



CHIP FAB
CONSTRUCTION



FEDERAL
PRISON INFRASTRUCTURE



OIL & GAS
FACILITIES



DATA CENTER
OPERATIONS



HYDROPOWER
GENERATION



FEDERAL FACILITIES
PORTFOLIO



EAM ADVISORY
EXCELLENCE

Enterprise Asset Management Excellence

- Why Planning & Scheduling Is the Foundation
of Every Successful EAM Program



KARSON WYNNE

CEO, EAM Specialists

30+ Years Across Maintenance, Reliability & Enterprise Asset Management

01



CRAFT FOUNDATION

Colorado Master Electrician with hands-on experience across power generation, industrial facilities, and critical infrastructure.

02



SUPERVISION & PLANNING

Learned what separates reactive firefighting from disciplined, job-ready work.

03



OPERATIONAL LEADERSHIP

Led maintenance teams and major hydropower operations for the U.S. Bureau of Reclamation.

04



ENTERPRISE EAM LEADERSHIP

Former GSA Maximo Program Manager supporting 700+ federal facilities and more than 20 million square feet.

05



ADVISOR & EDUCATOR

Helps organizations strengthen planning, scheduling, work management, reliability, and EAM performance.

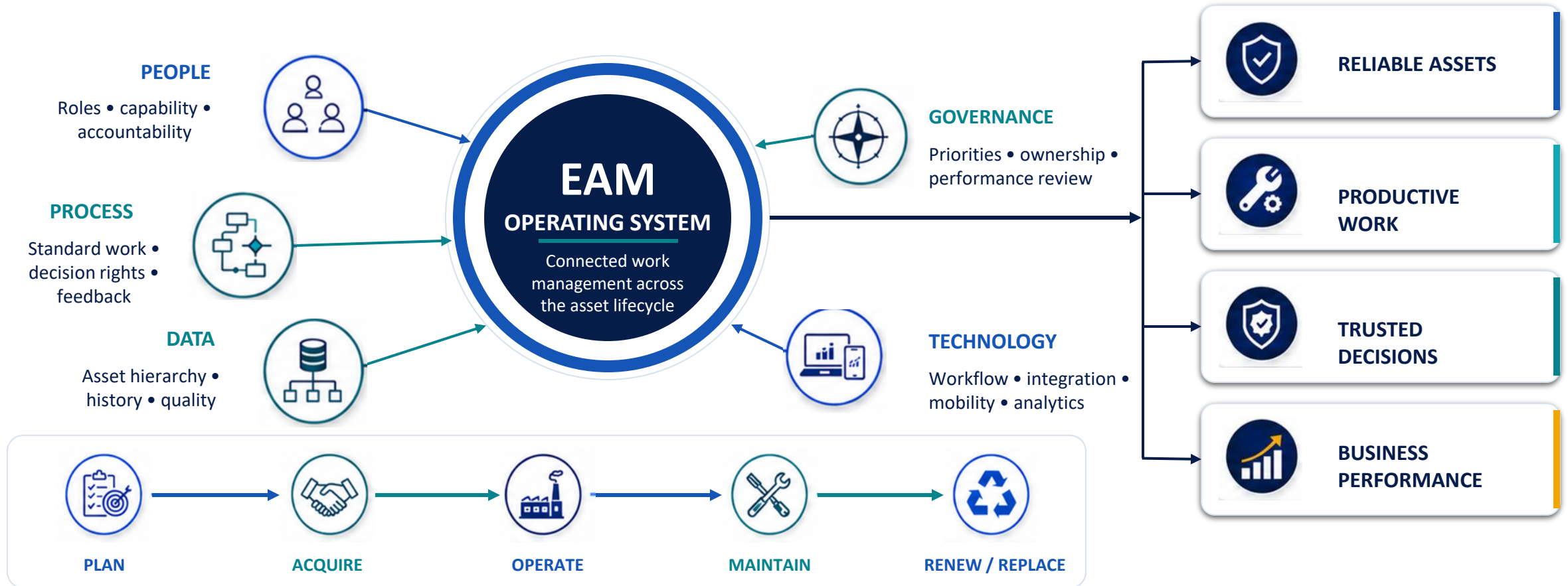
*Craft experience
changes how you lead
maintenance
transformation.*



*Technology enables maintenance excellence.
People, process, and leadership make it real.*

EAM Is a Business System—Not Just Software

Enterprise Asset Management is a coordinated business discipline for managing physical assets across their lifecycle—balancing performance, risk, and cost in support of business objectives.



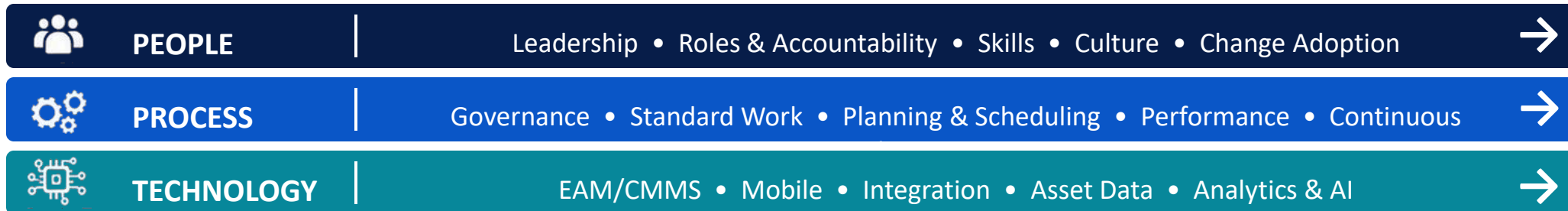
Software enables the work. *The management system produces the results.*

Enterprise Asset Management Maturity Model

Building the foundation for data-driven reliability and business performance

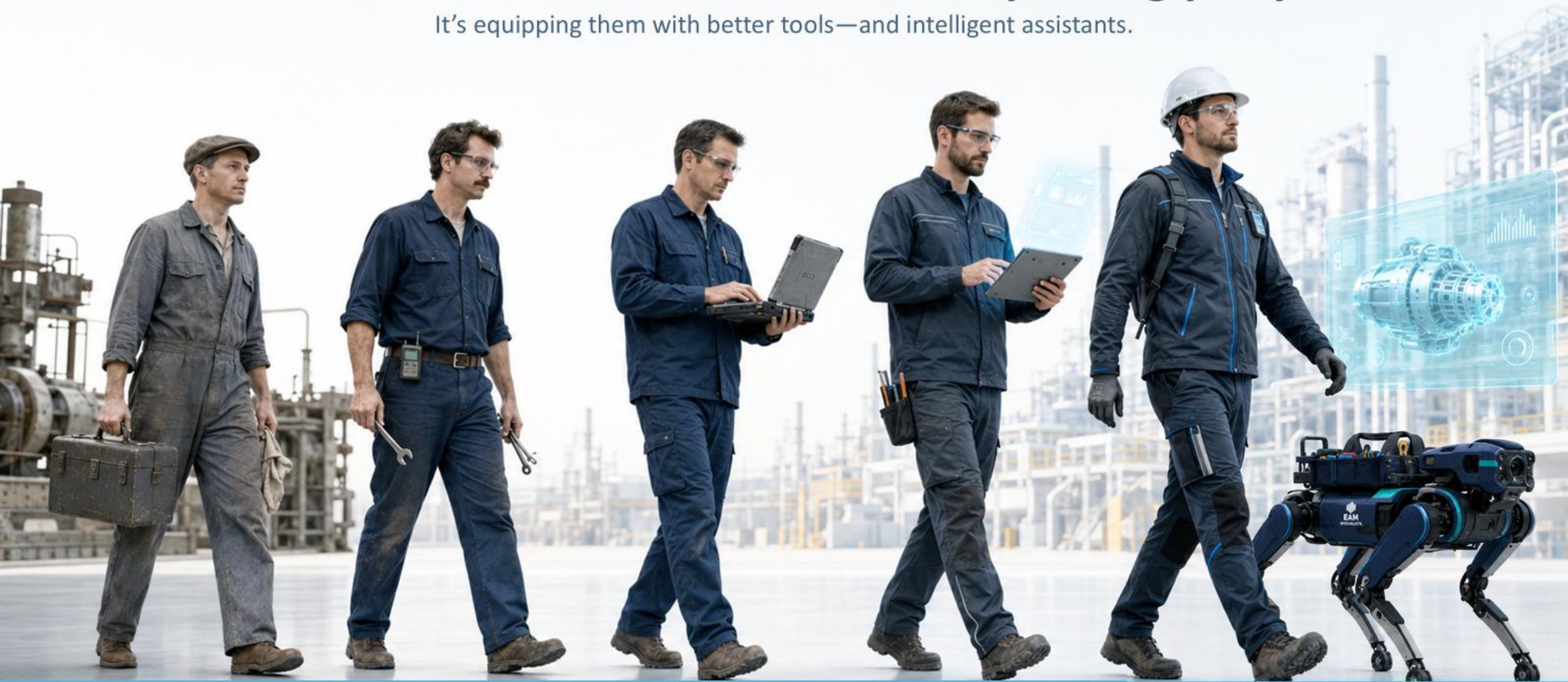


ENABLERS ACROSS EVERY STAGE



The future of maintenance isn't replacing people.

It's equipping them with better tools—and intelligent assistants.



1950

CRAFT + TOOLBOX

1980

TECHNICIAN + PAGER

2000

LAPTOP + CMMS

2025

TABLET + AI COPILOT

2035

HUMAN + ROBOT PARTNER

Planning Converts Time into Productive Work

The same maintenance job—two very different outcomes

PLANNED ON THE RUN



Planning happens during execution.

PROFESSIONALLY PLANNED



Work is job-ready—support time remains, but interruptions are reduced and controlled.

Support / Non-value-added time

Planning

Direct Work

A Typical Maintenance Technician's Day



REACTIVE

Without effective planning & scheduling.



35%
DIRECT
WORK

65%
DELAYS &
SUPPORT TIME

- Searching for instructions
- Finding tools & materials
- Travel to / from job
- Waiting & coordination delays
- Waiting at the job site
- Late starts & early quits



+20
POINTS OF
PRODUCTIVE
CAPACITY

Without adding
headcount.



PROACTIVE

With professional planning & scheduling.



55%
DIRECT
WORK

45%
DELAYS &
SUPPORT TIME

- Job-ready work packages
- Staged tools & materials
- Coordinated access
- Clear priorities & plan
- Fewer interruptions



Plan the work. Schedule the work. Execute with confidence.

Planning Multiplies Maintenance Capacity

Increase wrench time by preparing work before technicians arrive



 **Planning does not perform the work—it enables more work to be performed.**

*Illustrative capacity example using 35% and 55% wrench-time assumptions.
Actual results and appropriate planner-to-technician ratios vary by operation.*

The Planner-to-Technician Ratio

Staff the planning function for workload complexity—not headcount alone



STAFF CLOSER TO 1:10



- High-complexity or high-risk work
- Large capital or outage workload
- Dispersed sites or extensive field verification
- Immature job-plan library or poor asset data
- Planner also supports materials, permits, or engineering coordination

CONTEXT
MATTERS

STAFF CLOSER TO 1:30



- Repeatable, standardized work
- Strong reusable job-plan library
- Reliable asset data and technical documentation
- Concentrated work locations
- Dedicated stores, engineering, and scheduling support

WHEN THE PLANNER IS STRETCHED TOO THIN



Field
verification
declines



Job-plan
quality falls



Ready
backlog
shrinks



Break-in
work rises



Technicians
self-plan in
the field

WHEN PLANNING CAPACITY IS BALANCED



Job-ready
backlog



Better
estimates



Materials and
access
coordinated



Reusable
job plans
improve



Technicians
spend more time
executing



**Start with the range.
Validate it with demand.**

Track incoming work, planning hours required, ready-backlog health, plan quality, and technician delays—then adjust staffing.



The right ratio is the one that consistently produces enough high-quality, job-ready work for the crews it supports.

Benchmark ranges vary by industry and operating model; use local workload data to confirm staffing.

What Is a Maintenance Planner?

The planner prepares future work so technicians can execute safely and efficiently

1 IDENTIFIED WORK



WORK REQUEST & FIELD INFORMATION

-  Equipment issue or opportunity
-  Observed condition and impact
-  Asset, location, and history
-  Priority and due date

2 PLAN THE JOB



SCOPE

Define the work and expected outcome



JOB STEPS

Develop a safe, efficient sequence



LABOR & DURATION

Estimate craft, crew size, and hours



MATERIALS & TOOLS

Identify, reserve, kit, or coordinate requirements



SAFETY & ACCESS

Coordinate permits, clearances, hazards, and access



TECHNICAL INFORMATION

Provide drawings, specifications, history, and acceptance criteria

3 READY TO SCHEDULE

JOB-READY WORK PACKAGE

- ✓ Clear scope and outcome
- ✓ Detailed job plan and steps
- ✓ Materials and tools identified
- ✓ Labor and duration estimated
- ✓ Permits, hazards, and access confirmed
- ✓ Drawings, specs, and history attached



READY-TO-SCHEDULE BACKLOG



Well-prepared, prioritized work ready for scheduling and efficient execution



A maintenance planner removes **avoidable uncertainty** before the job reaches the technician.



Not supervising today's crew



Not routinely expediting today's emergencies



Not personally performing every support function

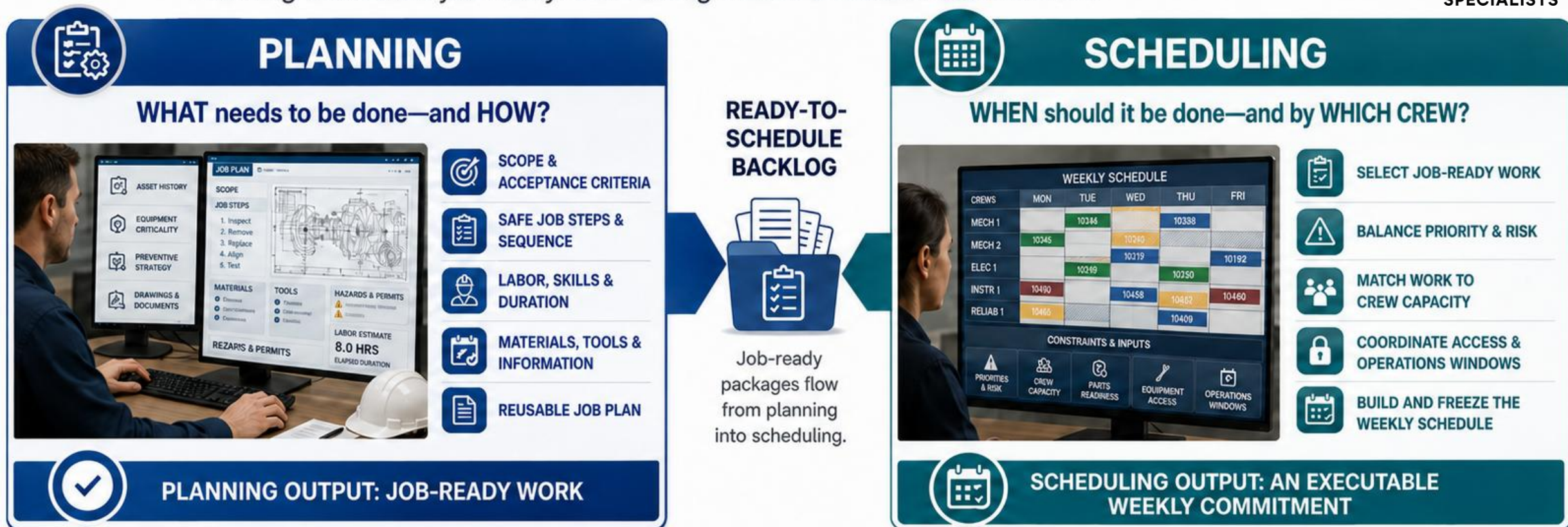
The planner coordinates the information and requirements needed for execution.



The planner's product is **job-ready work**.

Planning vs. Scheduling: Know the Difference

Planning makes the job ready. Scheduling makes a realistic commitment.



Planner:
prepares future work



**Scheduler Builds a
FULLY LOADED
WEEKLY SCHEDULE!**



Supervisor:
assigns individuals and
manages daily execution



Operations:
confirms access, priorities,
and equipment availability



Planning removes uncertainty from the job.

Scheduling removes uncertainty from the week.



A schedule cannot compensate for unplanned work—and a job plan creates no value until it is scheduled and executed.

The Complete Work Management Lifecycle

A closed-loop system that converts asset needs into reliable execution—and execution into better future work



No stage stands alone. Weak inputs create weak outputs downstream.



Poor identification
creates rework



Poor planning
creates field delays



Incomplete closeout
causes the same problems to return



Work management is complete only when learning is returned to the system.

Stage 1: Work Identification

Capture the need clearly enough that the organization can make the right decision

1 OBSERVE

Defect • Condition • Request
PM finding • Improvement opportunity



2 REPORT

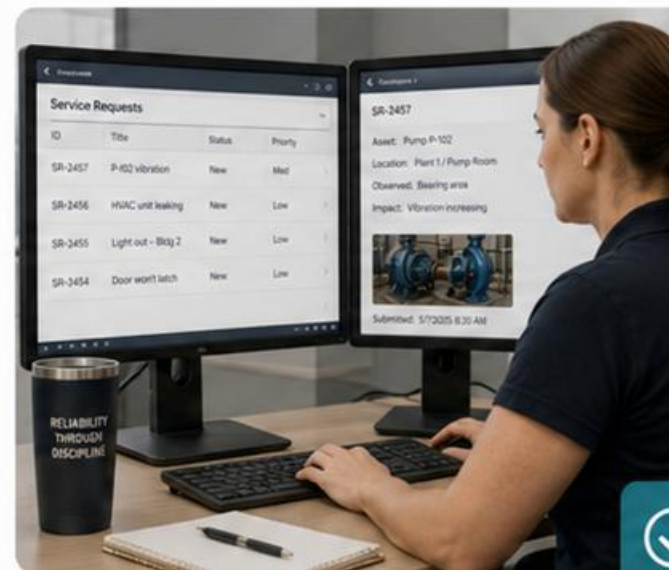
New Service Request

- ASSET OR LOCATION
Select asset or location
- WHAT WAS OBSERVED
Describe the condition
- IMPACT / SYMPTOM
Effect on operation or risk
- PHOTO OR EVIDENCE
Add photos or files
- REQUESTOR & TIME
Your name and timestamp
- ACCESS OR SAFETY CONCERNS
Restrictions or hazards

SUBMIT REQUEST

Describe the condition—do not diagnose beyond the evidence.

3 VALIDATE



- ✓ Is the need valid?
- ✓ Is it a duplicate?
- ✓ Is immediate action required?
- ✓ Which asset, location, and work type apply?
- ✓ Should it become a work order?



VALIDATED WORK
ENTERS THE BACKLOG

GOOD REQUEST vs. WEAK REQUEST



GOOD REQUEST

"Pump P-102 has a new bearing noise and rising vibration; photo and reading attached."

VS.



WEAK REQUEST

"Pump broken—fix ASAP."

Good work management begins with good information.



Everyone can identify work



Authorized roles validate and control the backlog



Emergency conditions follow the emergency-response process



If the need is unclear at identification, uncertainty and rework follow it through the entire lifecycle.

Stage 2: Prioritization

Direct limited resources to the work with the greatest business consequence and time sensitivity

VALIDATED WORK REQUEST



- What is the issue?
- Where is it?
- What is the impact?
- What is the desired outcome?



Cross-Functional Review
Maintenance, Operations, Reliability, Safety/Environment, and Finance evaluate together using shared criteria.

STRUCTURED RISK ASSESSMENT

Evaluate the work using five decision factors and available evidence.



Criticality informs priority—but a critical asset does not make every job an emergency.



PRIORITY 1 EMERGENCY

CRITERIA

Immediate threat to people, environment, compliance, or critical service

RESPONSE

Initiate emergency response and control the hazard now

GOVERNANCE

Narrow definition • Documented approval • Retrospective review



PRIORITY 2 URGENT

CRITERIA

High consequence likely within the defined near-term window

RESPONSE

Accelerate planning and coordinate execution—typically within 24–48 hours if locally defined

GOVERNANCE

Not every expedited request is urgent



PRIORITY 3 ROUTINE

CRITERIA

Important work with manageable consequence and adequate planning time

RESPONSE

Plan completely and place in the ready-to-schedule backlog

GOVERNANCE

This should contain most normal maintenance work



PRIORITY 4 DEFER / MONITOR

CRITERIA

Low current consequence, improvement opportunity, or work awaiting an economic window

RESPONSE

Monitor, bundle, redesign, fund, or schedule when justified

GOVERNANCE

Deferred does not mean forgotten



PRIORITY IS NOT THE SCHEDULE

Priority determines relative need. Planning readiness, capacity, access, materials, and operational windows determine when work can be scheduled.



WEAK SYSTEM:

Requestor influence • Priority inflation
Everything urgent • Backlog loses meaning

VS.



DISCIPLINED SYSTEM:

Shared criteria • Evidence-based decisions
Limited emergencies • Backlog remains actionable



If everything is a priority, nothing is prioritized.



The loudest request should never outrank the greatest risk.



Response windows and approval authorities should be defined in the organization's priority standard.

Stage 3: Work Planning

Remove avoidable uncertainty before the job reaches the technician



**PRIORITIZED &
APPROVED WORK**



Validated condition
or request



Priority and
required-by window
established



Correct asset,
location, and
work type



Business need and
funding strategy
understood



DEVELOP THE PLAN

1



**SCOPE &
ACCEPTANCE
CRITERIA**

Define the required
outcome, boundaries,
and conditions for
successful completion.

2



SAFE JOB STEPS

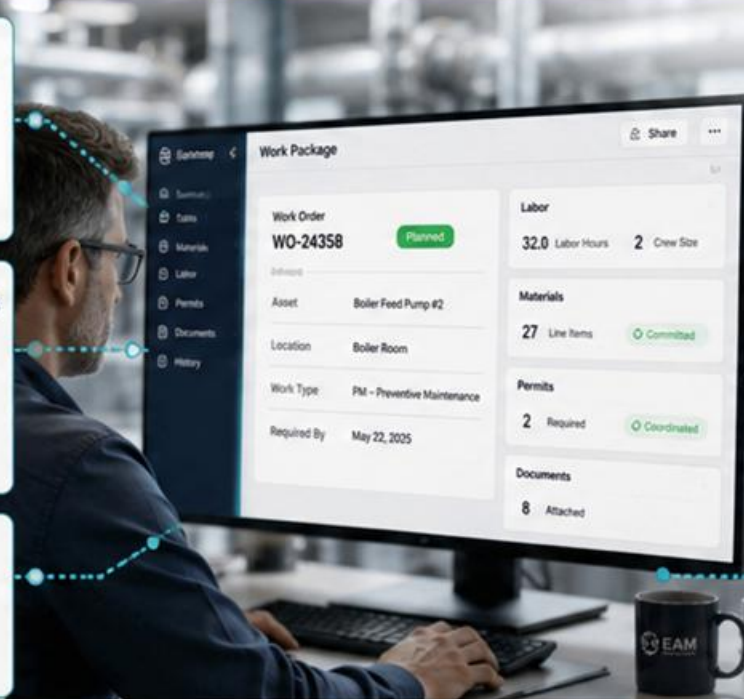
Build a logical task
sequence with hazards,
controls, and appropriate
safety requirements.

3



**LABOR &
DURATION**

Estimate craft skills,
crew size, labor hours,
and elapsed time.



4



**MATERIALS,
TOOLS &
SERVICES**

Identify and reserve
requirements; coordinate
kitting, staging, rentals,
and contractor support.

5



**ACCESS, PERMITS &
TECHNICAL
INFORMATION**

Coordinate equipment
access, clearances,
permits, drawings,
specifications, and
procedures.

6



**REUSABLE
JOB PLAN**

Capture standard work
that can be refined using
technician feedback and
actual history.



JOB-READY WORK

**IS THE JOB READY
TO SCHEDULE?**

- ✓ Scope is clear
- ✓ Job steps are complete
- ✓ Labor and duration are estimated
- ✓ Materials and tools are available or committed
- ✓ Access and permits are coordinated
- ✓ Technical information is attached
- ✓ No unresolved planning constraint



A planned job is not necessarily ready.

A job is ready only when its execution constraints are resolved.



Planner defines and
coordinates requirements



Stores kits and
stages materials



Operations confirms
access and availability



Supervision validates
execution needs



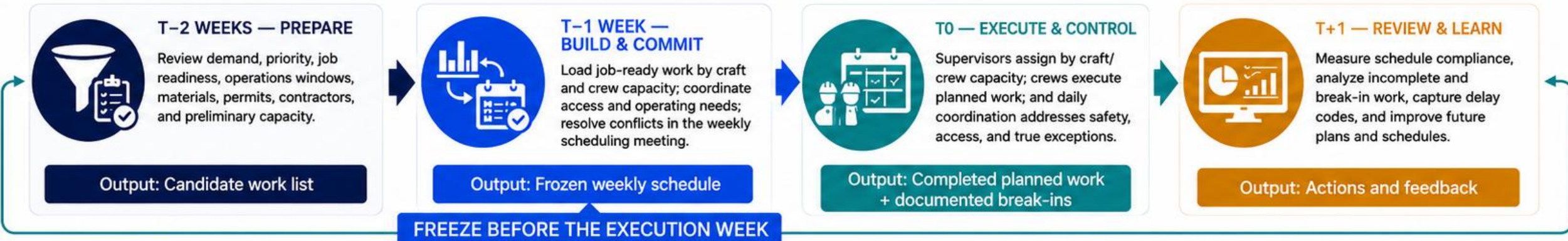
**READY-TO-SCHEDULE
BACKLOG**



The planner's product is a **safe, complete, and executable work package.**

Stage 4: Scheduling

Convert the job-ready backlog into a realistic, protected weekly commitment



WEEKLY SCHEDULE BOARD (EXAMPLE)					
CRAFT / CREW	MON	TUE	WED	THU	FRI
MECHANICAL					
ELECTRICAL					
INSTRUMENTATION					
PIPEFITTERS					
CONTRACTOR					

Planned work Available (non-work / contingency) Planned work (access window)

CAPACITY SUMMARY (WEEK)		
	AVAILABLE HOURS	SCHEDULED HOURS
MECHANICAL	200	200
ELECTRICAL	180	180
INSTRUMENTATION	160	160
PIPEFITTERS	160	160
CONTRACTOR	120	120
TOTAL	820	820

Deliberate allowance for known non-work time and locally defined contingency.

BREAK THE FROZEN SCHEDULE ONLY FOR:

- True emergency
- Material change in safety or operating risk
- Authorized business-critical need

Every break-in is coded, reviewed, and used to remove future causes.

ROLE ALIGNMENT

Scheduler: builds the capacity-based weekly schedule

Operations: confirms access and equipment availability

Supervision: commits crew capacity and manages daily execution

Planning / Stores: confirm job readiness and material status

WEAK SCHEDULING:

Fill the calendar • Ignore capacity • Change priorities daily

The weekly schedule is a commitment—not a wish list.

DISCIPLINED SCHEDULING:

Select ready work • Match capacity • Protect the commitment • Learn from variance

Stage 5: Execution

Perform the committed work safely, efficiently, and with disciplined feedback

1 VERIFY READINESS

-  Correct asset and scope
-  Hazards, permits, and isolation confirmed
-  Materials, tools, access, and support available
-  Crew understands job steps and acceptance criteria

 **SAFE TO START**



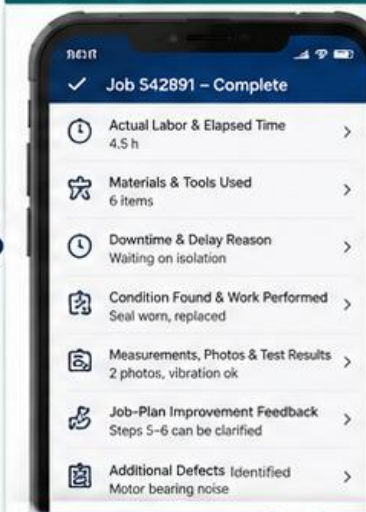
2 EXECUTE THE WORK

-  Follow the approved job plan
-  Use stop-work authority when conditions differ
-  Control changes to scope
-  Coordinate with operations and supervision
-  Verify quality and functional acceptance



Productivity never outranks safety, quality, or asset protection.

3 CAPTURE ACTUALS & FEEDBACK



-  Actual labor and elapsed time
-  Materials and tools used
-  Downtime and delay reason
-  Condition found and work performed
-  Measurements, photos, and test results
-  Job-plan improvement feedback
-  Additional defects identified

 **ACCURATE WORK HISTORY**

 **NEW WORK REQUESTS FOR OUT-OF-SCOPE DEFECTS**



WHEN FIELD CONDITIONS DO NOT MATCH THE PLAN



STOP →



MAKE SAFE →



NOTIFY →



EVALUATE →



AUTHORIZE CHANGE OR CREATE FOLLOW-ON WORK

Do not hide scope growth inside the original work order.



WEAK EXECUTION: Self-plan in the field • Search for parts • Undocumented changes • Minimal feedback

VS.



DISCIPLINED EXECUTION: Job-ready start • Controlled work • Accurate actuals • Useful feedback



Execution completes the job—and generates the information that improves the next one.

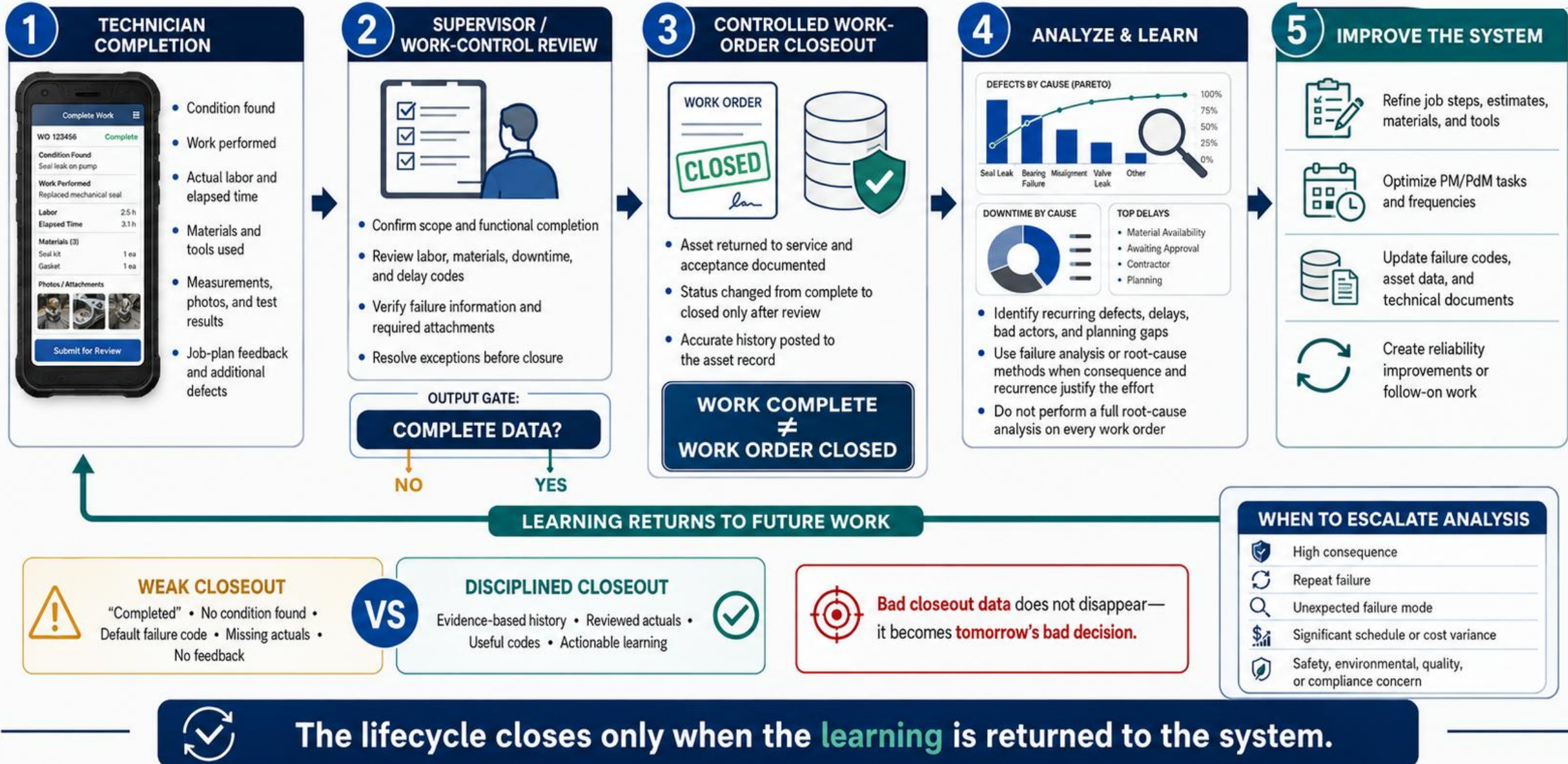


The work is not finished until the asset is verified and the learning is captured.



Stage 6: Closeout & Continuous Improvement

Turn completed work into trustworthy history, reusable learning, and better future decisions



Key Performance Indicators That Matter

Measure the health of the work-management system—not just the volume of transactions

Ready work enables schedule performance.



→ Schedule performance creates productive execution.



→ Productive execution should improve reliability outcomes.



READINESS — LEADING INDICATORS



1 READY-TO-SCHEDULE BACKLOG

Definition: Weeks of fully planned work available by craft or crew.

Reveals: Whether planning is producing enough executable work to sustain the schedule.

Use: Trend by craft; separate total backlog from ready backlog.

 Illustrative starting band: Often 2-4 weeks, adjusted for operating model and workload variability.



2 PLANNING EFFECTIVENESS

Definition: Share of scheduled work with complete scope, estimates, materials, tools, access, and technical information.

Reveals: Job-plan quality and readiness—not merely whether a plan record exists.

Use: Audit samples and track constraint-related delays.

 Illustrative starting band: Varies by maturity; establish a verified baseline for your operating context.

EXECUTION — PROCESS INDICATORS



3 WEEKLY SCHEDULE COMPLIANCE

Definition: Percent of scheduled hours or assignments completed as committed.

Reveals: Quality of readiness, coordination, capacity assumptions, and schedule protection.

Use: Track variance and break-in causes; use for learning, not blame.

 Target guidance: Set a local target after standardizing the calculation; mature systems often benchmark near 90%.



4 WRENCH TIME / PRODUCTIVE WORK

Definition: Observed share of paid craft time spent directly executing maintenance tasks.

Reveals: Systemic delays involving information, materials, travel, access, coordination, and waiting.

Use: Measure through a representative activity study—not technician self-reporting or EAM labor entries alone.

 Target guidance: Use improvement from a verified baseline; do not treat wrench time as an individual performance quota.

OUTCOMES — LAGGING INDICATORS



5 EMERGENCY & BREAK-IN WORK

Definition: Emergency work and unscheduled additions shown separately as a share of total maintenance demand or hours.

Reveals: How often reactive demand disrupts the frozen schedule.

Use: Use strict definitions and code the source of every break-in.

 Target guidance: Drive the trend downward; emergency work should remain narrowly defined.



6 REPEAT FAILURES / BAD ACTORS

Definition: Recurring defects or failures by asset, failure mode, and consequence.

Reveals: Whether maintenance is eliminating causes or repeatedly restoring symptoms.

Use: Trigger focused defect elimination, failure analysis, and asset-strategy review.

 Target guidance: Focus on reducing repeat occurrence and associated business impact.



BEFORE SETTING TARGETS



Define the numerator and denominator



Standardize status and work-type rules



Separate emergency, break-in, and corrective work



Establish a trustworthy baseline



Trend performance and investigate causes



Calibrate targets to the operating context



Do not weaponize KPIs.

When metrics become individual quotas, people optimize the number instead of improving the system.



The best KPI is the one that exposes a constraint and leads to action.

 Benchmark guidance varies by industry and calculation method. EPRI Table 6-1 identifies 90% weekly schedule compliance and 60% productive work as illustrative best-practice maturity values; local targets require validated definitions and baselines.

Five Strategies That Move the Needle

START WITH CONTROL



01

PROTECT THE PLANNING FUNCTION

Define planner scope, staffing, role boundaries, and time away from today's emergencies.

JOB-READY WORK



02

ESTABLISH A WEEKLY SCHEDULING CADENCE

Coordinate operations, maintenance, materials, access, and capacity before the week begins.

REALISTIC COMMITMENT

BUILD CONSISTENCY



03

BUILD A REUSABLE JOB-PLAN LIBRARY

Start with recurring and high-value work; improve plans with technician feedback and actuals.

CONSISTENT EXECUTION



04

CONTROL TECHNICAL CLOSEOUT

Capture labor, materials, condition, failure information when applicable, and follow-on work.

TRUSTWORTHY HISTORY

IMPROVE WITH EVIDENCE



05

RUN A WEEKLY PERFORMANCE REVIEW

Review readiness, schedule compliance, break-ins, backlog health, and emerging constraints.

EVIDENCE-BASED IMPROVEMENT



MORE RELIABLE EXECUTION



Begin with operating discipline—not a software project. Use the EAM system to make the discipline visible and repeatable.

THANK YOU

Let's keep the conversation going.

Planning and scheduling is where EAM strategy becomes real work.

QUESTIONS • DISCUSSION • NEXT STEPS



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