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## Measurement And Analysis

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### ● Measurement & Analysis (MA)



▶ "Basic" Process Area in the SUPPORT Category of the CMMI (Continuous Representation)

▶ At Maturity Level 2 (Staged Representation)

● Purpose: Develop and sustain a measurement capability that is used to support management information needs



## Introduction

2 of 3

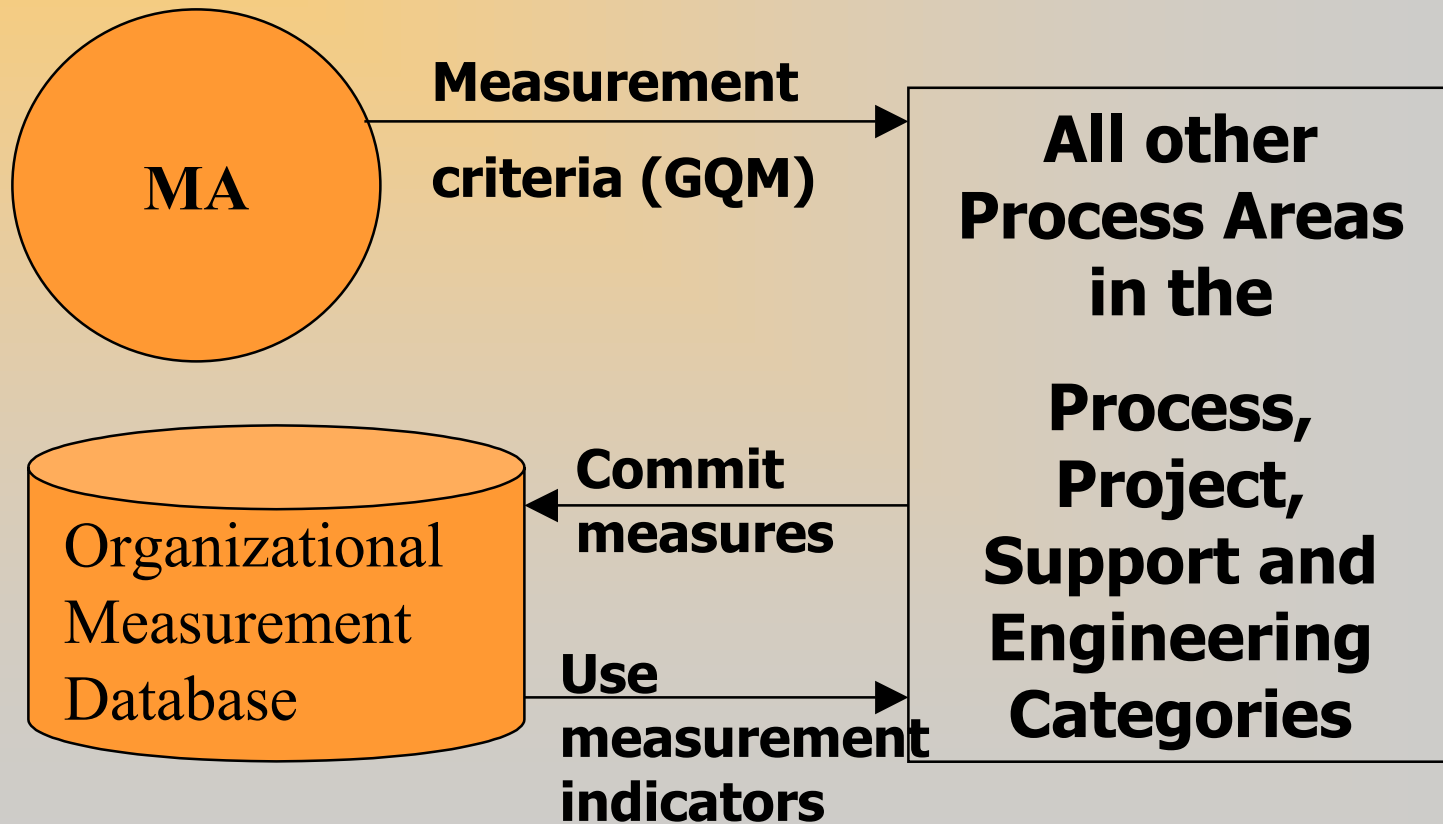
- **MA addresses the organizational ability to understand effectiveness of process improvement**
  - ▶ **Question is not – What to measure? But, what do we want to know about the process and product to make sound engineering decisions?**
  - ▶ **Organizational Characteristics**
  - ▶ **People Characteristics**
  
- **Measure both Project and Process indicators & Establish Org. Measurement Repository**



# SITARA

## Introduction

3 of 3

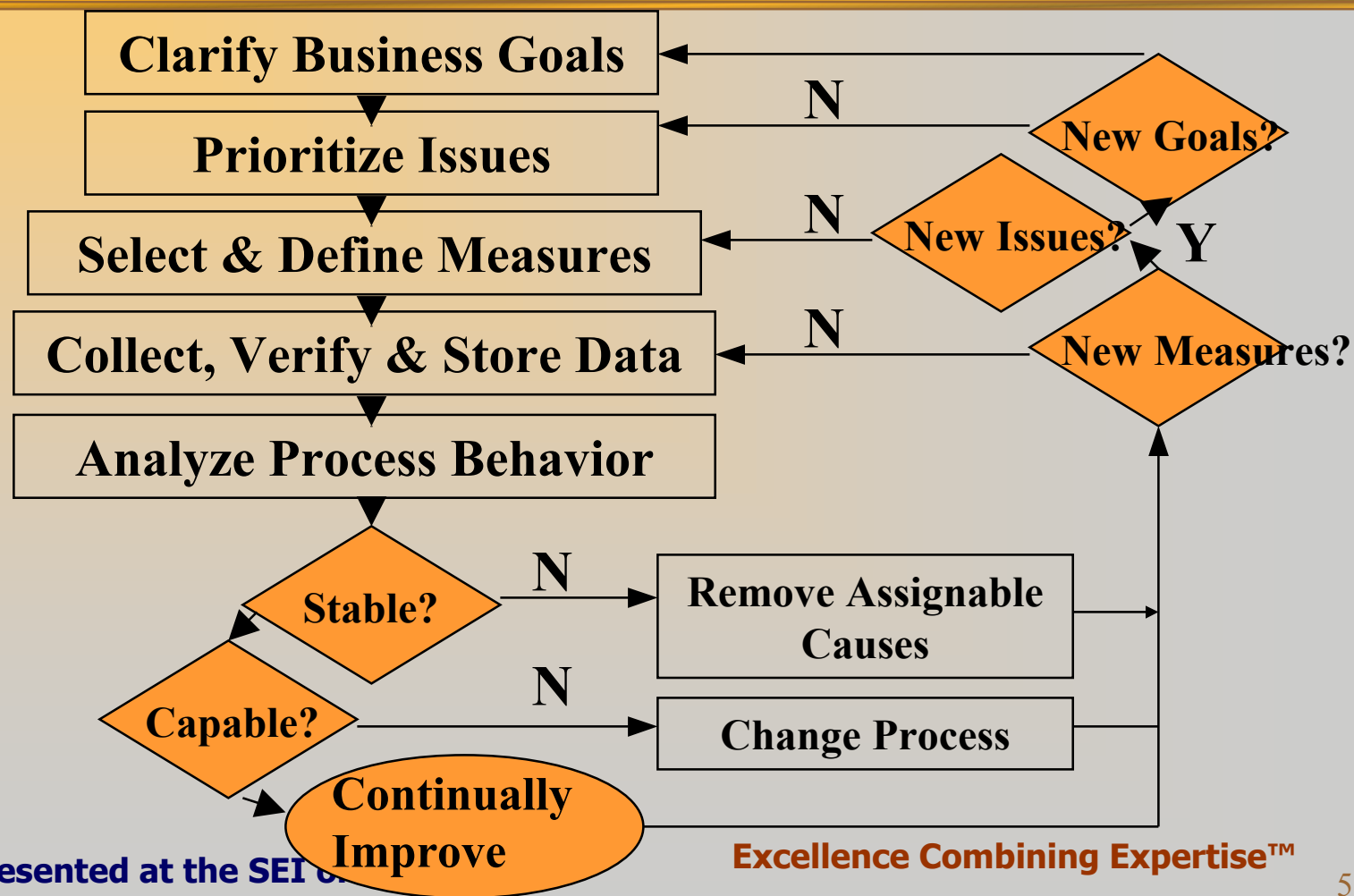


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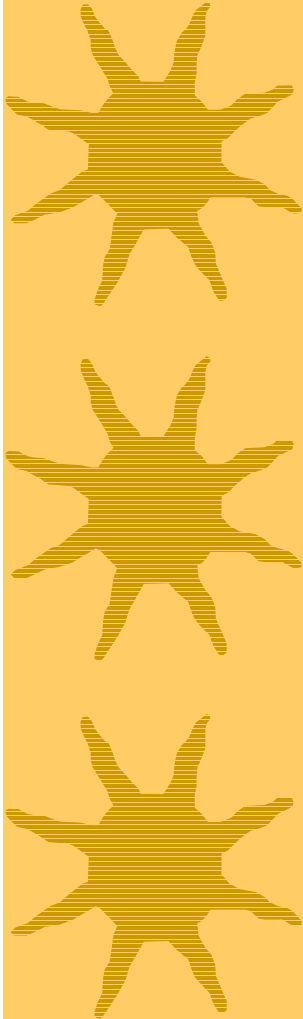


## Measurement Framework





## Example



<b>Business Goals</b>	<b>Project Issues</b>	<b>Process Issues</b>	<b>Measurable Attributes</b>
<b>Improve Product Quality</b>	<ul style="list-style-type: none"><li>* Performance</li><li>* Correctness</li><li>* Reliability</li></ul>	<ul style="list-style-type: none"><li>• Predictability</li><li>• Problem Recognition</li><li>• Root Cause Analysis</li></ul>	<ul style="list-style-type: none"><li>★ # of Defects</li><li>★ Effectiveness of defect detection activities</li></ul>



## Specific Goals

1 of 2

- **Specific Goal 1: Align Measurement and Analysis Activities**
  - ▶ **SP 1.1-1 – Establish Measurement Objectives**
  - ▶ **SP 1.2-1 – Specify Measures**
  - ▶ **SP 1.3-1 – Specify Data Collection & Storage Procedures**
  - ▶ **SP 1.4-1 – Specify Analysis Procedures**



## Specific Goals

2 of 2

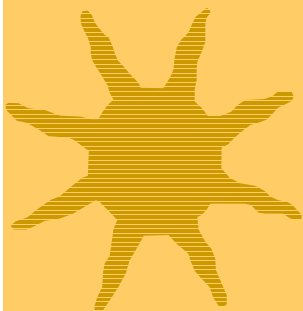
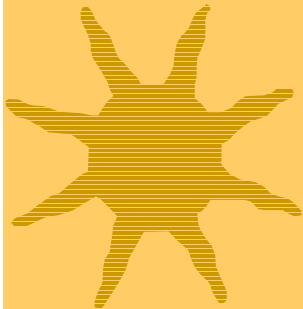
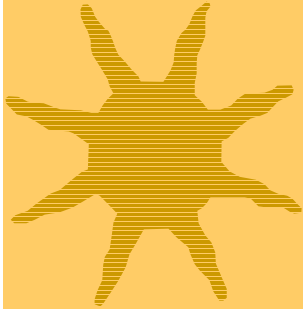
- **Specific Goal 2: Provide Measurement Results**
  - ▶ **SP 2.1-1 – Collect Measurement Data**
  - ▶ **SP 2.2-1 – Analyze Measurement Data**
  - ▶ **SP 2.3-1 – Store Data and Results**
  - ▶ **SP 2.4-1 – Communicate Results**





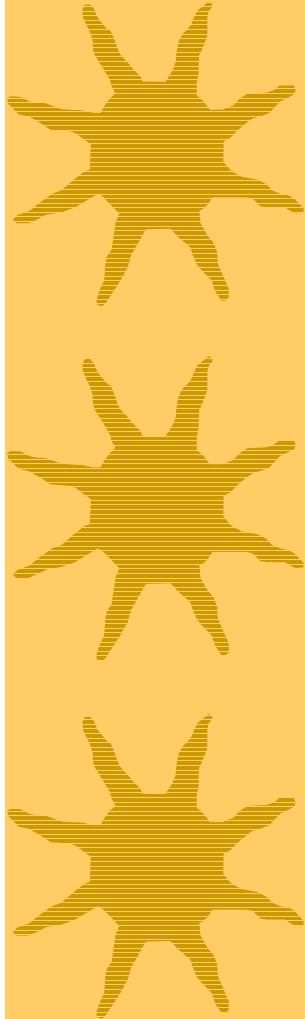
## Generic Goals

- **Generic Goal 1: Achieve Specific Goals**
  - ▶ **GP 1.1– Identify Work Scope**
  - ▶ **GP 1.2– Perform Base Practices**

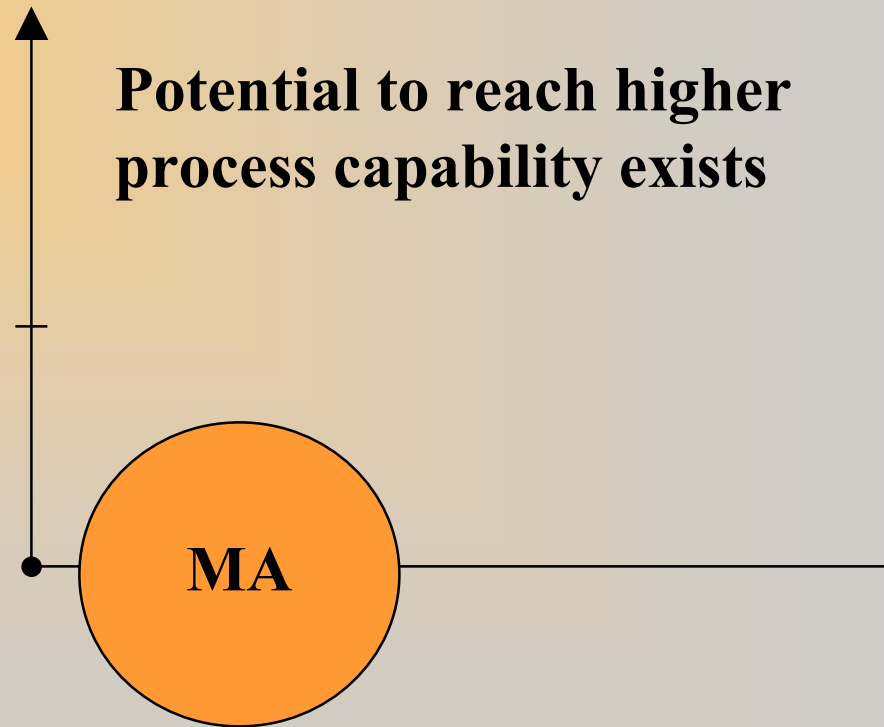




## Inference



**Capability  
Level 1**



**STAGED: Process Area is Applicable**



## Generic Goals

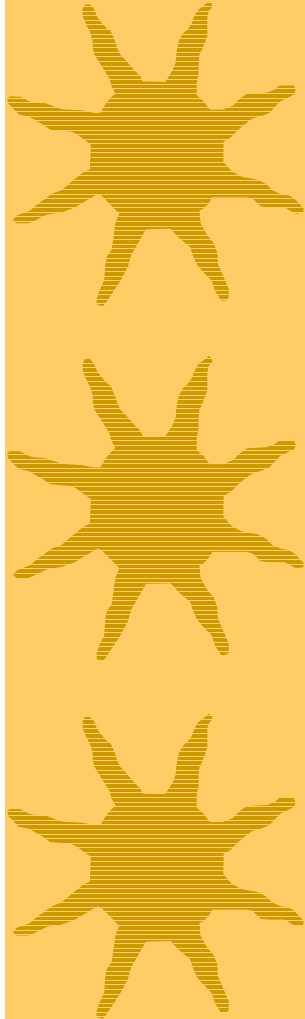
### ● **Generic Goal 2: Institutionalize a Managed Process**

- ▶ **GP 2.1– Establish an Organizational Policy**
- ▶ **GP 2.2– Plan the Process**
- ▶ **GP 2.3- Provide Resources**
- ▶ **GP 2.4 –Assign Responsibility**
- ▶ **GP 2.5 – Train People**
- ▶ **GP 2.6 – Manage Configurations**
- ▶ **GP 2.7 – Identify and Involve Relevant Stakeholders**
- ▶ **GP 2.8 – Monitor and Control the Process**
- ▶ **GP 2.9- Objectively evaluate Adherence**
- ▶ **GP 2.10- Review Status with Higher-Level Management**

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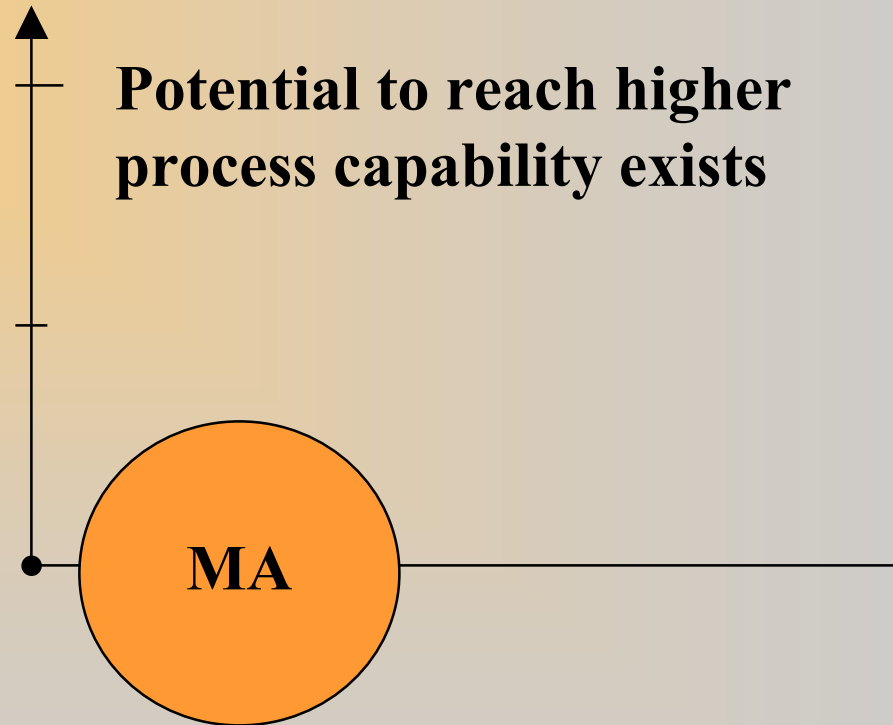


## Inference



### Capability Level 2

*Process is Planned, Performed, Monitored & Controlled*



**STAGED: Process Area is at MANAGED Level (2)**  
(provided REQM, PP, PMC, SAM, CM, PPQA are at level 2)

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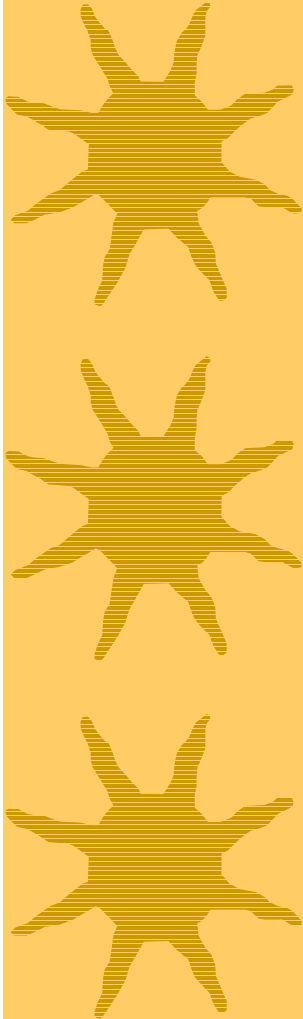
## Generic Goals

- **Generic Goal 3: Institutionalize a Defined Process**
  - ▶ **GP 3.1– Establish a Defined Process**
  - ▶ **GP 3.2– Collect Improvement Information**

## SITARA MANAGEMENT CHARTS



## Inference



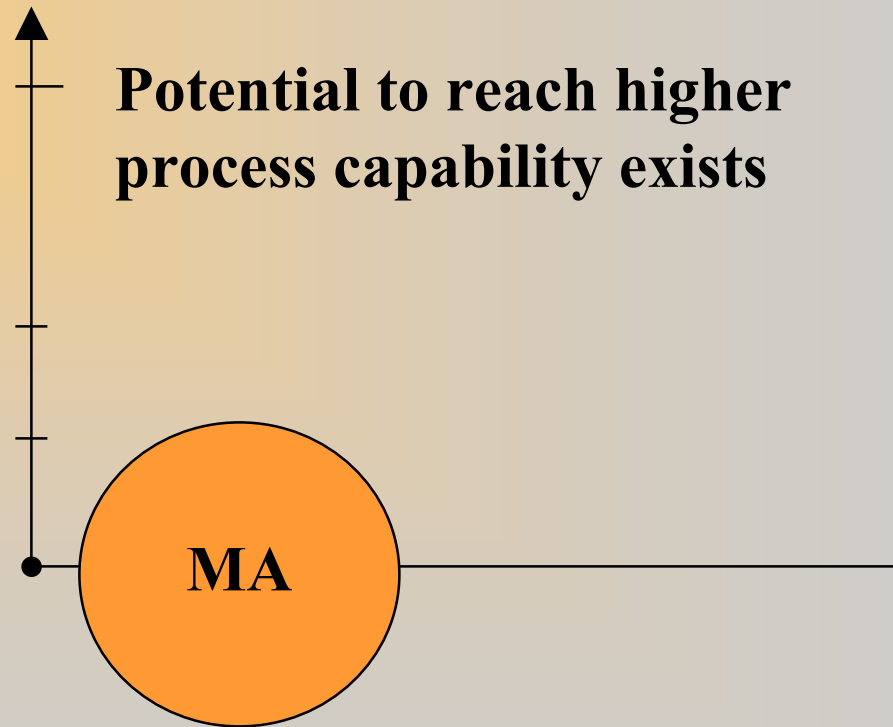
### Capability Level 3

*Process is Tailored.*

*Deviations are Documented, Justified, Reviewed & Approved*

**STAGED: Process Area is at MANAGED Level (2) and supports OPD**

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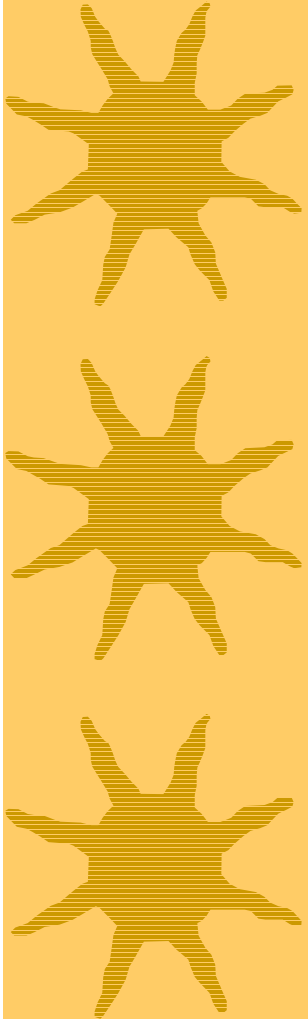
## Generic Goals

- **Generic Goal 4: Institutionalize a Quantitatively Managed Process**
  - ▶ **GP 4.1– Establish Quality Objectives**
  - ▶ **GP 4.2– Stabilize Sub process Performance**

**A valid business need and Customer justification would be the primary reasons to pursue a Capability Level 4 process.**

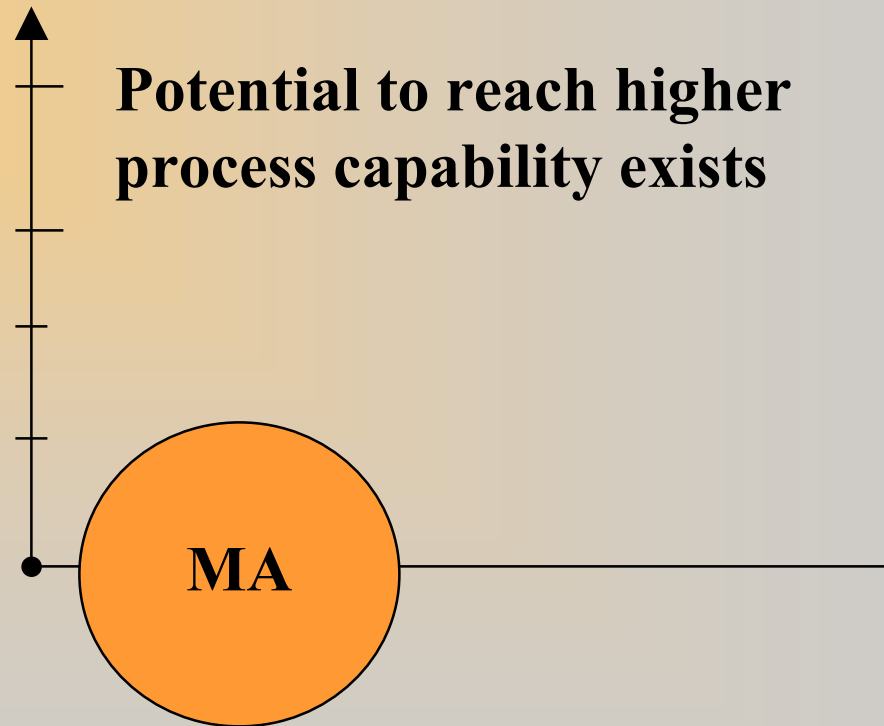


## Inference



**Capability  
Level 4**

**Potential to reach higher  
process capability exists**



**STAGED: Process Area is at MANAGED Level (2)  
and supports QPM**

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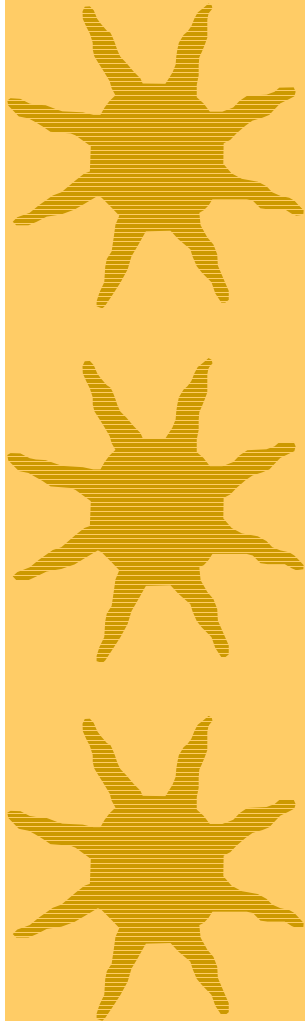
## Generic Goals

- **Generic Goal 5: Institutionalize an Optimizing Process**
  - ▶ **GP 5.1– Ensure Continuous Process Improvement**
  - ▶ **GP 5.2– Correct Common Cause of Problems**

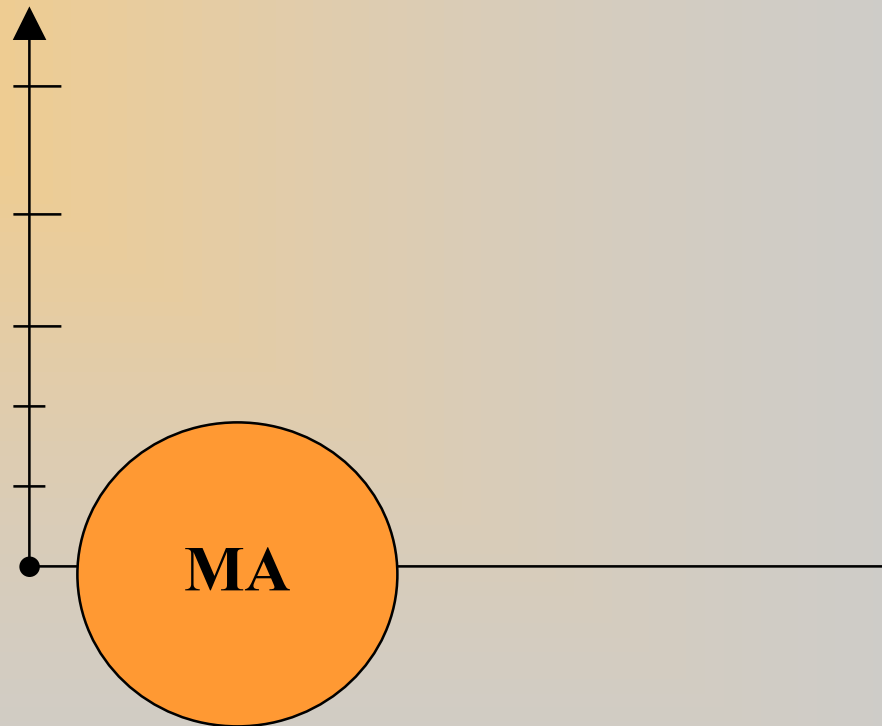
**A valid business need and Customer justification would be the primary reasons to pursue a Capability Level 5 process.**



## Inference



**Capability  
Level 5**



**STAGED: Process Area is at MANAGED Level (2)  
and supports CAR**

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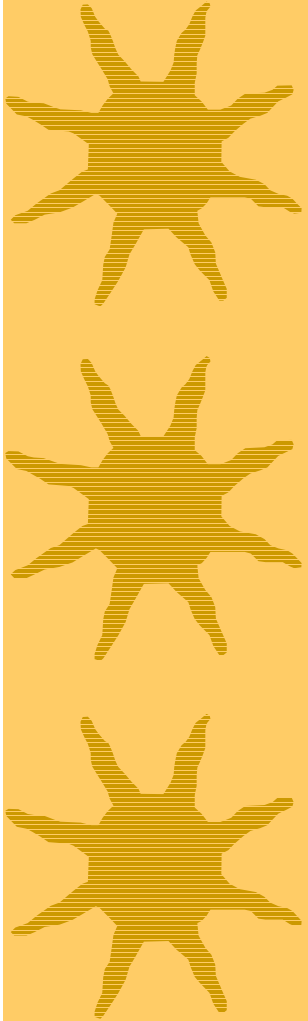


## CONCLUSION

- ★ Measurement & Analysis Process Area is applicable to all process areas
- ★ It is important to identify process & product measures (indicators) that are required to make good management and engineering decisions
- ★ Determine how the data will be captured, what types of tools are necessary for analysis and how this information will be communicated.



**SITARA**



**Thank You!**

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