



Safety Management System & RPBO – INDUSTRY WORKSHOP

Elevating SMS and RPBO Excellence

📅 18-19 February 2025

🕒 09:00 – 16:00

📍 Johannesburg



Topic: **SAFETY PERFORMANCE MANAGEMENT**
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FOCUS AREAS

1. Safety Performance Management
 - Process and Process Continuous Improvement

1. What are SPIs for and why do they matter?



PART 1

SAFETY PERFORMANCE MANAGEMENT & MONITORING

as a process

Safety performance management is central to the functioning of SSP and SMSs. Properly implemented, it will provide an organisation with the means to determine whether its activities and processes are working effectively to achieve its safety objectives. This is accomplished through the identification of SPIs.



WHY SPM?

It helps the organisation ask and answer the four most important questions regarding safety management. These are:

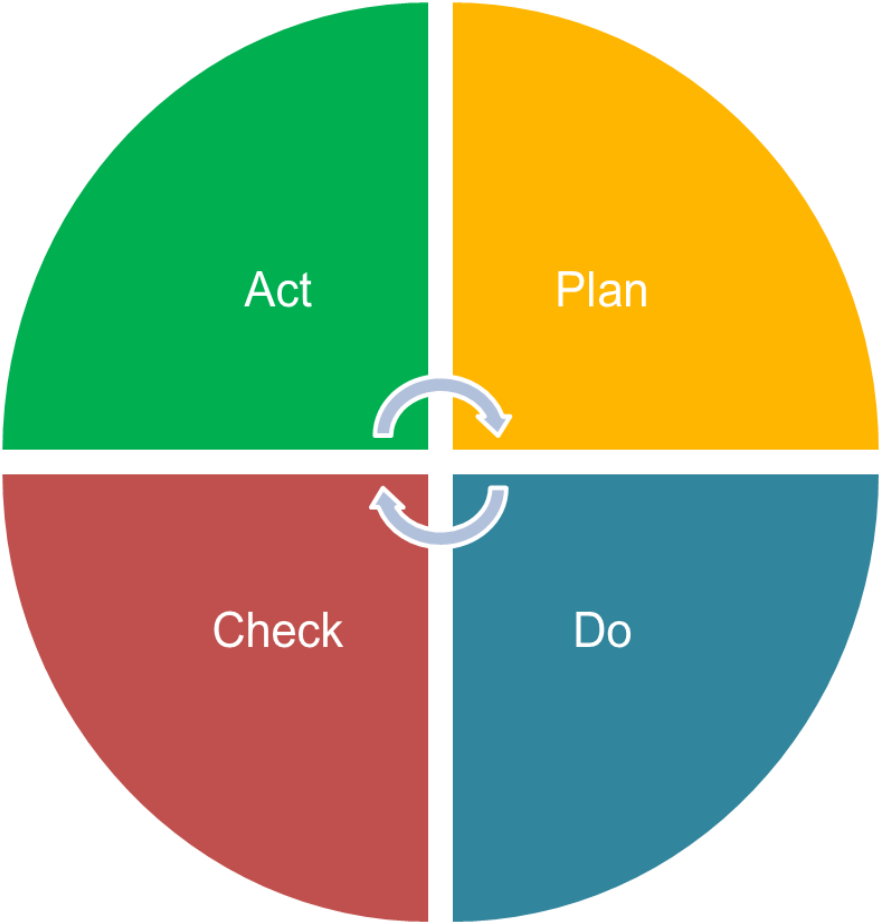
- ❖ **What are the organisation's top safety risks?**
- ❖ **What does the organisation want to achieve in terms of safety?**
- ❖ **After establishing the organisation's safety objectives, how will it know if it is making progress toward them?**
- ❖ **What safety data and safety information are needed to make informed safety decisions?**

SAFETY PERFORMANCE MANAGEMENT FRAMEWORK





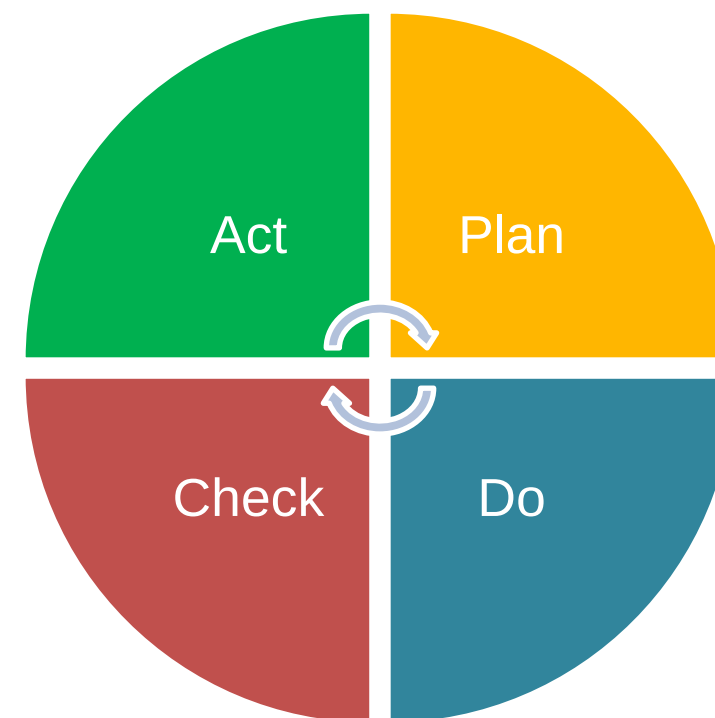
SPM – PDCA Explained (Deming Cycle / Shewhart Cycle)



PDCA CYCLE EXPLAINED (Deming Cycle / Shewhart Cycle)

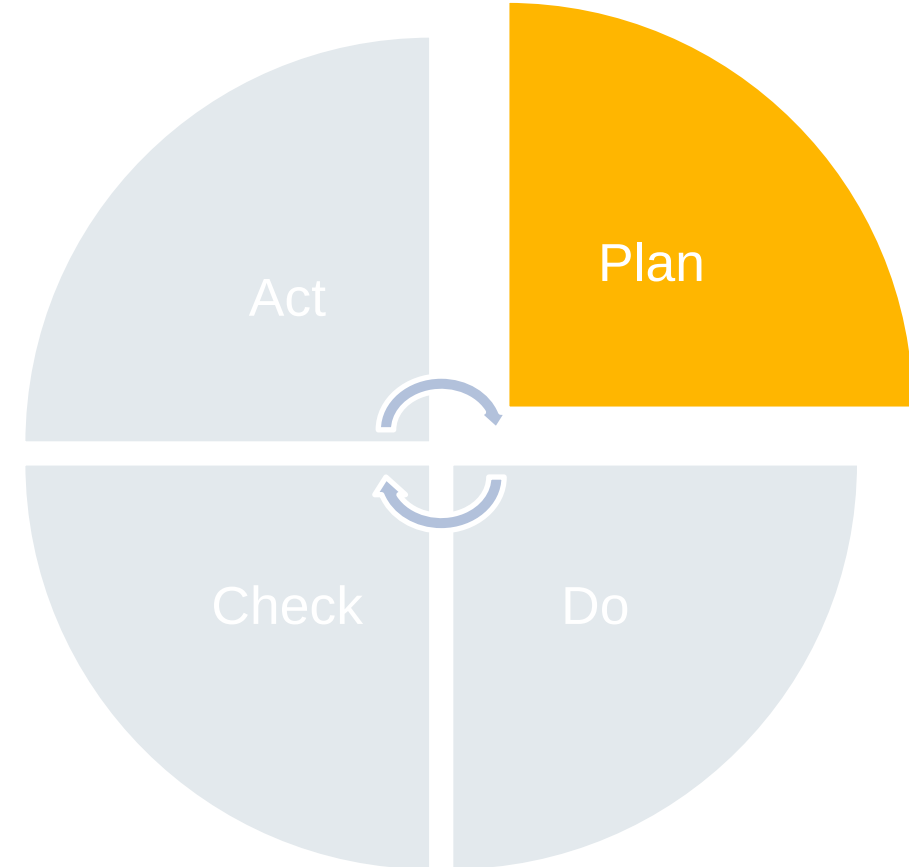
Purpose & Origin

- ❖ A tool to help in continuous improvement of:
 - products
 - services
 - processes
- ❖ PDCA = Plan, Do, Check, Act
- ❖ Created by W. Edwards Deming.
- ❖ Aims to improve quality and safety, and reduce costs
- ❖ Continuous improvement is iterating through the PDCA cycle



PLAN

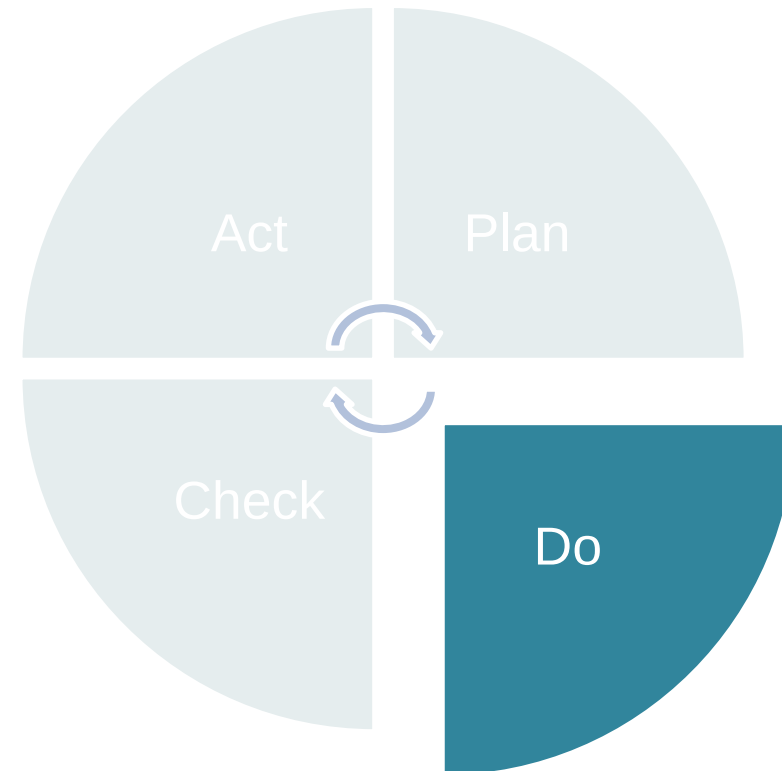
- ❖ Select a problem or opportunity
- ❖ Accurately appraise the situation and understand the root cause of the problem
- ❖ Generate potential solutions and then pick the most promising
- ❖ Set targets





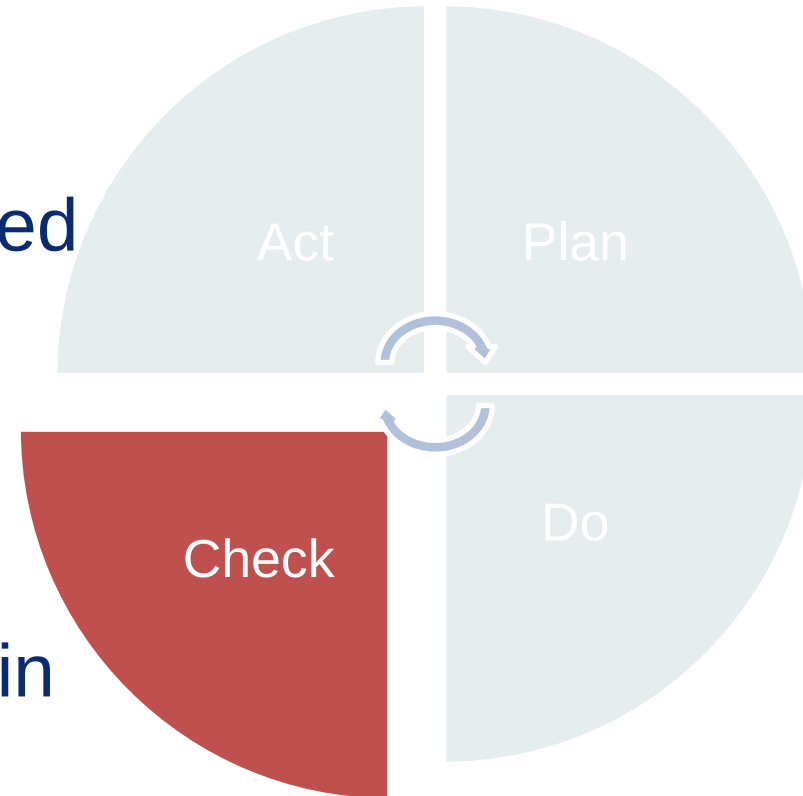
DO

- ❖ Implement
- ❖ Small-scale
- ❖ Collect data



CHECK

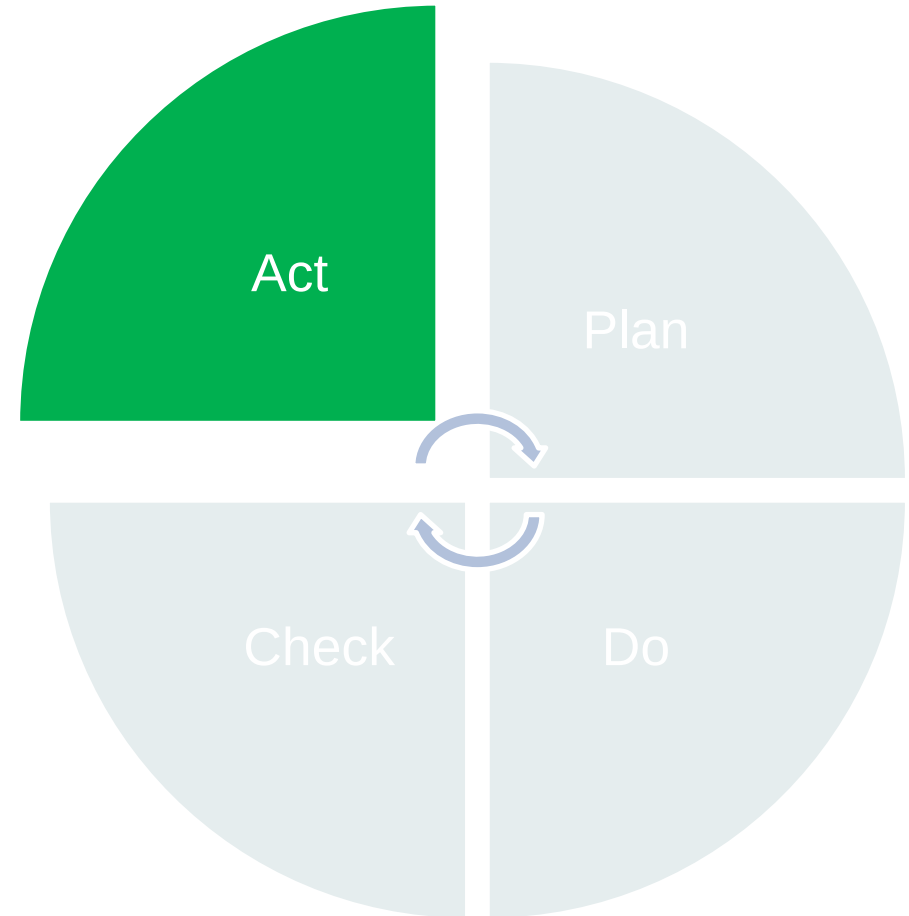
- ❖ Analyse the collected data
- ❖ Compare results – actual against desired
- ❖ Verify if the solution has worked:
 - No = return to step 1
 - Yes = advance to the next step
 - Sort of = consider tweaking and try again
- ❖ Investigate unexpected issues





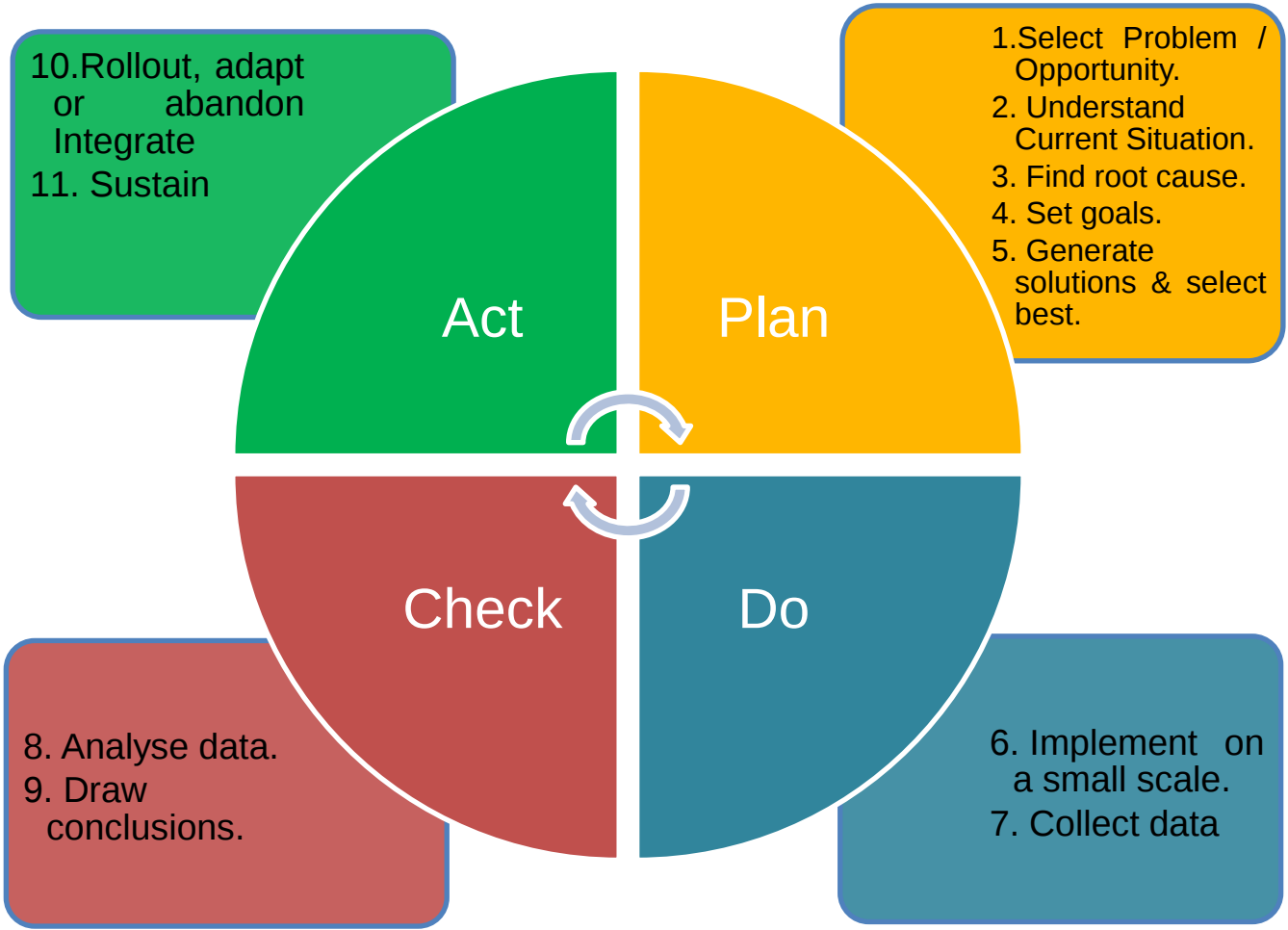
ACT

- ❖ Fully implement the best solution
- ❖ Best solution = the new baseline
- ❖ Sustain the change



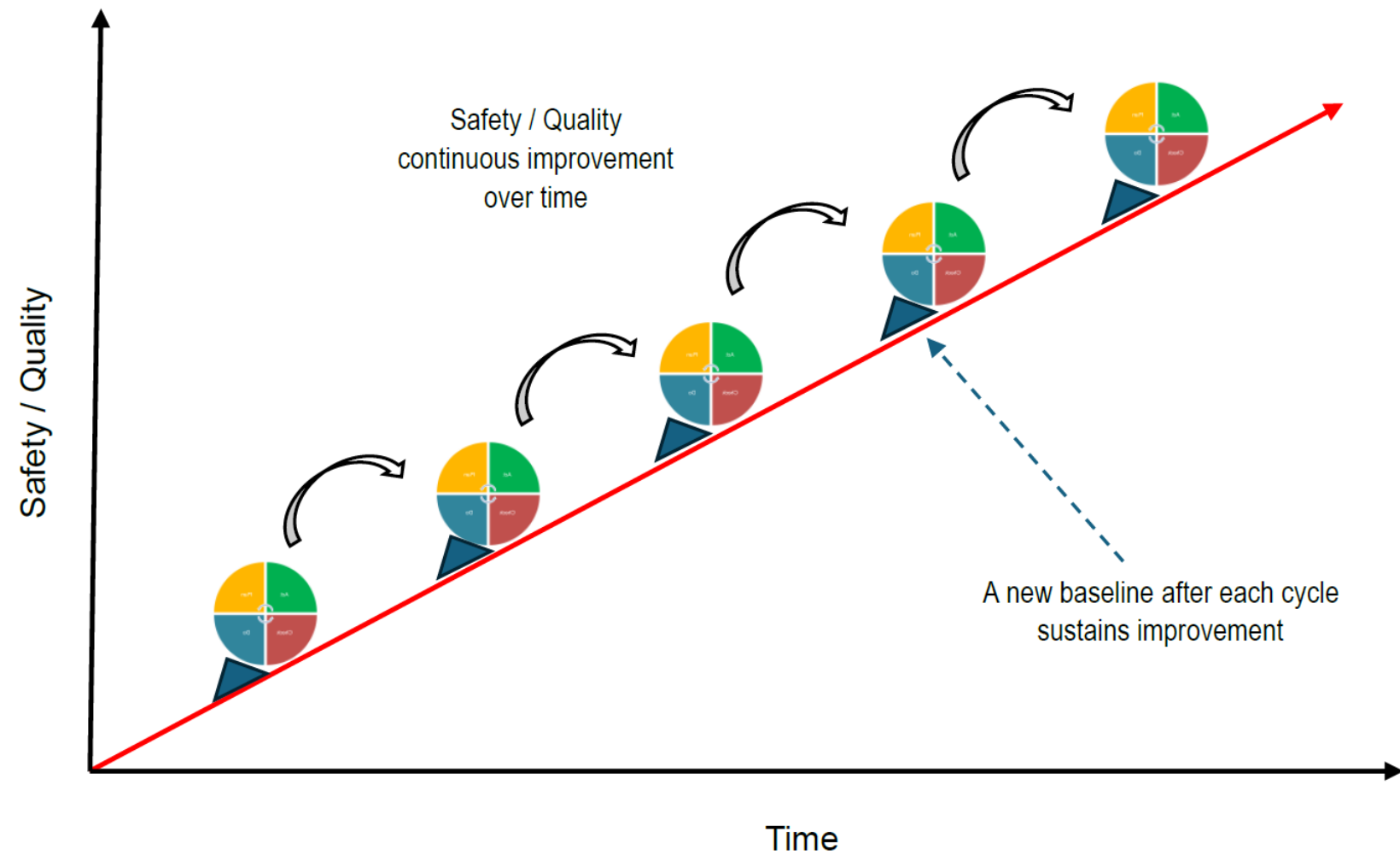


PDCA Cycle 12 Steps





PDCA CONTINUOUS IMPROVEMENT CYCLE





WHEN TO USE PDCA

- ❖ Improve a product, service, or process
- ❖ Explore multiple solutions
- ❖ Avoid waste
- ❖ Implement organizational change
- ❖ Implement Six Sigma or Total Quality Management
- ❖ Management and improvement of Safety Performance.



ADVANTAGES AND DISADVANTAGES

Advantages

- ❖ Versatile
- ❖ Simple but powerful
- ❖ Encourages users to take action quickly.

Disadvantages

- ❖ Is not a tool for once use
- ❖ Cannot determine cost savings (gains) before use
- ❖ Reactive not proactive tool
- ❖ Not suitable when rapid decision-making required.



SUMMARY

- ❖ A tool for reaching a goal or introducing improvements in a sustainable, thoughtful, and long-term way.
- ❖ Each cycle begins with a 'Planning' stage in which users understand and identify issues.
- ❖ Users generate solutions and choose the best one to fit in the 'Do' stage. Solutions are implemented on a small scale.
- ❖ Check for results in the 'Check' stage to see if outcome is as expected or intended.
- ❖ If the solution performs as expected, roll it to the 'Act' stage before beginning the cycle all over again.



PART 2

SAFETY PERFORMANCE INDICATORS

as SPM process variable



What is SPI?

SPI is a data-based parameter used for monitoring and assessing safety performance (*IAW: CARs Part 1*).

- ❖ They assist in indicating the effectiveness of safety performance **mitigations** applied.
- ❖ They assist in **identifying** areas where mitigations are required.



SPI MODUS OPERANDI

Set clear **Safety Goals** – What are the organisation's safety goals and concerns? Where does the organisation want to be go?

E.g., To increase the level of safety within organisational operations.

Set clear **Safety Objectives** – What is the organisation's trying to achieve?

E.g., To reduce aircraft operational accidents, and incidents.

Develop **Safety Indicators** – How do we measure and monitor safety objectives?

E.g., Reports on aircraft accidents, and incidents in a set period

Define **Safety Targets** – To achieve set safety objectives.

E.g., Reduce aircraft damage by 80% over next period.



WHAT MAKES A GOOD SMART SPI

- ❖ **SIMPLE** – measures a clearly defined variable that stakeholders understand
- ❖ **SPECIFIC** – has a single precise metric
- ❖ **MEASURABLE** – can be measured either quantitatively or qualitatively
- ❖ **ATTAINABLE** – can be realistically achievable and split into manageable steps
- ❖ **RELEVANT** – is relevant to the organisation's safety objectives, or the outcome/activity under measurement
- ❖ **TIMELY** – can be defined within a specific time frame



BENEFITS OF UTILIING SPIs





TYPES OF SPIs

Lagging Indicators: Measure past safety events (accidents or incidents), at times referred to as outcome-based SPIs.

- ❖ Can be used to measure and monitor the effectiveness of safety mitigations.
- ❖ Are effective at validating the overall system safety performance.

Example:

Monitoring the “number of ramp collisions per number of movements between vehicles following ramp markings redesign” provides an effectiveness measure of new marking.

Leading Indicators: Measure processes and inputs implemented to improve or maintain safety.

- ❖ Monitor and measure conditions that have the potential to lead or contribute to a specific outcome.
- ❖ Also known as “activity or process SPIs”.

Example

Safety Training Completion Rate – “measuring the percentage of employees who have completed required safety training” indicates the level of preparedness and awareness among the employees.



BEST PRACTISES WHEN IMPLEMENTING SPIs

The suite of safety objectives should include a mix of both process-orientated and outcome-orientated objectives to provide coverage and direction for the SPIs and SPTs.

- ❖ A good SPI must deliver **clear and direct information** about a specific safety concern.
- ❖ SPI data must directly **relate to the desired outcome**, not from irrelevant sources or need interpretation.
- ❖ SPI can be **quantitative or qualitative**, leading or lagging.
- ❖ SPI must be **descriptive** in its form.
- ❖ SPI should be **SMART**.
- ❖ SPI must have **data set(s)**, some level of **availability**, and a **provider**.



CLOSURE

The primary function of SPM at the service provider level is to monitor and measure how well safety risks are managed. It's achieved through effective SMS implementation that generates information to be used in decision-making regarding management of safety (safety risk controls and sufficient resources allocation).

- ❖ Choose and select relevant Safety goals.
- ❖ Collect clear and direct data.
- ❖ Convert actionable insights into safety practices.





PRACTICAL EXERCISE FOR 1 HOUR

Develop SPIs and SPTs from the SKY-HIGH AVIATION CHARTER Safety Objectives.

1. Develop Lagging SPIs (at least one each) that:
 - a) is outcome-based for monitoring and measuring safety outcomes.
 - b) will be used for measuring safety mitigation(s) effectiveness.
2. Develop Leading SPIs (at least one each) that:
 - a) is process-based - will be used for monitoring and measuring process safety effectivity.
 - b) is activity-based - will be used for monitoring and/or measuring activity safety effectiveness.
3. Use the CA 140-07 Form to record SPIs and the guidance provided on the form.
4. Each group (nominate representative) to debrief on their work (debriefing is 5 minutes max).