

The Power of Real-Time Scheduling:
FASTER TURNAROUNDS,
HIGHER THROUGHPUT

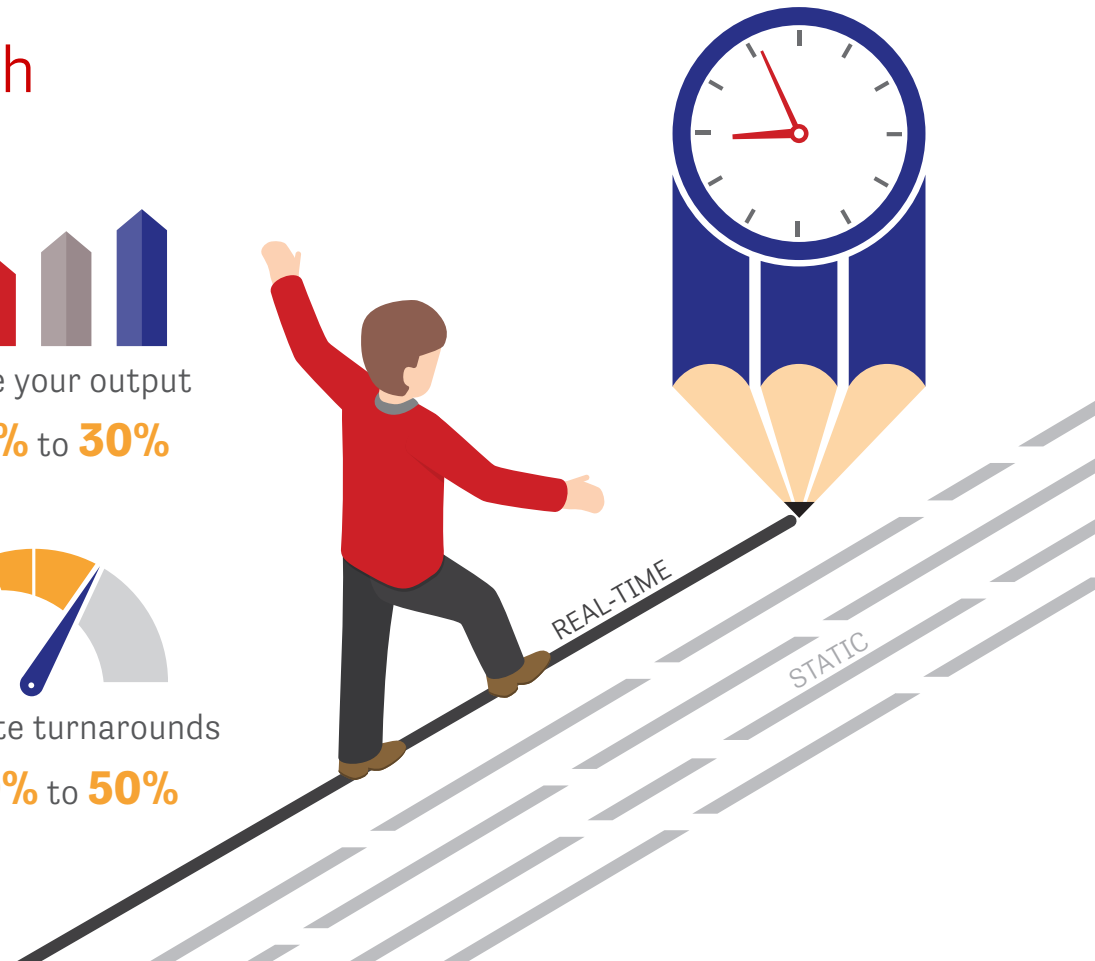
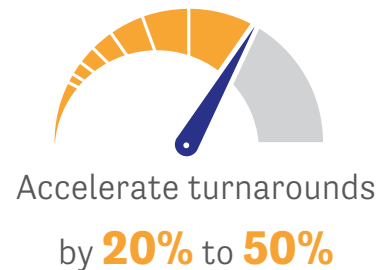
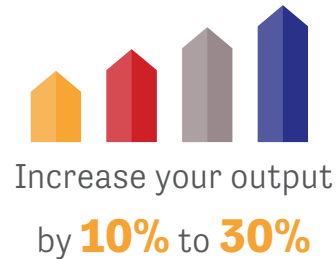
REALIZATION

Execution Intelligence for Complex Projects™

Recharge MRO Delivery with Real-Time Scheduling

What if you could increase your output by 10% to 30%? What if you could reduce turnaround times by 20% to 50%?

These numbers are not elusive ideals, they are achievable reality. More than 50 MROs have discovered the secret to greater throughput and consistent on-time delivery: assigning right resources to the right task and at the right time—even when changes happen.



In this ebook, you'll discover that Real-Time Scheduling is neither complicated nor difficult, but it does require giving up manual load balancing and scheduling methods.



THE GOAL:

AIRCRAFT DELIVERY

- Throughput
- Turnaround Time
- On-Time Delivery

CURRENT METHODS

- Require manual scheduling and load balancing
- Don't enable sharing of resources between projects
- Are too slow to respond to changes

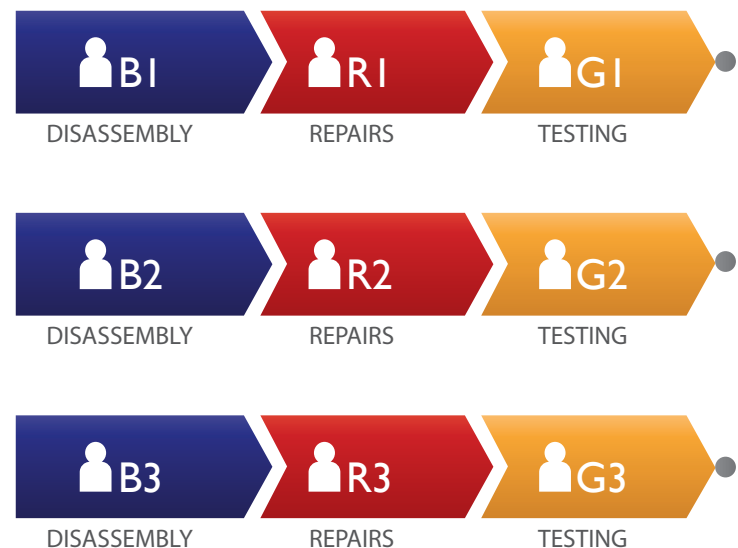
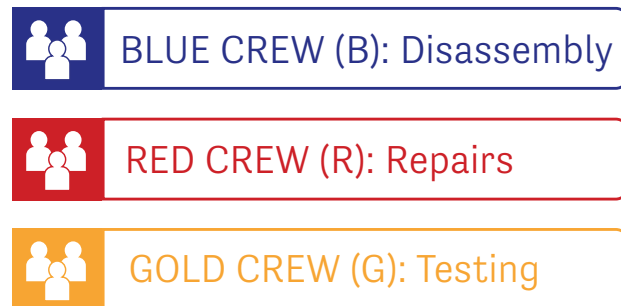
“Anytime you see a 20%+ improvement in production, to be able to do that without a whole lot of cost growth (actually our plan was a 3% cost reduction), is a challenge. We had a 25% increase in just capacity alone. A 23% increase in engine production. We’ve had a 10% to 26% reduction in overall turnaround time on our four lines.”

-General Manager of Aircraft Engine Repair and Overhaul for a major airline

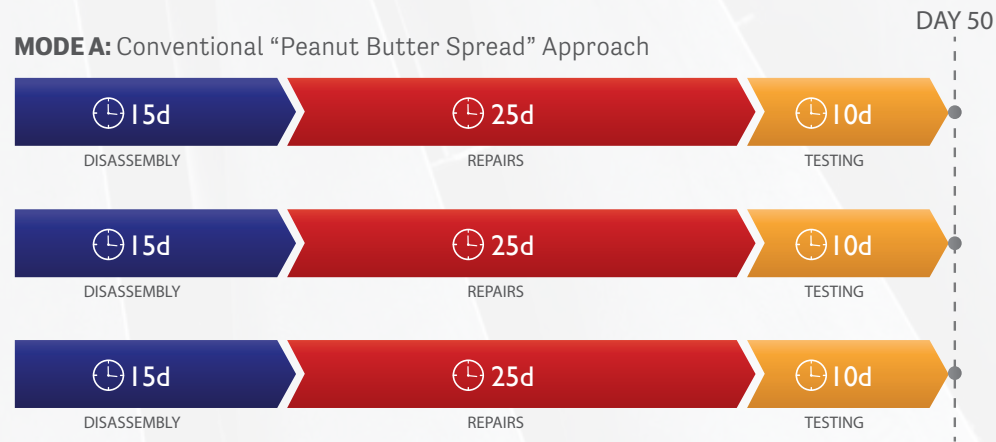
How to Gain Both Speed and Efficiency

Consider this thought experiment: imagine three crews responsible for three aircraft. Each aircraft has three tasks that must be addressed in sequence: disassembly, repair, and testing. In our experiment, the Blue crew performs disassembly, the Red crew repairs, and the Gold crew does the testing.

Now let's imagine these crews embracing two very different models of delivery.



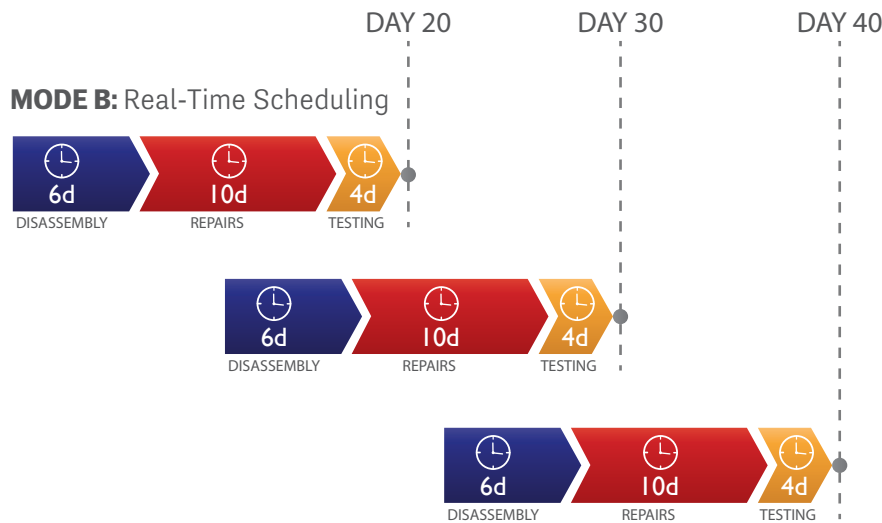
Durations include interruptions.



Mode A: The Conventional “Peanut Butter Spread” Approach

Mode A is the familiar approach most MROs take. This is the only approach possible with manual scheduling. The organization simply tries to keep resources busy and resources get assigned according to what is available today, not by what is most efficient.

In Mode A, the Blue, Red, and Gold teams constantly shift crew among the three projects. In this “stay busy” approach, the Blue team can complete all three disassembly tasks in 15 days, the Red team completes all three repairs in 25 days, and the Gold team can finish all three tests in 10 days.



Mode B: The New “Real-Time Scheduling” Approach

In Mode B, managers leverage the power of real-time scheduling to optimize throughput and turnaround times. With such optimization, each task has resources available at the right time, and through to task completion.

Completion times in Mode B look like this: 6 days for Blue to complete each disassembly task, 10 days for Red to do each repair, and 4 days for Gold to complete each test.

Mode A looks busier...

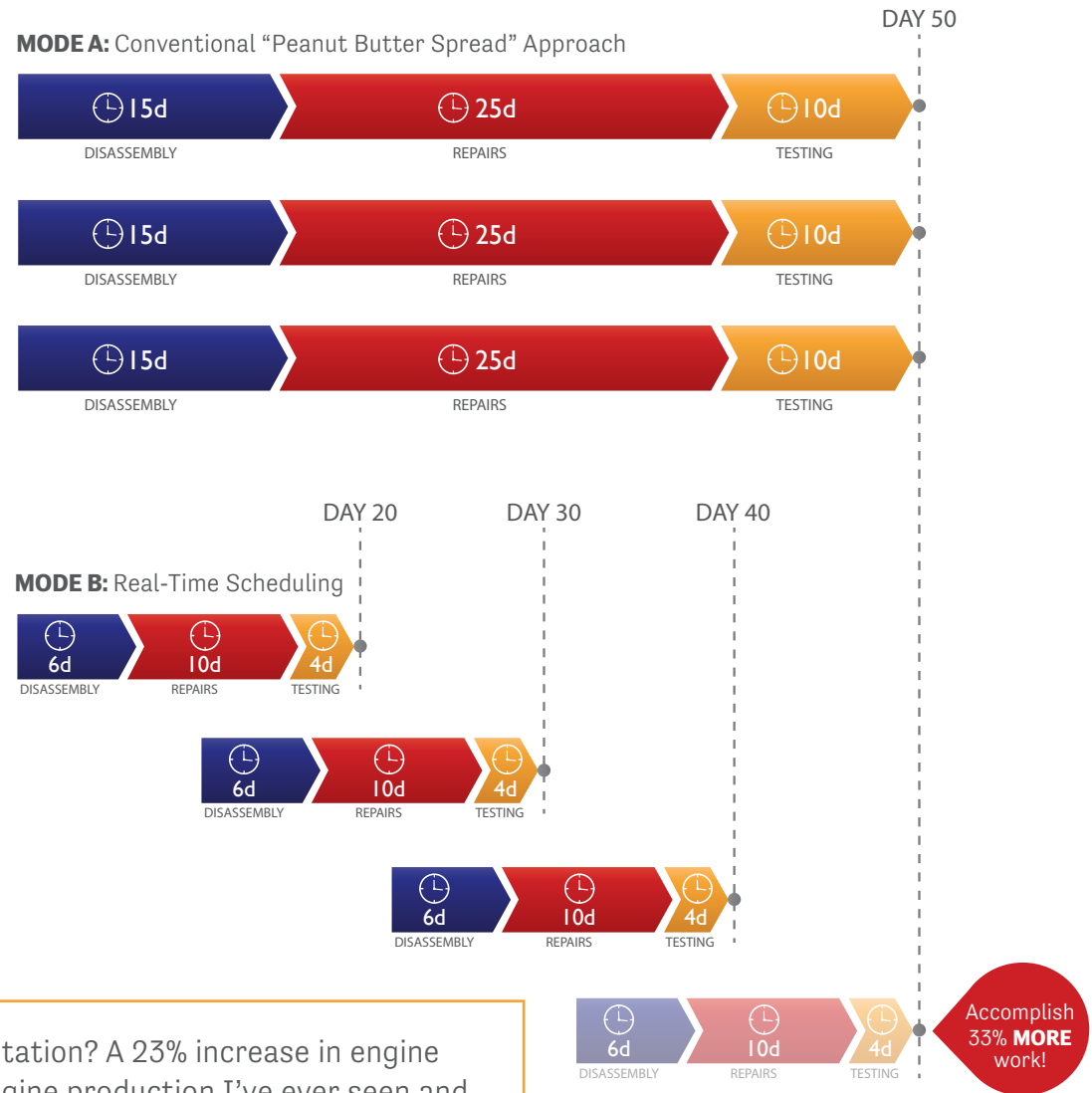
Let’s compare the modes. To complete all three tasks, it looks like this:

	Mode A: PEANUT BUTTER APPROACH	Mode B: REAL-TIME SCHEDULING
Blue.....	15 days	18 days
Red	25 days	30 days
Gold.....	10 days	12 days

Staying busy definitely looks efficient. But is it?

...Yet Mode B delivers higher throughput!

When we look at total throughput—the metric that counts—the real-time scheduling mode delivers all three aircraft in ten fewer days, forty versus fifty, exposing additional time to accomplish 33% more work!



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“What did we gain with this implementation? A 23% increase in engine production in one year, our highest engine production I’ve ever seen and I’ve been in that shop for 19 years. We saw 30% average reduction in turnaround time and our revenues went from \$312M to \$540M in 2 years.”

- Managing Director of a major airline engine and component maintenance shop

Why Is Real-Time Scheduling So Much Better?

The “magic” is in the reduced waiting times for each downstream task, moving projects to the finish, faster.

Management becomes simpler too. In the “stay busy” mode, three active aircraft must be managed simultaneously; with Real-Time Scheduling, that volume is reduced to two. Simplification for department managers is even greater: the number of active tasks to be managed comes down from three to one in every team.



How to Bring Real-Time Scheduling to Your MRO

Most MRO systems are built for creating and tracking work cards, not for optimizing delivery. Many MROs have unsuccessfully tried using project management software to optimize delivery, but they have found it to be suitable only for a one-time analysis of a project's critical path. It is not useful for optimizing projects and resources on a day-to-day basis, and certainly not for managing multiple projects with shared resources.





To leverage real-time scheduling, you need software that can:

- 1 Optimize throughput across multiple projects
- 2 Adjust schedules in real time as real-life disruptions emerge
- 3 Provide automatic alerts to all managers in case of unresolved bottlenecks

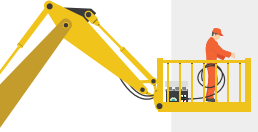
Fortunately, Concerto is now available to automate resource scheduling across multiple projects. Concerto has cut turnaround time and increased throughput at more than 50 MROs, including more than 20 United States Department of Defense depots in all five of its military branches.

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“The software helps us ensure we have the right focus...and that we are executing quickly on our assembly process.”

-Managing Director of a major airline engine and component maintenance shop

Maintenance, Repair And Overhaul Success Stories

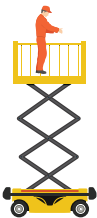


Army Fleet Support Helicopter Maintenance, Repair and Overhaul (For Flight Schools)

BEFORE	AFTER
Maintenance workload increased by 37% and turnaround times were long, leading to helicopter shortages	<ul style="list-style-type: none"> ↓ 32% reduction in CH-47 turnaround time ↓ 52% reduction in UH-60 turnaround time 8 aircraft returned to customer (\$90M in cost avoidance) 18,000 sq ft of hangar space freed up (\$2M in cost savings)

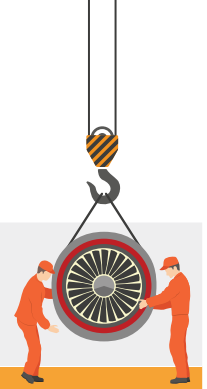
Delta Air Lines, Inc. Aircraft Engine Repair and Overhaul

BEFORE	AFTER
476 engines produced per year 4-8 weeks piece-part cycle time 60 days landing gear turnaround time	<ul style="list-style-type: none"> ↑ 586 engines produced per year (23% increase) ↓ 30% reduction in engine turnaround time ↓ 15 days piece-part cycle time (70% reduction) ↑ 25% increase in throughput ↓ 30 days landing gear turnaround time (50% reduction) ↓ \$60M monetized in assets from reduced turnaround time ↓ Ongoing improvement: 10 days piece-part turnaround time (30% further reduction)



TAP Portugal Aircraft Maintenance, Repair and Overhaul

BEFORE	AFTER
Completed a C-check in 16 days on average	<ul style="list-style-type: none"> ↑ Completed a C-check in 12 days on average Saved €260,000 by not outsourcing an aircraft due to freed-up capacity



Railcare Wolverton, UK Train Maintenance, Repair and Overhaul Engineering

BEFORE	AFTER
16 months delay in delivery of last order 1 order executed at a time	<ul style="list-style-type: none"> ↑ 3 aircraft on station, 2 aircraft returned to Air Force, a replacement value of €300 M ↓ 15% cycle time reduction, 15% increase in output with 13% fewer resources; 22% reduction in support shops' cycle time

US Air Force, Warner Robins Air Logistics Center CS Production Line Aircraft Engine Repair and Overhaul

BEFORE	AFTER
Turnaround time 240 days. 13 aircraft in repair cycle	<ul style="list-style-type: none"> ↓ Turnaround time 160 days ↓ 7 aircraft in repair cycle ↓ 75% fewer defects





Take the first step toward
reducing turnaround times and
increasing throughput.

Request a demo of Concerto, real-time scheduling
software from Realization Technologies. Write us
at info@realization.com, or call us at
+1-408-271-1720.

Request a Demo >

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