changes within your organization.

In this white paper, we've provided a thorough overview of Zinata's strategies for drastically reducing manufacturing cycle times. As you transition from reader to client, you'll gain access to an extensive range of detailed content and training materials designed to transform these concepts into actionable practices.

We have underscored the crucial importance of reducing manufacturing-cycle times within today's complex business environment. By embracing strategic methodologies, organizations can enhance agility, improve customer service, and reduce inventory, effectively navigating supply chain disruptions and economic uncertainties. Our discussion has covered the essential aspects of minimizing idle time between production phases, optimizing inventory management, and accelerating time-to-market to secure a competitive advantage. Additionally, we've identified the key challenges in shortening manufacturing-cycle times, which include navigating complex operations and overcoming resistance to change.

Our approach is designed to foster enduring, transformative change. Grounded in our experience, we understand that front-line teams tend to remain more constant compared to changes in senior management. Therefore, by adopting a bottom-up approach to transformation, we ensure the longevity and sustainability of these initiatives. We believe our focus on developing **Engaged Employees** to **Solve Problems** and **Serve Customers** represents a distinct competitive advantage, setting the foundation for lasting success.

# THE ZINATA DIFFERENCE

---

At Zinata, we pride ourselves on our diversity of thought and depth of experience from our seasoned consultants, each bringing unique expertise and extensive experience across various industries. Here's why you should work with us:

## Hands-On

While we always act as coaches to ensure your leaders can sustain change, we thrive on getting to the front line where the action happens. By interacting directly with your people, we help make the transformation stick.

## Strategic Vision

We prioritize simplification, digitalization, and scalability. We know what is possible using the vast technology that is available today and how to best align it with your specific needs.

## Long-Term Partnerships

Unlike some competitors who opt for intensive, consecutive onsite support, we focus on building long-lasting relationships. Our engagements are built to suit the client, but we will allow ample time for your team to practice new skills and implement new working methods.

## Thought Leadership

We are recognized as thought leaders in our fields, possessing a deep understanding of industry trends and best practices. Our expertise is reflected in our authored publications and significant contributions to the industry.

## Global Leadership

With extensive experience in leading international organizations and driving transformational change, we offer invaluable insights and strategies to navigate complex global markets and challenges whilst successfully delivering complex programs and driving supply chain improvements.

Ready to make and deliver with speed by unlocking the potential of your people and reimagining your processes?

Contact Zinata to get started.

