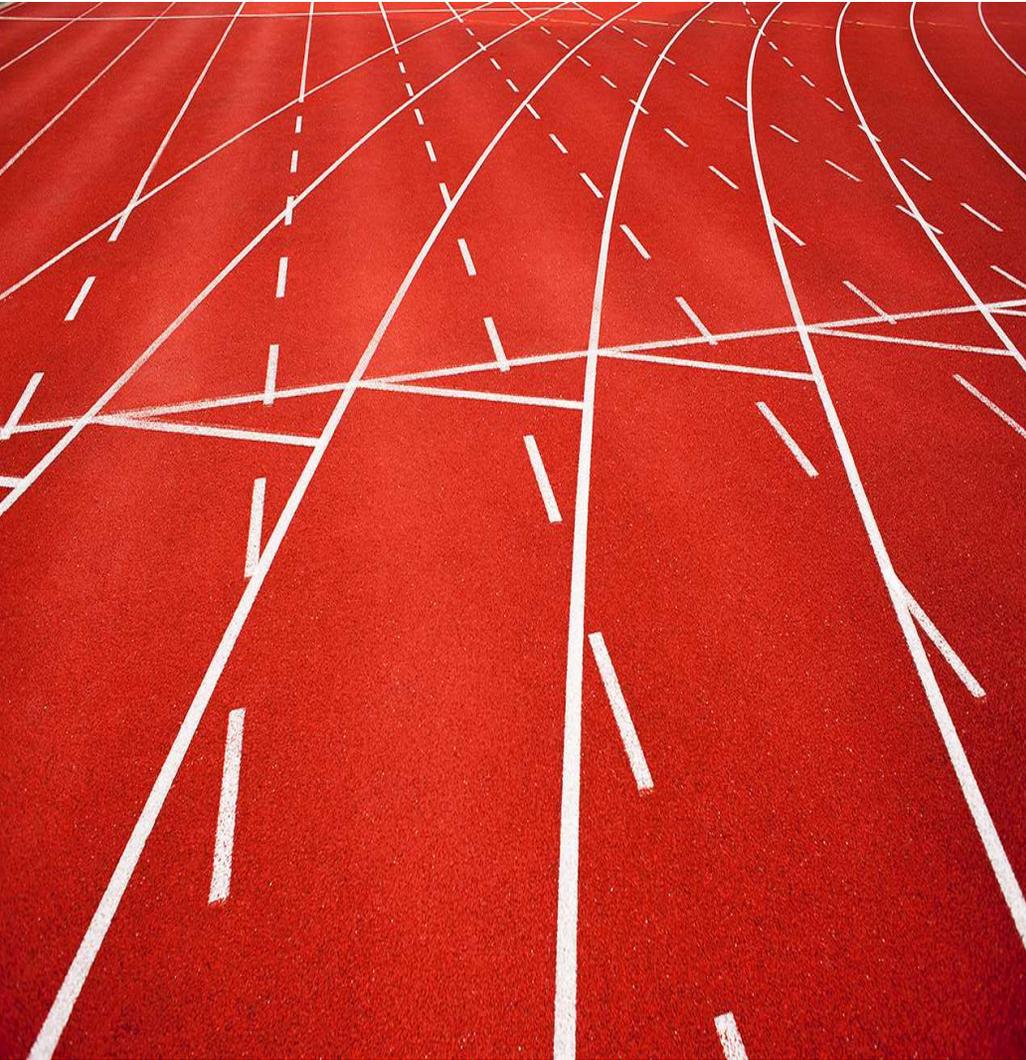# Process Performance and Process Suitability and Effectiveness Indicators in Automotive SPICE

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Content

- Process Performance Objectives - Foundations
- What is a Key Performance Indicator (KPI)?
- The Role of KPIs in ASPICE Level 2
- Relationship Between L2 and L3 Practices
- Shared Metrics Across L2 and L3 with Different Focus
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Process Performance Objectives - Foundations

- To achieve ASPICE Capability Level 2, it is essential to define objectives for process performance.

- This includes defining activities, tasks, responsibilities, resources, and stakeholders.

- These objectives are the basis for planning, monitoring, and adjusting process activities.

- They can be quantitative (e.g., budget, delivery dates, test coverage) or qualitative (e.g., adherence to an ASPICE level)

Is the process description enough? Do we always need KPIs?

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What is a KPI?

- A **Key Performance Indicator (KPI)** is a measurable value how effectively an individual, team, project or organization is achieving specific objectives

- In development projects, usually KPIs provide quantifiable metrics to:
    - Evaluate progress
    - Identify bottlenecks
   - Ensure alignment with project goals

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The Role of KPIs in ASPICE Level 2

- ASPICE Level 2 (Managed) emphasizes that processes must be planned, monitored, and controlled to achieve defined project objectives.

- KPIs serve as the measurable metrics to evaluate whether these objectives are being met effectively. Typical KPIs focus on:
  - Schedule and Timeliness (e.g. milestone adherence rate, task completion rate)
  - Resource Utilization (e.g., resource allocation efficiency, planned vs actual effort)
  - Cost-related (e.g. planned vs actual spending, cost per deliverable
  - Quality related (e.g., defect density, test coverage, requirement completion rate)

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From Level 2 to Level 3: Continuous Improvement Cycle

- **Level 1 (Performed):** Activities are performed.
- **Level 2 (Managed):** Activities are planned, monitored, and controlled against objectives (GP 2.1.1).
- **Level 3 (Established):** Standard processes are deployed and improved using performance indicators to evaluate effectiveness (GP 3.1.5, GP 3.2.6).
- This creates an iterative loop for continuous improvement, where processes evolve to meet organizational goals.
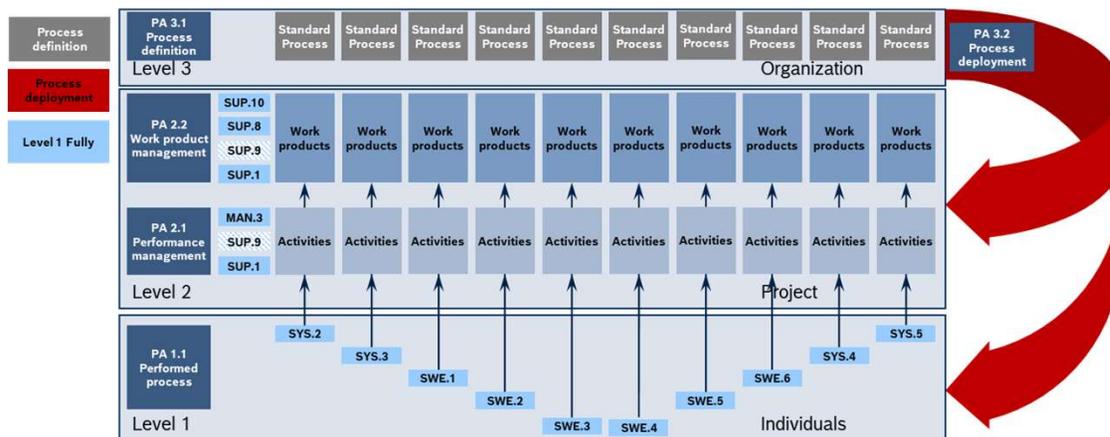
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Relationship Between L2 and L3 Practices

- **GP 2.1.1**
  - Identifies clear objectives for process performance at the project level. It defines the **foundation** for **monitoring** and **evaluating** how well processes are working.
  - Example: Target <1% defect density for a development process.

- **GP 3.1.5 & GP 3.1.6**
  - Analyzes performance metrics in the context of a standard process. Focuses on how processes **align** with established objectives and identifies **patterns for continuous improvement**.
  - Example: Trend analysis of defect rates to see if the L2 objective is being met across projects.

Metrics Progress Across the Practices

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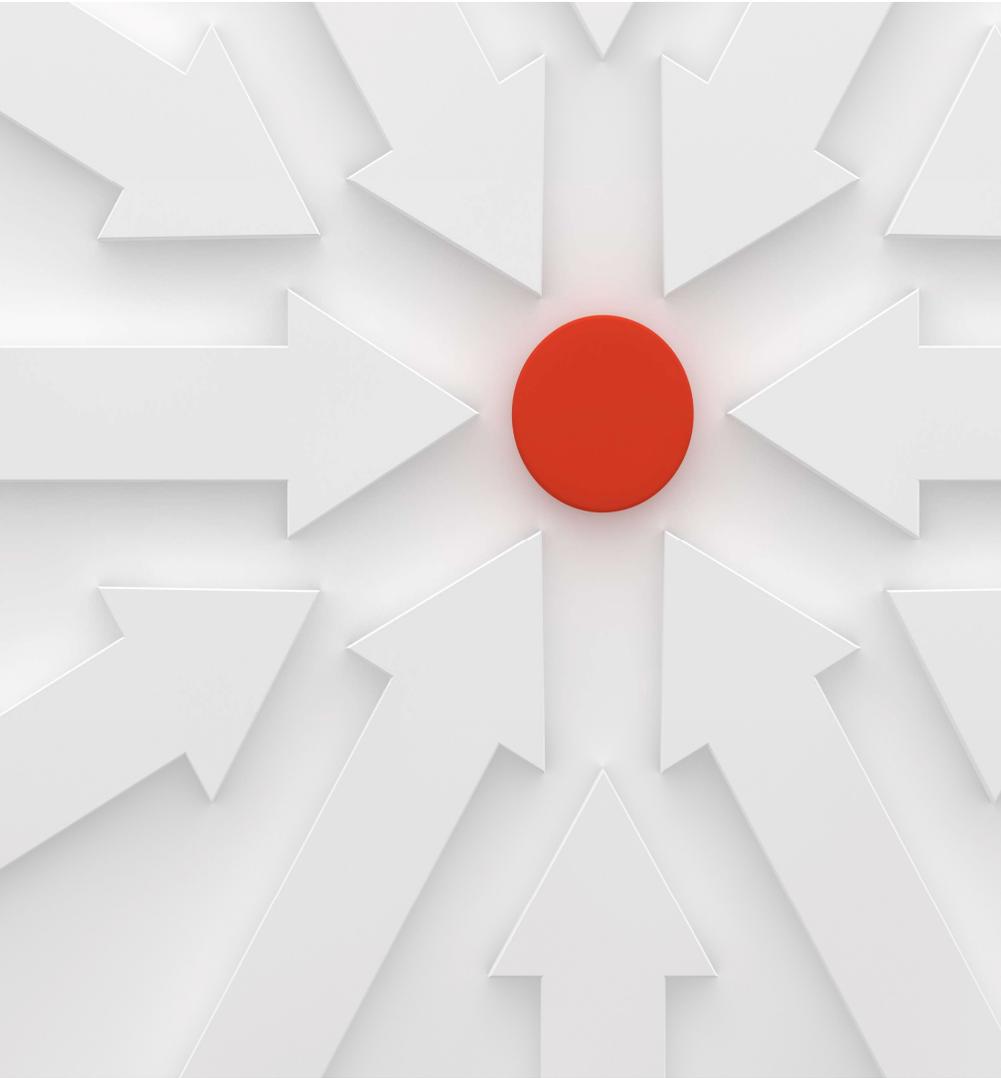
Shared metrics? Yes, we can!

▪ Overlapping metrics allow to maintain continuity in measurement as organizations progress from managing processes (GP 2.1.1) to defining and deploying them (GP 3.1.5). This consistency ensures seamless data collection, analysis, and improvement. BUT…

Their Interpretation differs:

• **In GP 2.1.1:** focus is on **real-time monitoring** and corrective actions within specific projects. Their purpose is to ensure processes are under control during execution.

• **In GP 3.1.5:** focus is assessing the **effectiveness and suitability** of standardized processes across multiple projects, ensuring alignment and consistency at an organizational level.

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Relationship Between L2 and L3 Practices

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  - Analyzes performance metrics in the context of a standard process. Focuses on how processes **align** with established objectives and identifies **patterns for continuous improvement**.

  - Example: Trend analysis of defect rates to see if the L2 objective is being met across projects.

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Shared metrics - Examples

- **Task Completion Rate**:

- *GP 2.1.1*: Measures the percentage of tasks completed within planned timelines to monitor real-time progress and identify deviations during process execution.

- *GP 3.1.5*: Evaluates how standardized processes help teams meet their task deadlines across projects.

- **Resource Utilization**:

- *GP 2.1.1*: Monitors how effectively resources (e.g., tools, personnel) are allocated and used during process execution.

- *GP 3.1.5*: Evaluates whether standardized processes optimize resource allocation across the organization.

- **Milestone Achievement**:

- *GP 2.1.1*: Tracks the percentage of milestones achieved on time within individual projects, ensuring timely execution.

- *GP 3.1.5*: Measures how standardized processes contribute to achieving milestones across projects.

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Shared metrics - Examples

- **Process Compliance Rate**:

- *GP 2.1.1*: Measures adherence to planned processes to ensure deviations are minimized during execution.

- *GP 3.1.5*: Assesses whether standardized processes are consistently followed across projects.

- **Defect Density**:

- *GP 2.1.1*: Tracks the number of defects identified during process execution, helping to flag quality issues in real time.

- *GP 3.1.5*: Assesses whether the deployed standardized processes lead to a reduction in defects across projects.

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