8° CONGRESO MUNDIAL DE MANTENIMIENTO Y GESTIÓN DE ACTIVOS
22º Congreso Iberoamericano de Mantenimiento
27º Congreso Internacional de Mantenimiento y Gestión de Activos - CIMGA
11 · 12 · 13 JUNIO · 2025
Centro de Convenciones Cartagena de Indias • Colombia
abraman associação brasileira de manutenção e gestão de ativos
Federación Iberoamericana de Mantenimiento
ACIEM Asociación Colombiana de Ingenieros

The art of S.M.A.R.T.
El arte de S.M.A.R.T.

Asset Management Objectives
Objetivos de gestión de activos

Miércoles, 11 de junio, a las 2:00 p. m.

El arte de la gestión inteligente de activos
Objetivos

Martin Kerr

- ISO 55001:2024 Coordinador
- Director técnico - World Partners in Asset Management
- Miembro certificado en gestión de activos
- Asesor certificado en gestión de activos (CAMA)
- Director general de Cambio Estructurado
- Director general de Applying Asset Management
- mentor de la próxima generación de gestores de activos

Background

In my years supporting organisations across the globe and my role as Convener of ISO55001:2024, I have witnessed so much confusion surrounding the Strategic Asset Management Plan (SAMP) and Asset Management Objectives.

I have created and contributed to SAMPs and AMPs worth over $AUD300B of asset portfolio value.

If Asset Management Objectives were created and managed correctly and there was as little as a 2% improvement, that would equate to a

$6 BILLION SAVING!

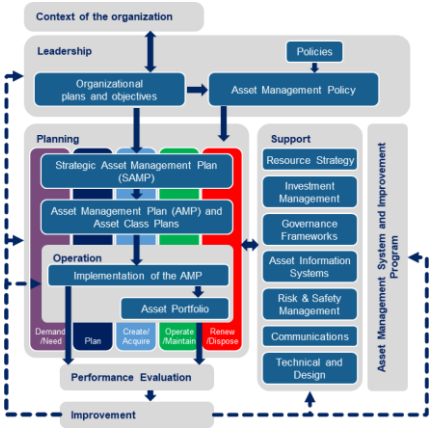
What is a SAMP?

"A **Strategic Asset Management Plan** (**SAMP**) describes how an organization approaches asset management and translates organizational level objectives into Asset Management Objectives"

Strategic Asset Management versus Asset Strategy

Strategic Asset Management

Interrelated policies, objectives and processes to achieve organizational objectives



Training & awareness

Competency management

Process improvements

Budget management

Governance improvements

VS

Asset Strategy

Long term plan for an asset or group of assets

Equipment Strategy

Fleet Strategy

Resource Strategy

Insights

A **SAMP** >

- Is a **WHAT** document (an **AMP** is a **HOW** document).
- Can reflect a contract or a smaller subset of an organisation.
- Can be named anything (*e.g. "20-year infrastructure plan" or "Business Plan")*
- Is best signed off by the role that is **accountable** for the **services** for which the asset portfolio represents.
- Is an evolving, rolling plan that is a continuum, not just a single event.

Note: An organisation can have more than one SAMP!

What is an Asset Management Objective

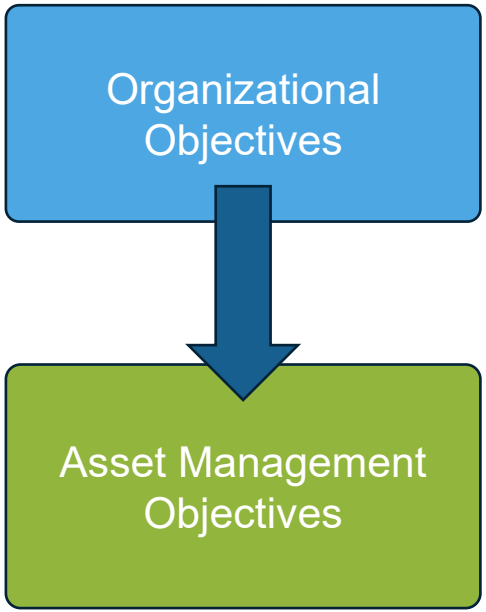
"An **asset management objective** is a lower-level objective representing an organisational objective in the context of Asset Management"

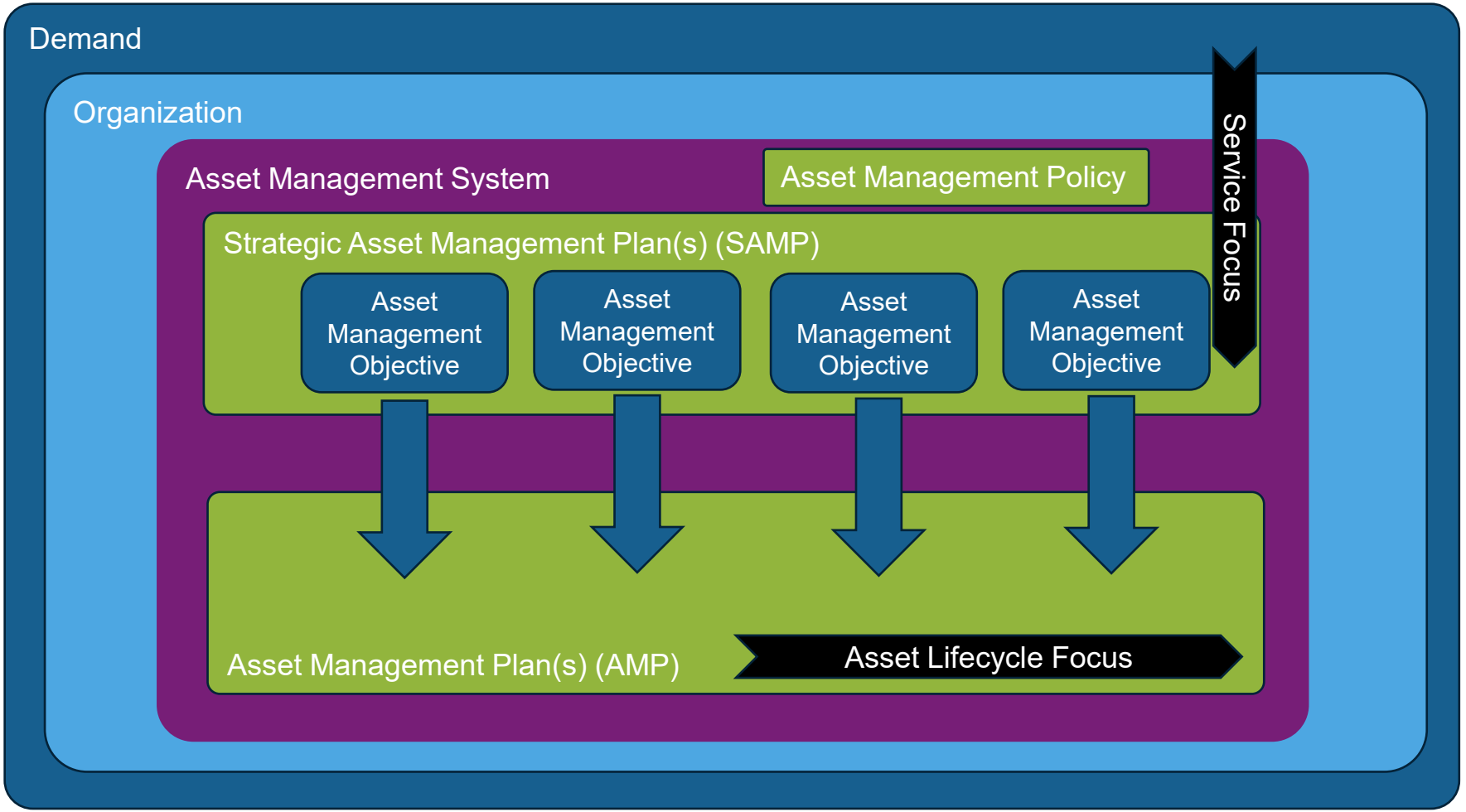
Relevance

- Alignment with Organizational Goals
- Risk & Opportunity Management
- Regulatory and Compliance Assurance
- Effective Resource Allocation
- Stakeholder Value Creation
- Performance Monitoring and Improvement

Role of Asset Management Objectives

- **ALIGNMENT** with strategic objectives
- Foundation for **PLANNING** and decision-making
- Provide **MEASURABILITY** and performance monitoring
- **RISK** management and **OPPORTUNITY** identification
- **COMPLIANCE** and stakeholder requirements
- Continuous **IMPROVEMENT**
- **INTEGRATION** across functions




Demand
Organization
Asset Management System
Asset Management Policy
Strategic Asset Management Plan(s) (SAMP)
Asset Management Objective
Asset Management Objective
Asset Management Objective
Asset Management Objective
Service Focus
Asset Management Plan(s) (AMP)
Asset Lifecycle Focus

Asset Management Objectives

S	M	A	R	T
SPECIFIC	MEASURABLE	ACHIEVABLE	REALISTIC	TIME-BOUND

It is important that Asset Management Objectives have performance measures and targets and are, therefore, S.M.A.R.T.

SPECIFIC – S.M.A.R.T.

- **Clear and Precise:** A specific objective avoids vagueness or ambiguity.
- **Focused on a Single Goal:** A specific objective focuses on a single, well-defined outcome rather than combining multiple goals.
- **Answers Key Questions:** (What, Who and Where)
- **Directly Related to a Purpose:** Specific objectives align directly with the overarching goals or strategies of the organization, project or contract.
- **Includes Context and Details:** Specific objectives provide enough detail to make the goal tangible and actionable. For example, "Implement a training program for 50 employees on ISO 55001 standards by June" includes details about the number of employees, the topic, and the deadline.

MEASURABLE – S.M.A.R.T.

- **Quantifies Progress:** A measurable objective includes clear criteria to track progress and determine success.
- **Defines Success:** Measurability ensures there is a clear endpoint or benchmark to determine whether the objective has been achieved.
- **Tracks Performance Over Time:** Measurable objectives enable continuous monitoring and assessment, allowing for adjustments if progress is not on track.
- **Encourages Accountability:** When an objective is measurable, it holds individuals or teams accountable.
- **Supports Data-Driven Decisions:** Measurable objectives rely on tangible data rather than assumptions, enabling informed decision-making and effective resource allocation.

ACHIEVABLE – S.M.A.R.T.

- **Realistic and Feasible:** Achievable objectives consider the resources, skills, and time available to ensure the goal can realistically be accomplished.
- **Aligned with Capacity:** The objective should align with the organization or team's current capabilities.
- **Challenging but Attainable:** While achievable objectives should be realistic, they should also challenge the team to grow and improve.
- **Considers Constraints:** Achievable goals account for potential limitations, such as budget, time, staffing, or external conditions, ensuring that these constraints are factored into the planning.
- **Supported by Resources:** Achievable objectives require the necessary resources—whether it's personnel, funding, tools, or knowledge

RELEVANT – S.M.A.R.T.

- **Aligned with Broader Goals:** A relevant objective directly supports the overarching goals and strategic direction of the organization.
- **Addresses Current Needs:** Relevant objectives focus on addressing immediate priorities or critical challenges faced by the organization.
- **Adds Value:** A relevant objective contributes meaningfully to the organization's success or mission. It avoids wasting time on tasks that do not support/enable key priorities.
- **Organizational Context:** Relevant objectives take into account the current environment, including market conditions, industry trends, and organizational capability / capacity.
- **Supports Stakeholder Expectations:** A relevant objective considers the needs and expectations of key stakeholders, such as customers, employees, or investors.

TIME-BOUND – S.M.A.R.T.

- **Sets a Clear Deadline:** A time-bound objective specifies a deadline or timeframe for completion, creating a sense of urgency and focus.
- **Facilitates Planning:** By defining when the goal should be achieved, time-bound objectives allow teams to create detailed plans, allocate resources, and schedule activities effectively.
- **Encourages Accountability:** A fixed timeframe ensures individuals or teams remain accountable for delivering results within the specified period
- **Allows Progress Monitoring:** Time-bound objectives provide checkpoints for tracking progress.
- **Supports Prioritization:** By attaching deadlines, time-bound objectives help prioritize tasks, ensuring that critical goals are addressed before others.

Performance (Service and Asset)

Performance

Performance refers to carrying out or accomplishing an action, task, function or service to an agreed standard…

- ✓Measurable output
- ✓Service delivery (determines required asset performance)
- ✓Business functions
- ✓Measures such as R.A.M.S. (Reliability, Availability, Maintainability and Supportability)
- ✓Intangible outcomes such as safety, security, culture, and customer satisfaction
- ✓Compliance (Legal, Commercial, Regulatory or Service)
- ✓KPIs (Key Performance Indicators)

Lead and Lag Measures

A balance between lead and lag indicators can create a positive tension:

Lead indicators work ON the business

Lag indicators work IN the business

Ratios are scalable, comparative, timeless and encourage collaboration!

They are the secret weapon for driving healthy tension and **improvement**.

Measures that are mutually supportive will promote opportunities for improvement	
• "Achieved Hours vs Available Hours" • "Maintenance Completed On Time vs Backlog" • "Capital Expenditure vs Operational Expenditure"	• "Asset Utilisation" vs "Asset Unavailable" • "Reliability" vs "Availability" • "Shut Down Rework vs Shut Down Omissions"

Challenges

- Too many **KPIs** will confuse stakeholders. (and can erode accountability)
- **LEAD** indicators will be focused on service delivery, which is mostly intangible and therefore can be open to interpretation.
- **LAG** indicators are easier to work with, but they don't necessarily encourage improvement.
- A **LEAD** indicator in one part of an organisation can be a **LAG** indicator for another.
- A **LAG** indicator in one part of an organisation can be a **LEAD** indicator for another.
- The balance (bias) between **LEAD** and **LAG** indicators should be considered when developing **S.M.A.R.T.** objectives.

Real World Example

Context - Manufacturing Plant

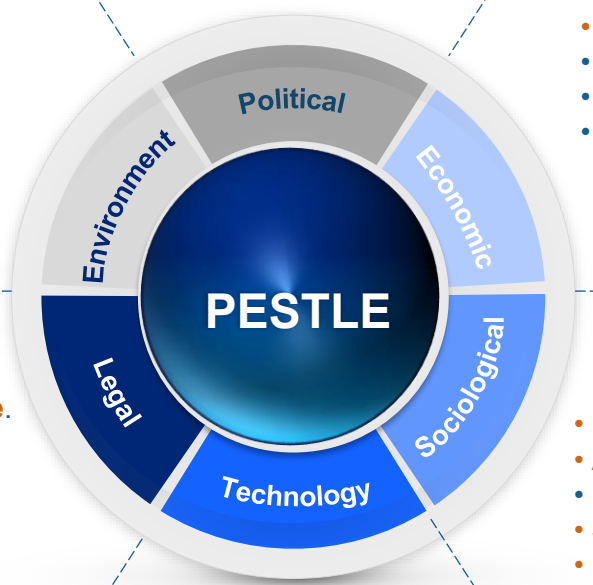
- **Declining** local manufacturing demand as Australia's car industry moved offshore.
- The company needs to **transition** from cam-driven lathes to CNC machines.
- **Skilled labour shortages** impacted both old and new technologies.
- Computerised machines were **expensive** and limited working capital.
- Use of exotic materials exposed a **supply chain** and **currency risks**.

- Time for **Revolution**, not **Evolution.**

P.E.S.T.L.E

- **Reduced** government support.
- Trade policy **impact** on materials.
- Regional **instability** disrupting supply.
- Manufacturing standards **regulations**.
- **Tariffs** on CNC machine imports.

- Specialty material **delays**.
- Environmental sourcing **concerns**.
- **Aligning** with eco-friendly practices.
- Environmental supply chain **risks**.
- Customer demand for **sustainability**.



- FX volatility **raising** costs.
- **Increased** competition squeezing prices.
- High investment **costs** for CNC machinery.
- Economic **downturn** reducing demand.
- CNC leasing vs. purchase **cost** factors.

- Workplace health & safety **compliance**.
- IP **issues** with CNC software use.
- Supplier and customer **contract** terms.
- **Legal** risks in supply disruptions.
- Quality manufacturing **regulations**.

- **Decline** in apprenticeships limiting skills.
- **Aging** workforce creating expertise gaps.
- Demand for **sustainable** manufacturing.
- **Shifting** consumer preferences.
- **Increasing** need for programming skills.

- CNC boosting **efficiency**.
- User-friendly software **easing** skills gap.
- **Affordability** in CNC machines.
- Obsolete cam-driven lathes need **upgrading**.
- Integration **challenges** with legacy systems.

S.W.O.T. Analysis

Internal

Strengths

- Long-established reputation (since the 1950s).
- Proven adaptability with CNC adoption.
- Strong engineering expertise.
- Diverse manufacturing capabilities.
- Ability to maintain operations via leasing.

Weaknesses

- Dependence on outdated cam-driven technology.
- Scarcity of spare parts for legacy equipment.
- Diminishing skilled workforce availability.
- High initial costs of CNC investments.
- Limited ability to negotiate material contract

External

Opportunities

- Expansion into CNC-driven markets.
- Leveraging software to simplify operations.
- Access to cost-effective CNC machines.
- Diversification beyond the automotive sector.
- Increased global reach via modern technology

Threats

- Rising competition with cheaper CNC options.
- Decline of Australian automotive industry.
- FX fluctuations affecting cost stability.
- Increased difficulty securing skilled programmers.
- Proliferation of CNC technology among competitors.

Strategic Themes

- **Transition** from Cam-Driven Lathes (Legacy) to CNC Machines (Modern)
- Address **challenges** with **supporting** Legacy Equipment
- Agree on the **investment** and **Operational Strategy** for CNC Machines
- Address Market **Competition** and Price **Sensitivity**
- Address Supply Chain and Material **Risks**

Planning Hierarchy

WHY

ACME
Business Plan

WHAT

Plant Strategy
(SAMP)

Cam-Driven Lathe
(AMP)

HOW

CNC Machinery
(AMP)

HOW

ACME – LEAD Indicators (Org level)

Training Hours per Employee

Adoption Rate of CNC Technology

Supply Chain (Integrated) Reliability

Apprenticeship Program Enrollment

Market Diversification Index

R&D Investment in Process Improvements

Customer Lead Time Forecast Accuracy

Employee Retention in Technical Roles

Operational Flexibility Metrics

Supplier Contract Development

ACME – LAG Indicators (Org level)

Revenue Growth Rate

Profit Margins

Production Downtime

Customer Satisfaction Scores

Market Share in Key Segments

Workforce Turnover Rate

Inventory Write-Offs

CNC Machine Utilisation Rate

Incident Rate in Operations

Order Fulfilment Performance

Asset Management Objectives (Cam Driven)

- ✓ **Reduce production downtime for cam-driven lathes by 15%** through improved maintenance practices and cannibalization efficiency.
- ✓ **Track and report the availability of critical spare parts quarterly**, aiming to maintain a stock of essential components to cover at least 90 days of operation.
- ✓ **Train two additional technicians within six months** to ensure the operational sustainability of legacy machines until phased out.
- ✓ **Maintain operational capacity of cam-driven lathes at 80%** to fulfill residual demand while transitioning to CNC-based production.
- ✓ **Implement a phased decommissioning plan for cam-driven lathes** within three years, aligning with market demand and replacement progress.

Asset Management Objectives (CNC Lathes)

- ✓ **Increase CNC machine utilization to 90%** by optimizing scheduling and programming workflows within the next 12 months.
- ✓ **Achieve a 20% reduction in setup and programming time for CNC** operations by introducing advanced software and training by Q4 next year.
- ✓ Lease or purchase **two additional multi-axis CNC machines** by the end of the fiscal year to meet projected market demand for high-precision components.
- ✓ **Expand CNC capabilities to serve non-automotive sectors**, targeting a 25% revenue increase from diversified industries within 18 months.
- ✓ Develop and implement a comprehensive **CNC operator training program** within the next six months, ensuring 100% of operators are certified in multi-axis programming.

Acme Summary

- **Acme established Organisational and Asset Management Objectives** (aka Plant & Equipment) Objectives in a fluid and ambiguous operating environment.
- **Did we get it right?** Not all the time but we worked the plan through measures and applied judgement from a variety of SMEs within the business.
- **A top-down approach via the Plant Strategy** (aka **SAMP**) provided visibility and commitment
- **Employees understood the balance** of retaining legacy equipment as new equipment was being phased in.
- In the 1990's we were focussed on the **Management of Assets** however in hindsight Acme was actually taking an **Asset Management** Approach based on "**Actual vs Potential value**" and achieving a balance of "**Cost, Risk and Performance**".

Gracias