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Software Engineering Institute

CMMI SM

# Over, Under, Around, and Through:

## Using the CMMI Continuous and Staged Representations Together to Optimize Process Improvement

Chuck Myers
Software Engineering Institute

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# Some Questions

How many of you

- feel mostly positive about the CMMI?
- feel mostly negative about the CMMI?
- aren't sure how you feel about the CMMI?
- think it's way too thick?
- think it's not nearly thick enough?
- are curious about all the different models?
  (SW, SE/SW, SE/SW/IPPD, SE/SW/IPPD/SS)
- aren't sure why there are two representations?
  (Continuous and Staged)

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# A Note on Perspective

Long-time fan/advocate of CMM-based SPI.

Primary knowledge and experience is in SPI implementation.

Primary work has been with SW-CMM (staged model).

Pre-CMMI exposure to a continuous model has been relatively limited.

Not involved in CMMI development.

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# Basic Information

Multiple models:

- SW
- SE-SW
- SE-SW-IPPD
- SE-SW-IPPD-SS

Two representations:

- Continuous
- Staged

| | |
|---|---|
| SE | Systems Engineering |
| SW | Software Engineering |
| IPPD | Integrated Product and Process Development |
| SS | Supplier Sourcing |

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# Representation Advantages-Staged

- Provides big picture view that helps establish long-term vision
- High level priorities easier to establish
- Helps with planning and sequencing larger bodies of work
- Identifies relationships and dependencies relatively easily
- Clearly identifies major accomplishments

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# Representation Advantages-Continuous

- Provides greater flexibility in sequencing and priorities
- Establishes life cycle view of process area improvement
- Makes early progress and accomplishment more evident
- Lends visibility to conducting more detailed aspects of work
- Provides multiple ways for measuring and representing success

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# Representation Disadvantages-Staged

- Great temptation to use maturity levels as goals
- Lacks clearly visible granularity
- Large bodies of work (MLs) require substantial time to complete
- Difficult to show [early] progress and accomplishment
- Perception of failure if maturity level isn't reached

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# Representation Disadvantages-Continuous

- Relationships and dependencies more difficult to identify
- More difficult to establish priorities
- Breadth of work can be overwhelming and confusing
- Major accomplishments not clear

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# Premises of this Presentation

The availability of two representations is one of the most powerful and useful features of the CMMI.

The continuous and staged representations, used together, provide much more than either representation does by itself.

Those who use both representations to guide their work are likely to be more successful than those who use only one.

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# Staged Focus

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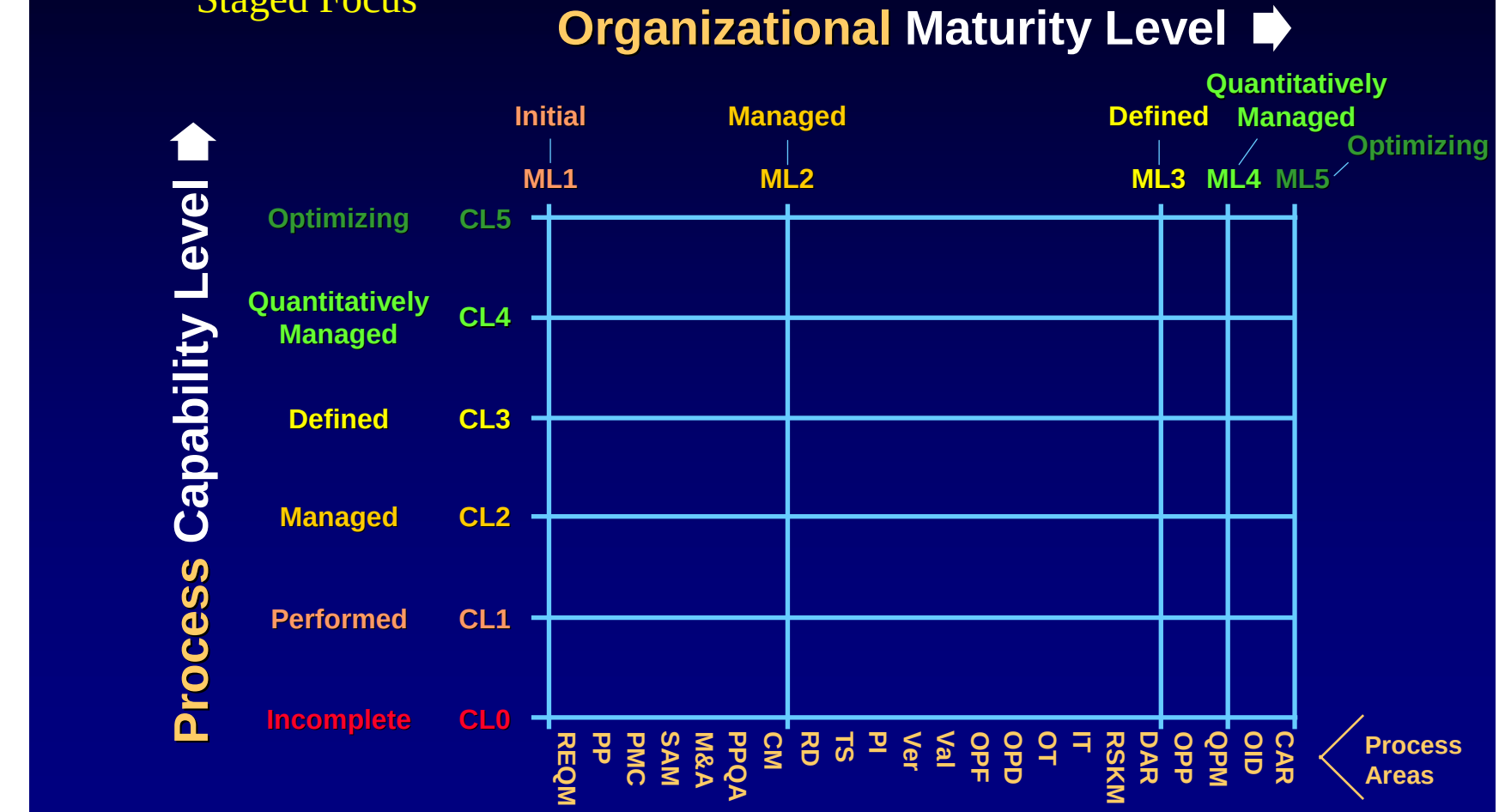
# The CMMI Structure

## Staged Focus

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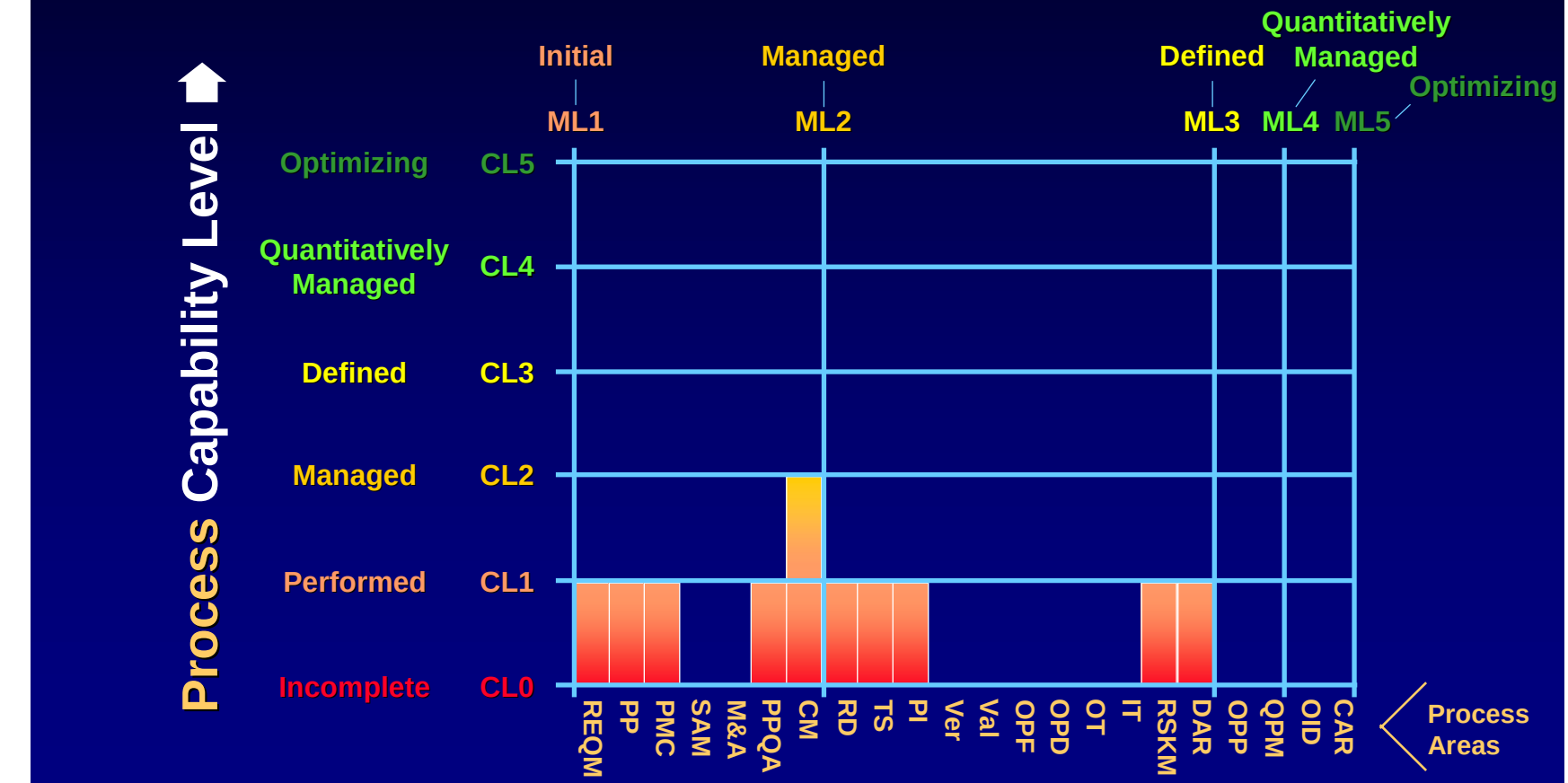
# A Typical Starting Point

## Staged Focus

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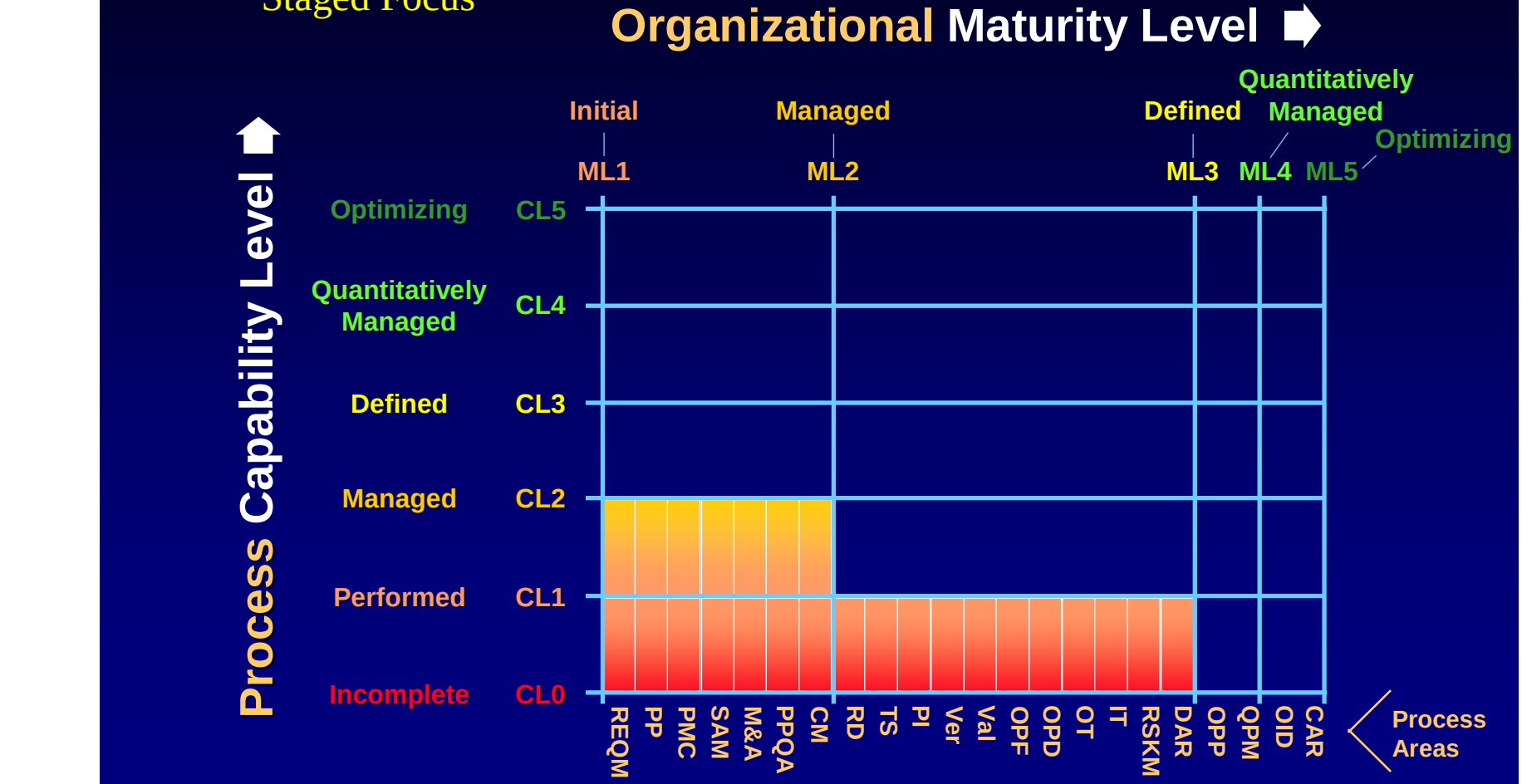
# Moving to ML-2

## Staged Focus

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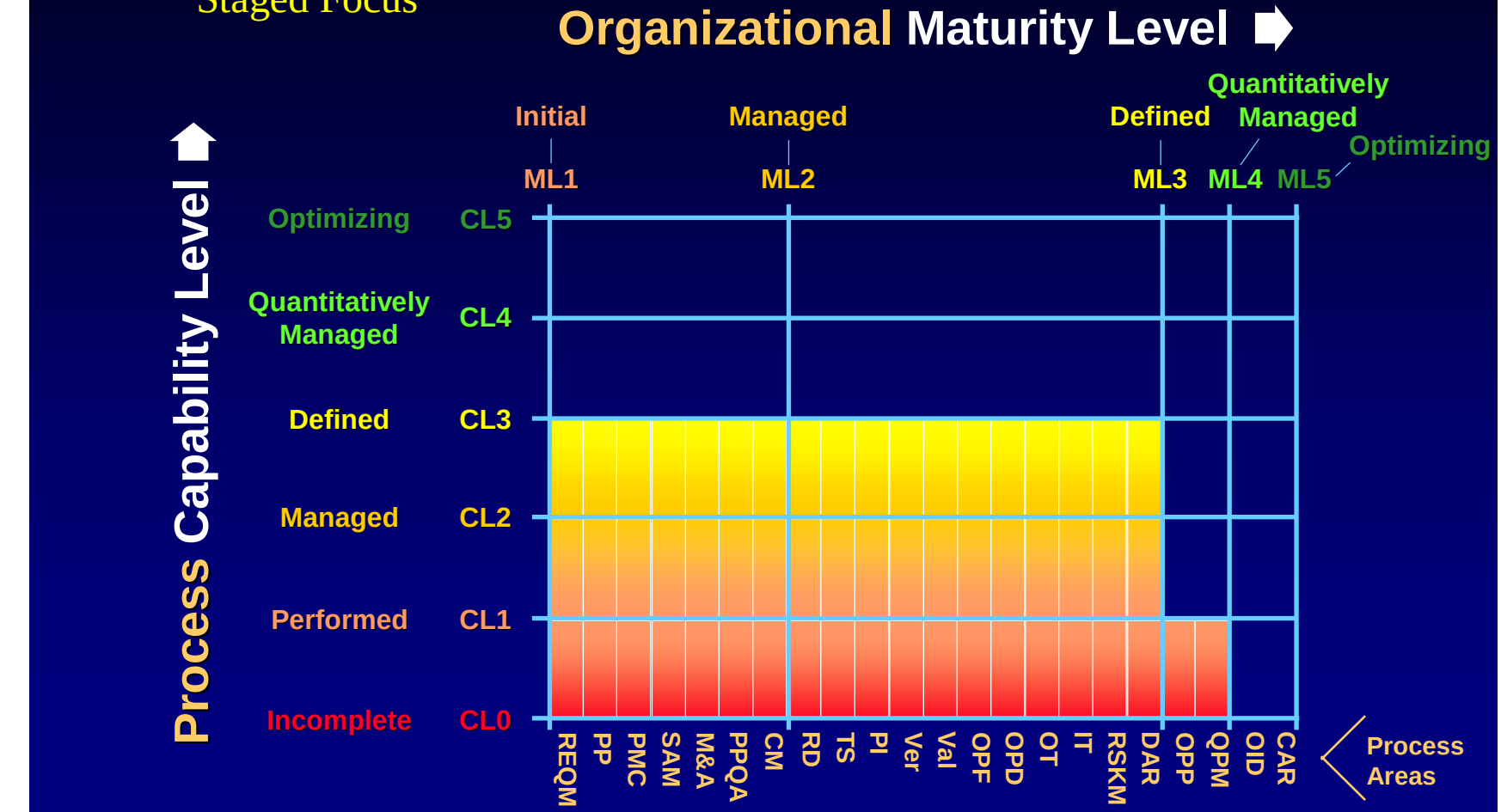
# Moving to ML-3

## Staged Focus

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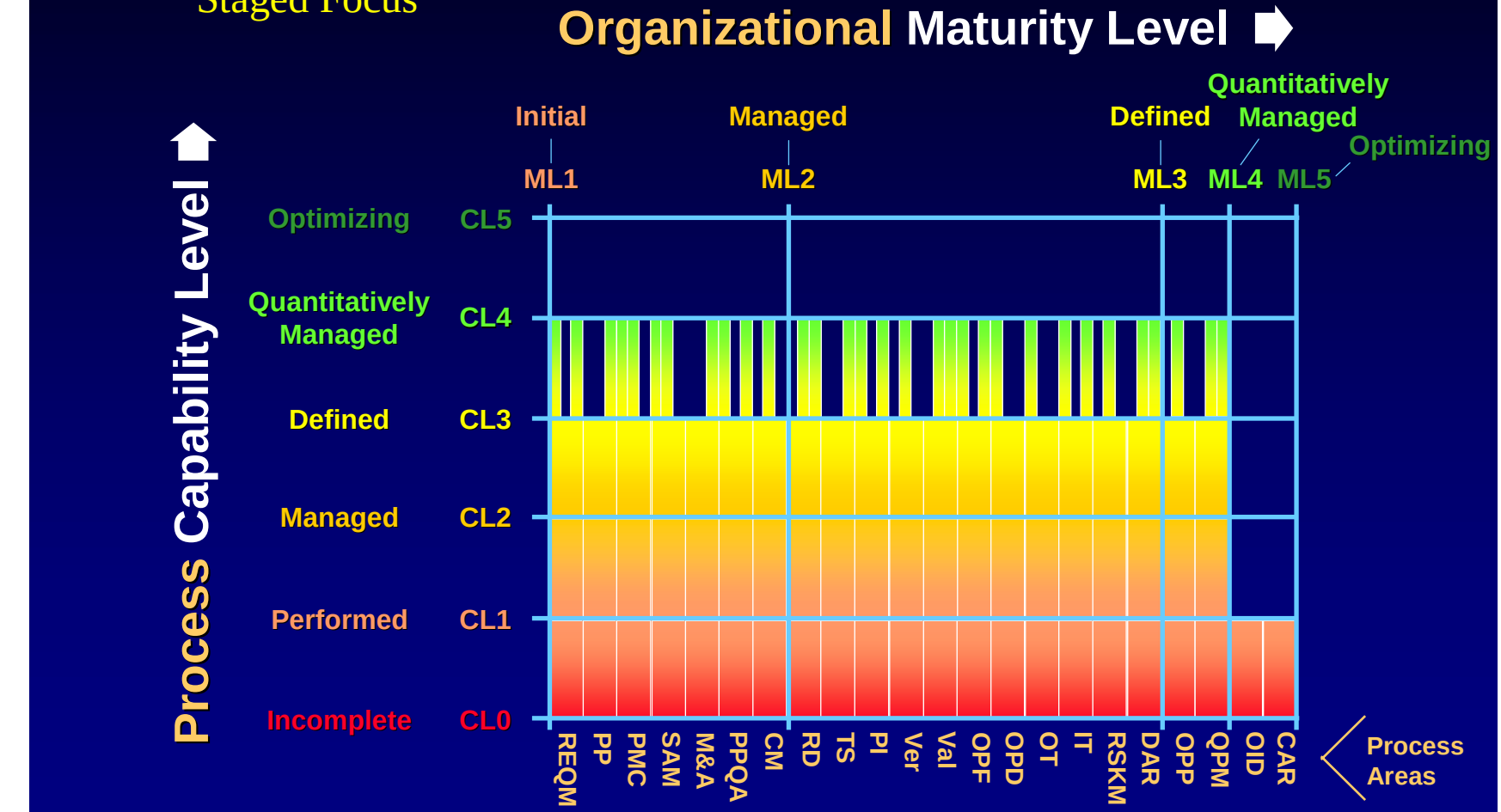
# Moving to ML-4

## Staged Focus

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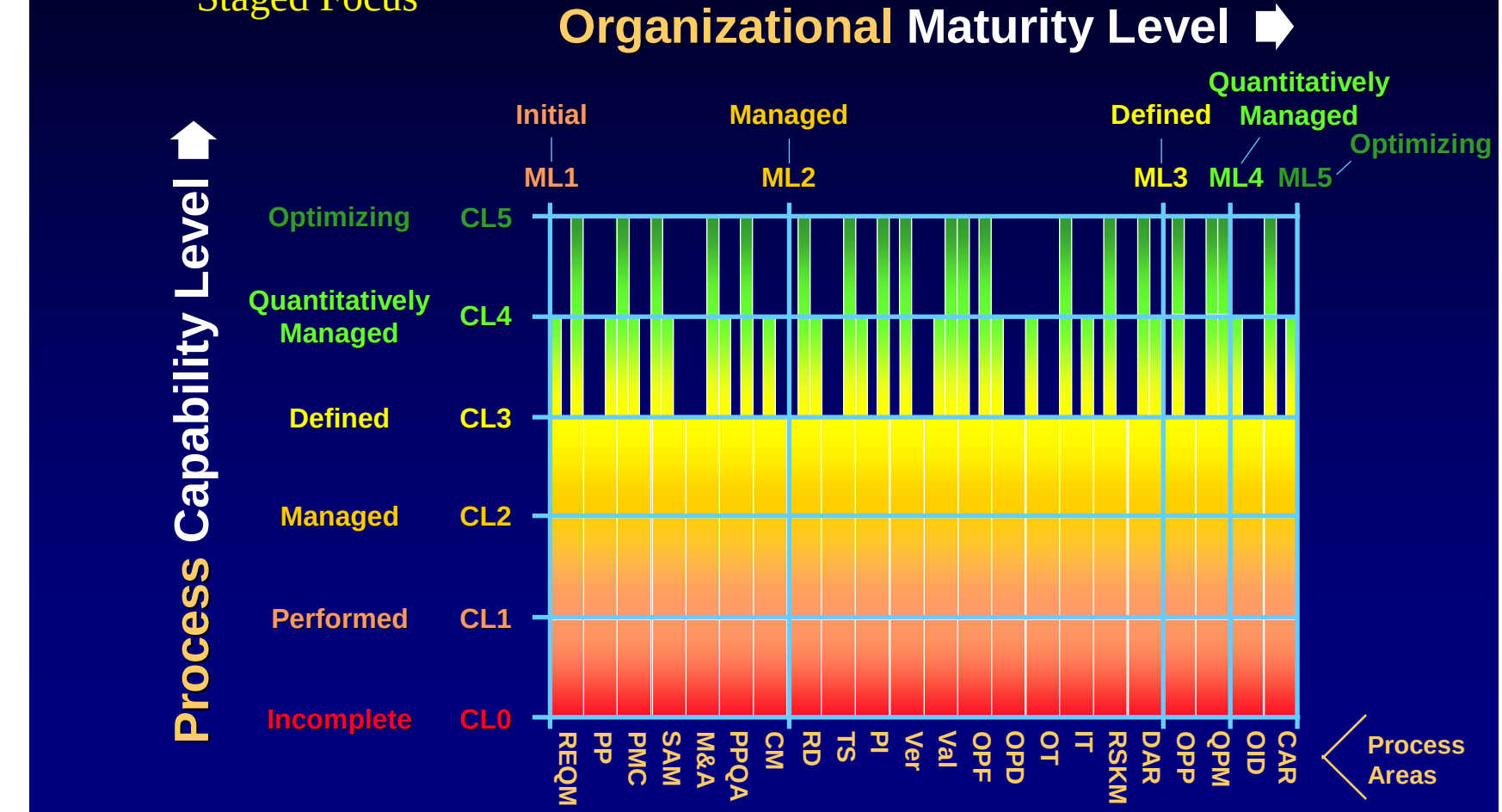
# Moving to ML-5

## Staged Focus

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# Staged Supported by Continuous

In summary, the continuous representation provides additional de facto granularity in support of a staged-focus initiative:

- as a guide for detailed “tactical” planning
- to demonstrate intermediate progress short of “PA” or “ML”
- for allaying concerns and building support among key stakeholders

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# Continuous Focus

## Thinking It Through

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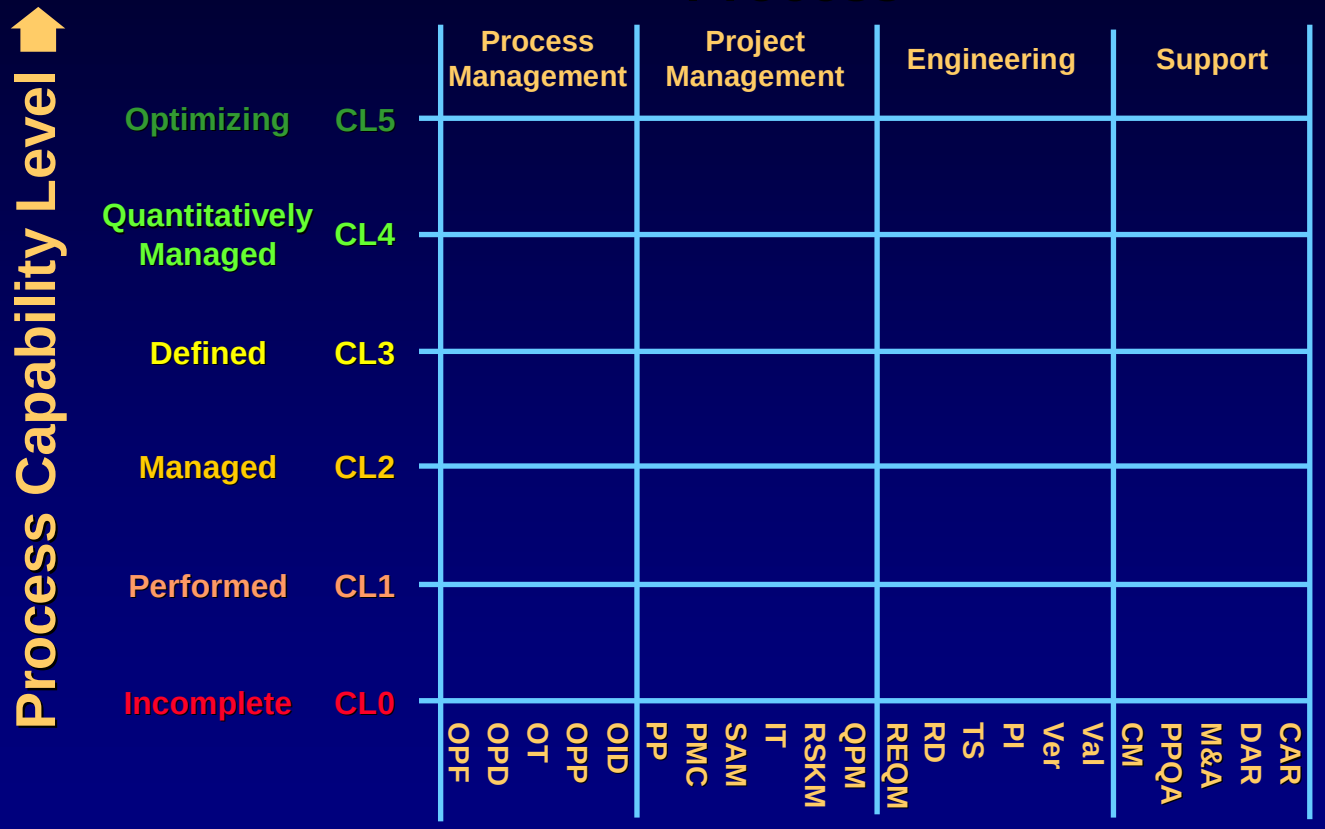
# The CMMI Structure

## Continuous Focus

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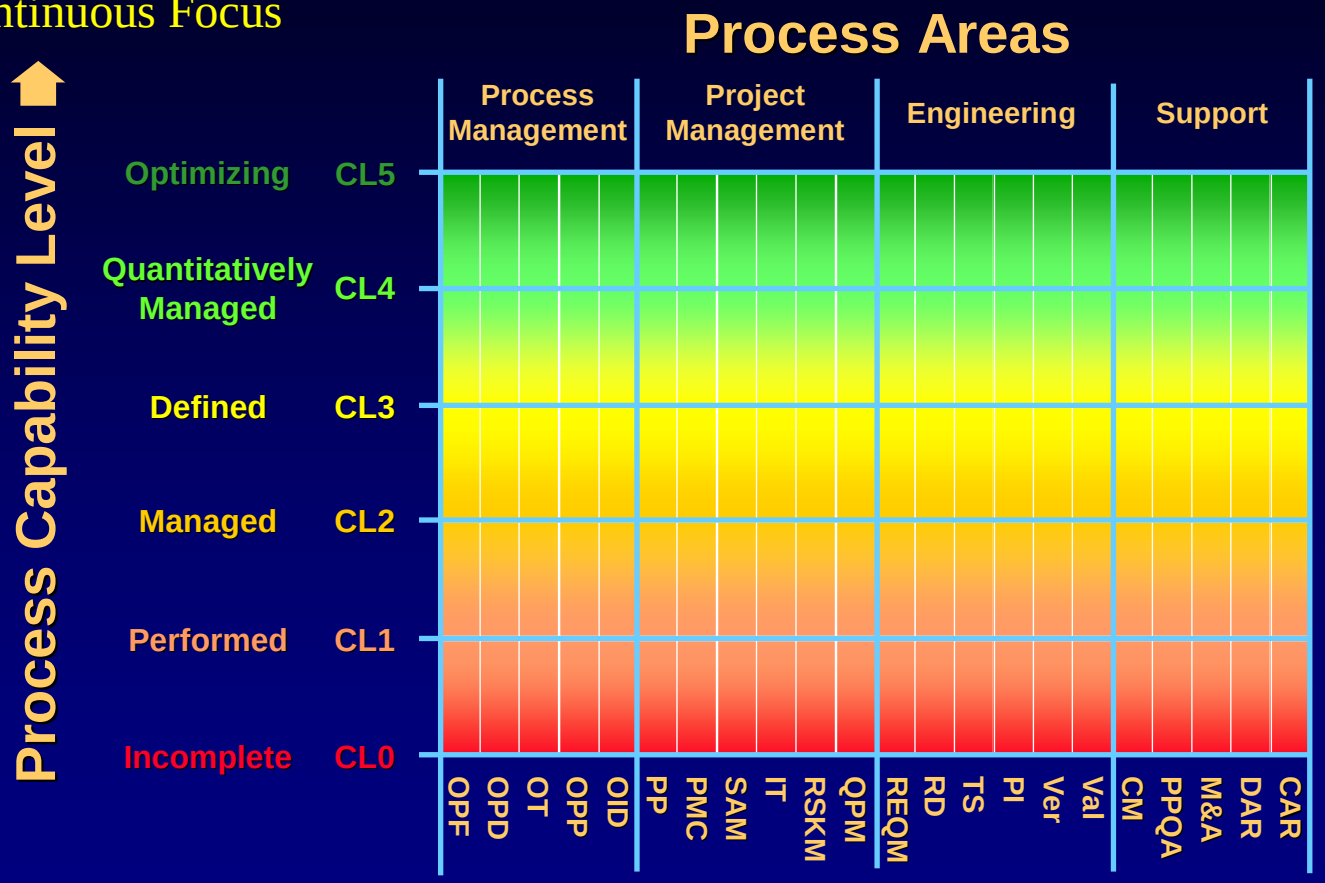
# An Approach for the Uninformed

## Continuous Focus

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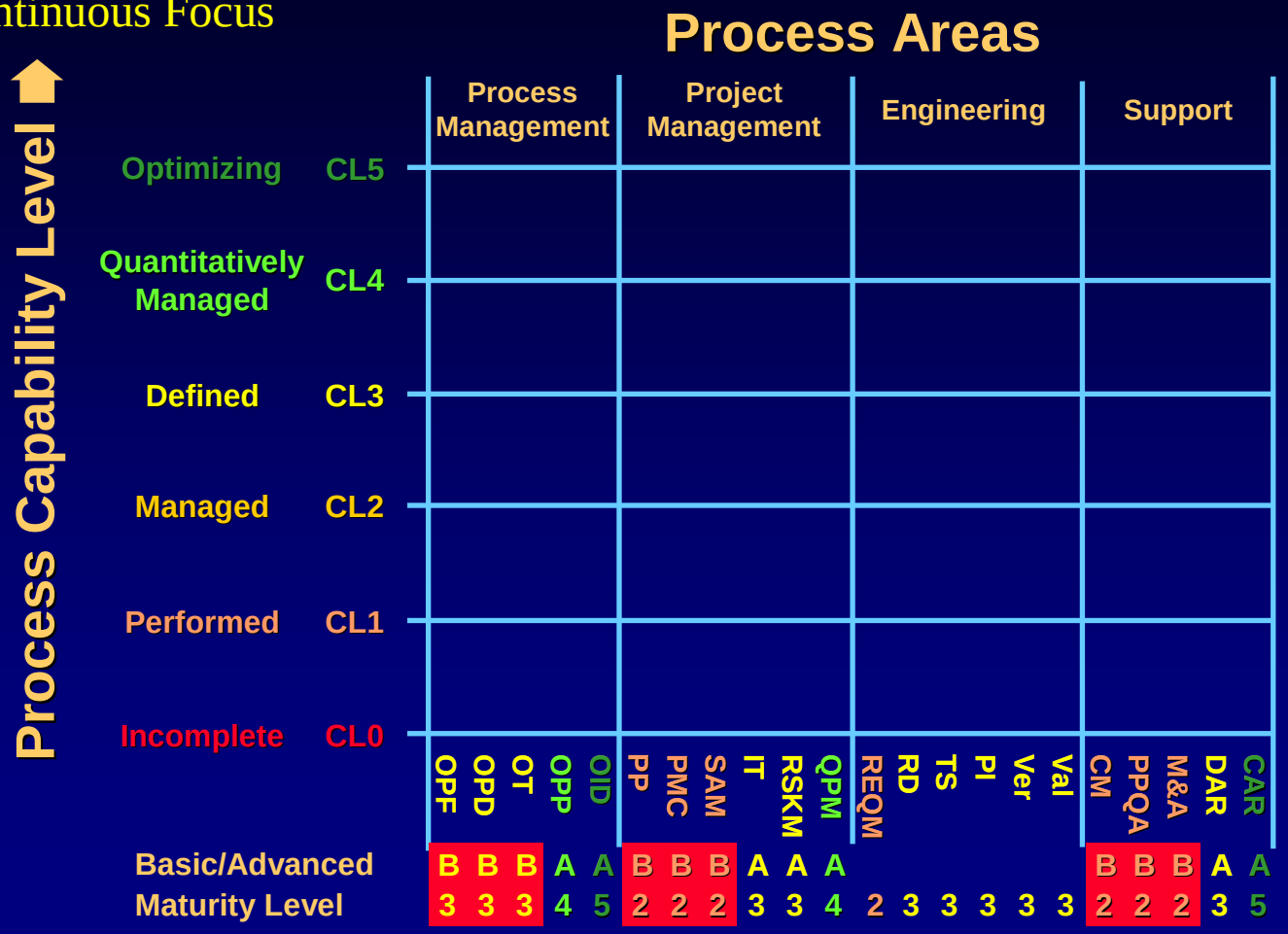
# Some Observations on Structure

Continuous Focus

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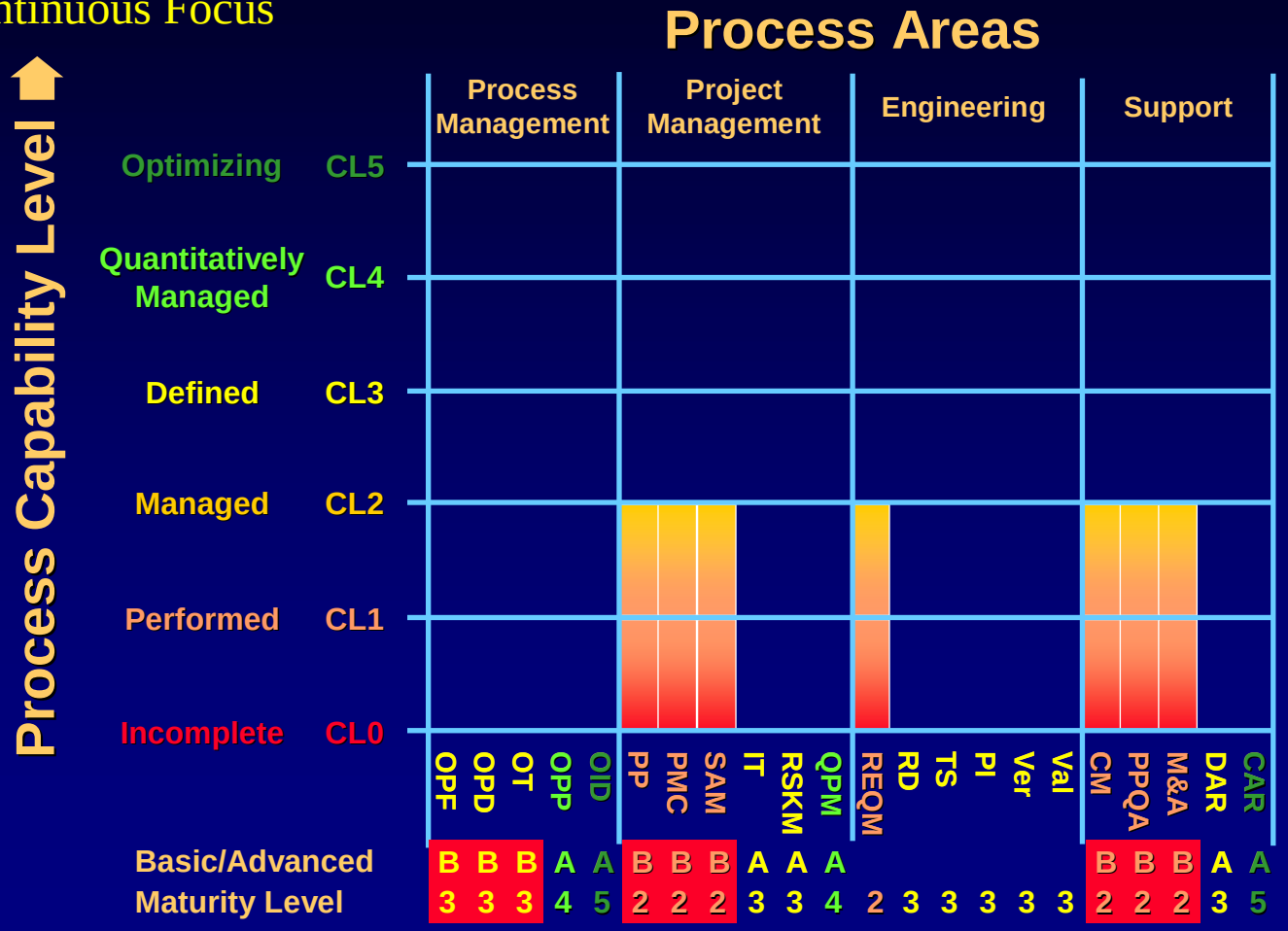
# Thinking It Through[1]

## Continuous Focus

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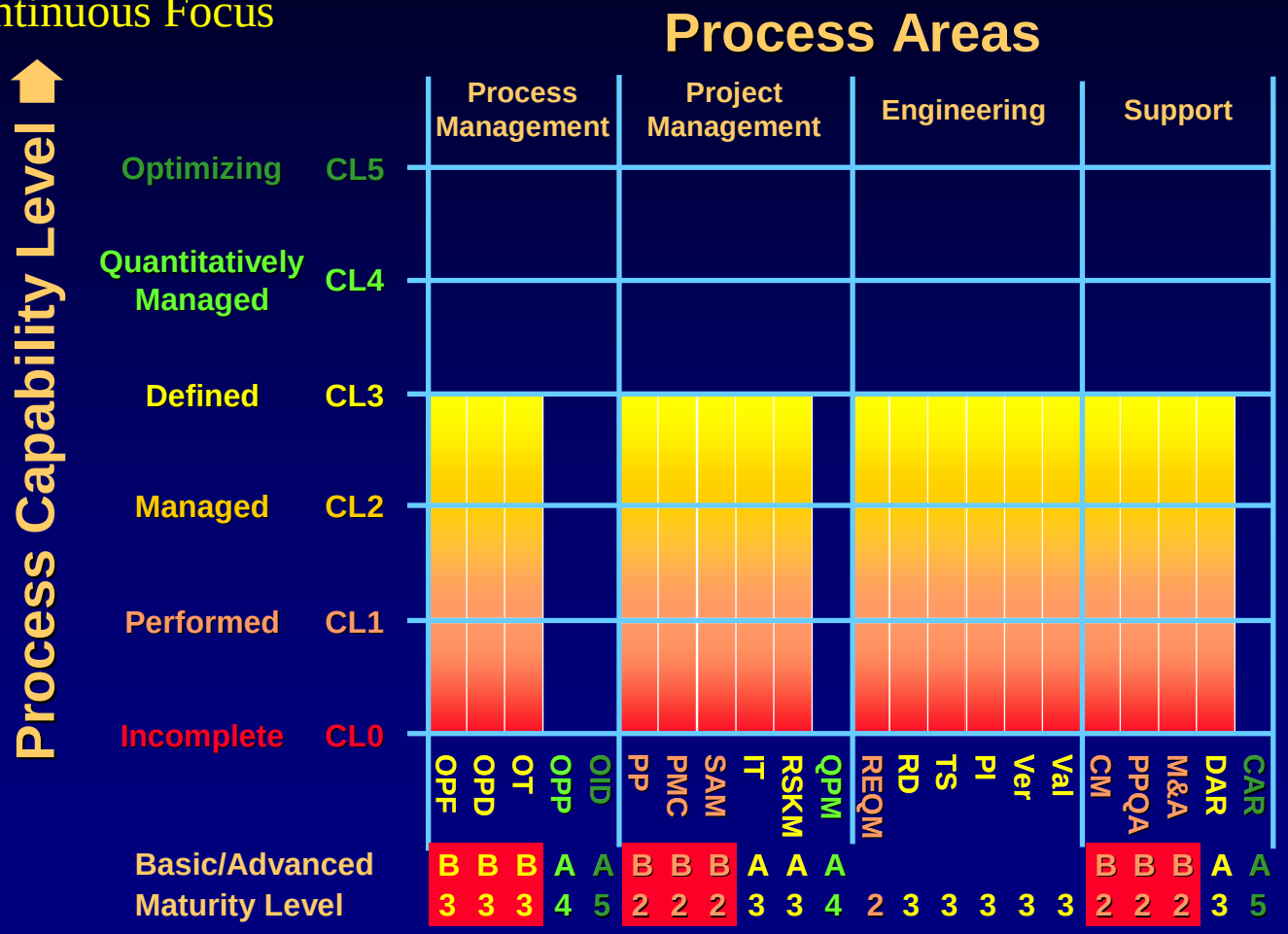
# Thinking It Through$_2$

## Continuous Focus

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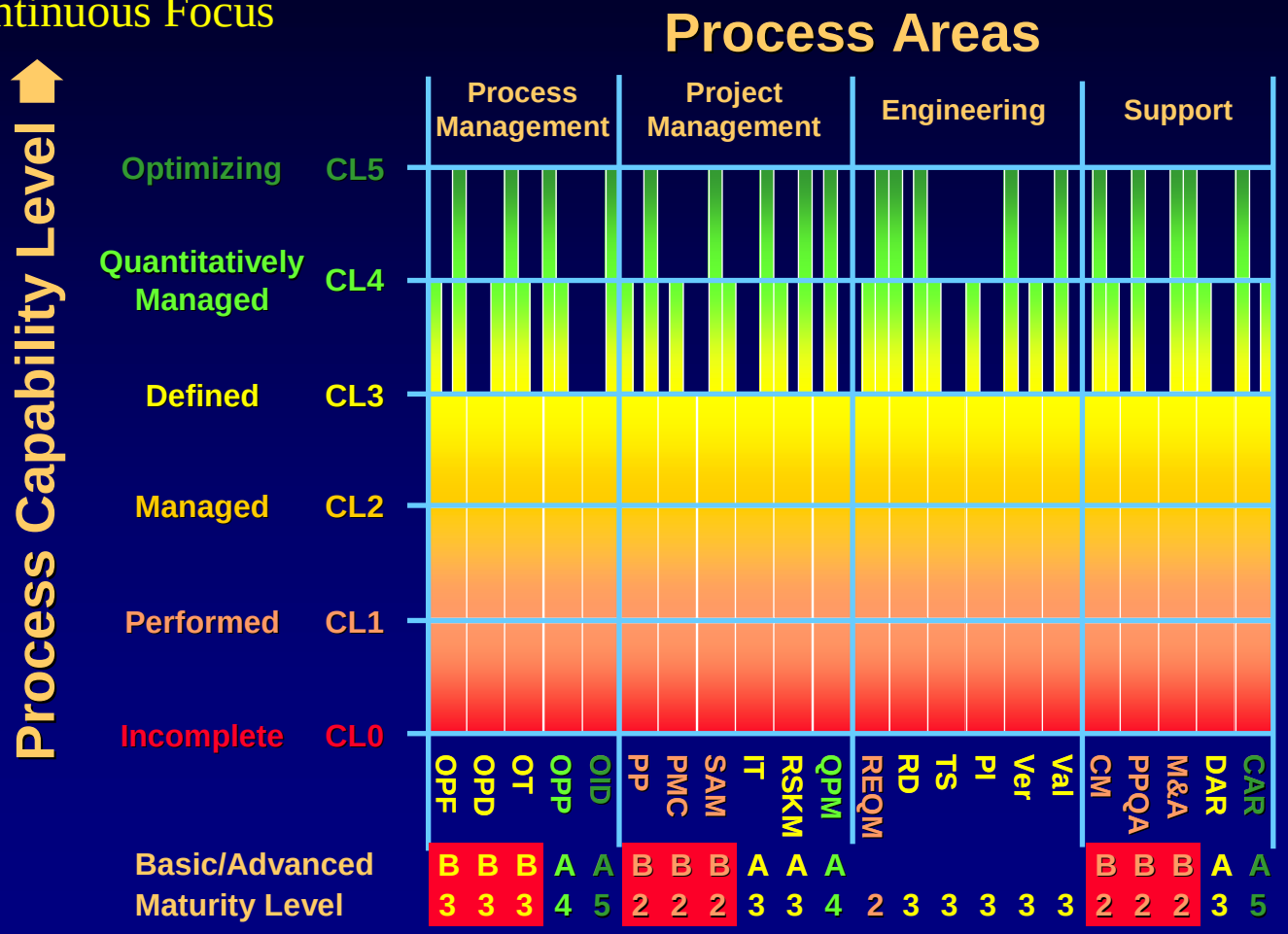
# Thinking It Through$_3$

## Continuous Focus

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# Continuous Focus

## Starting with Engineering

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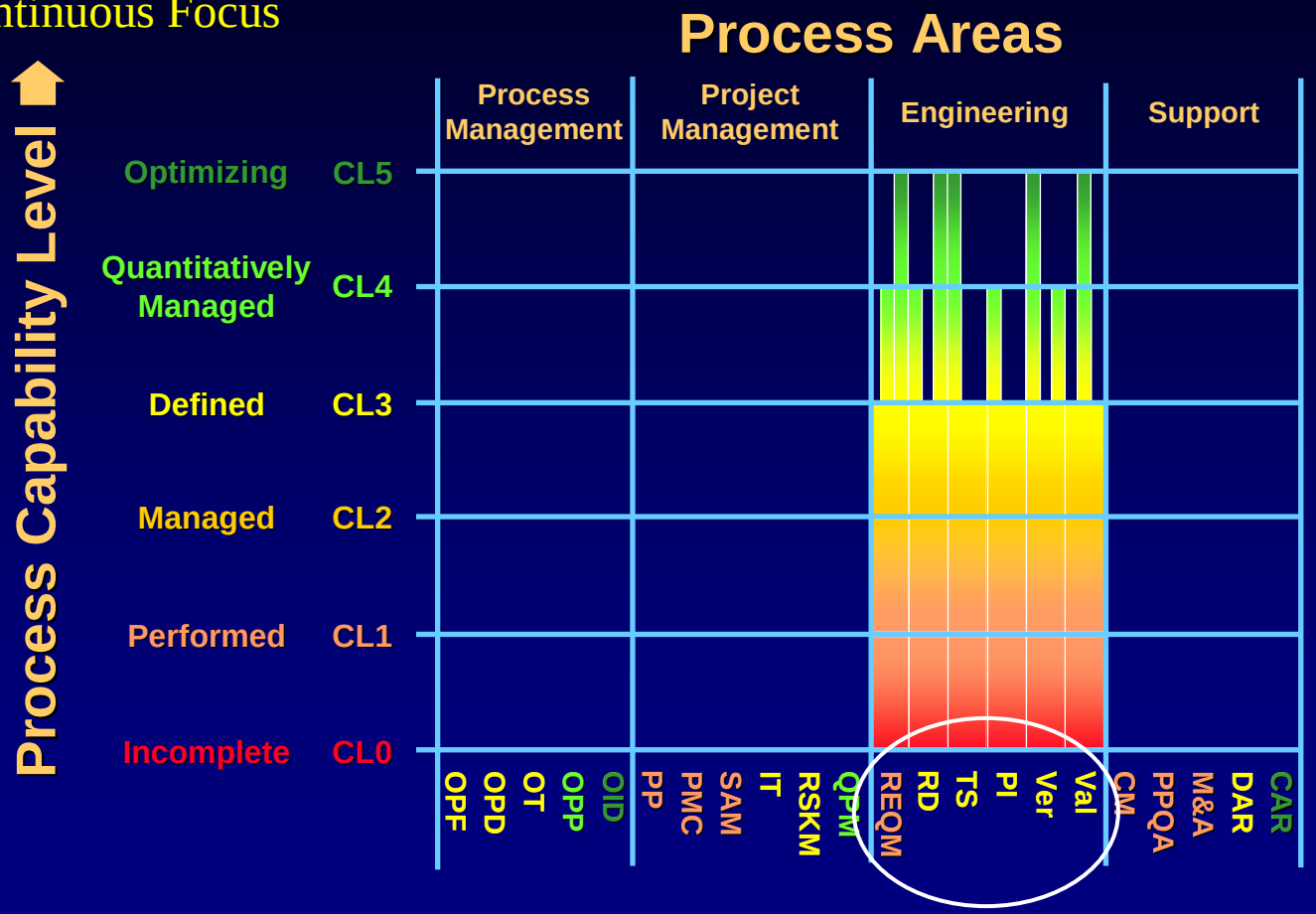
# Starting with Engineering: Concept 1.0

Continuous Focus

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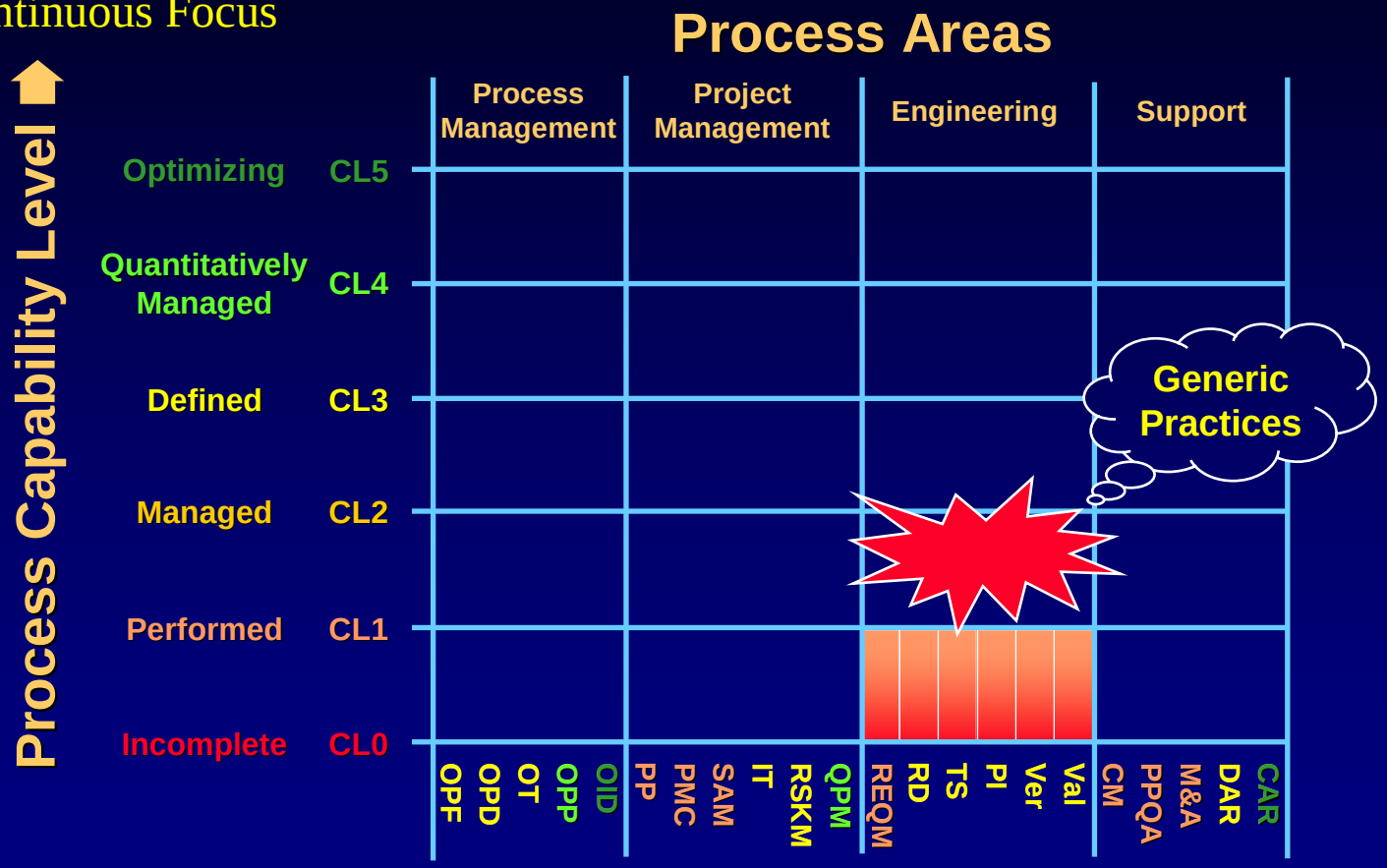
# Starting with Engineering: Concept 1.0

Continuous Focus

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# The Generic Practice Hurdle

| Generic Practice | | Related Process Area(s) |
|---|---|---|
| 2.6 | Manage Configurations | Configuration Management |
| 2.7 | Identify and Involve Relevant Stakeholders | Project Planning |
| 2.8 | Monitor and Control the Process | Measurement and Analysis |
| | | Project Monitoring and Control |
| 2.9 | Objectively Evaluate Adherence | Process and Product Quality Assurance |

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# Starting with Engineering: Concept 1.01

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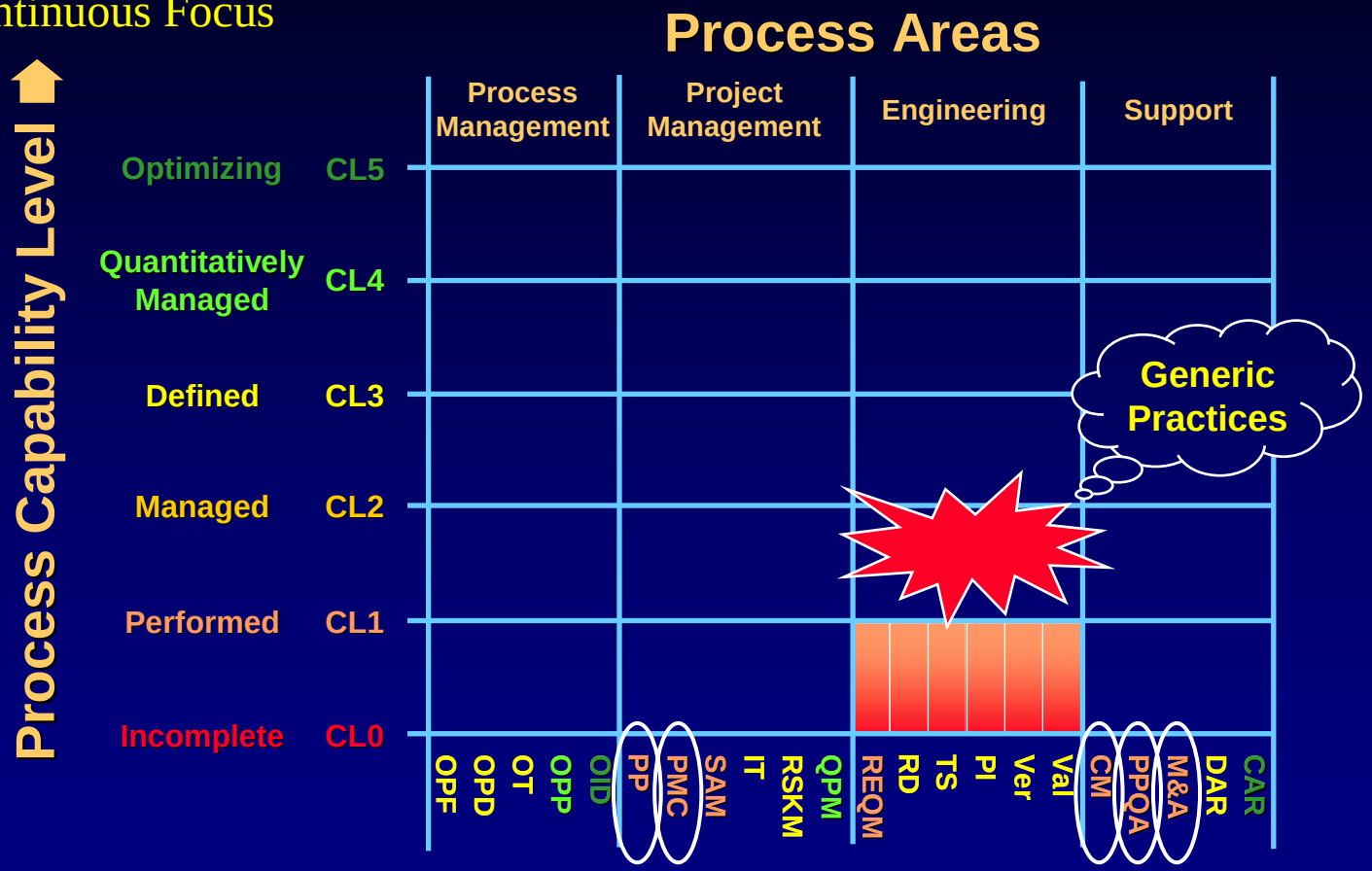


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# Starting with Engineering: Concept 1.02

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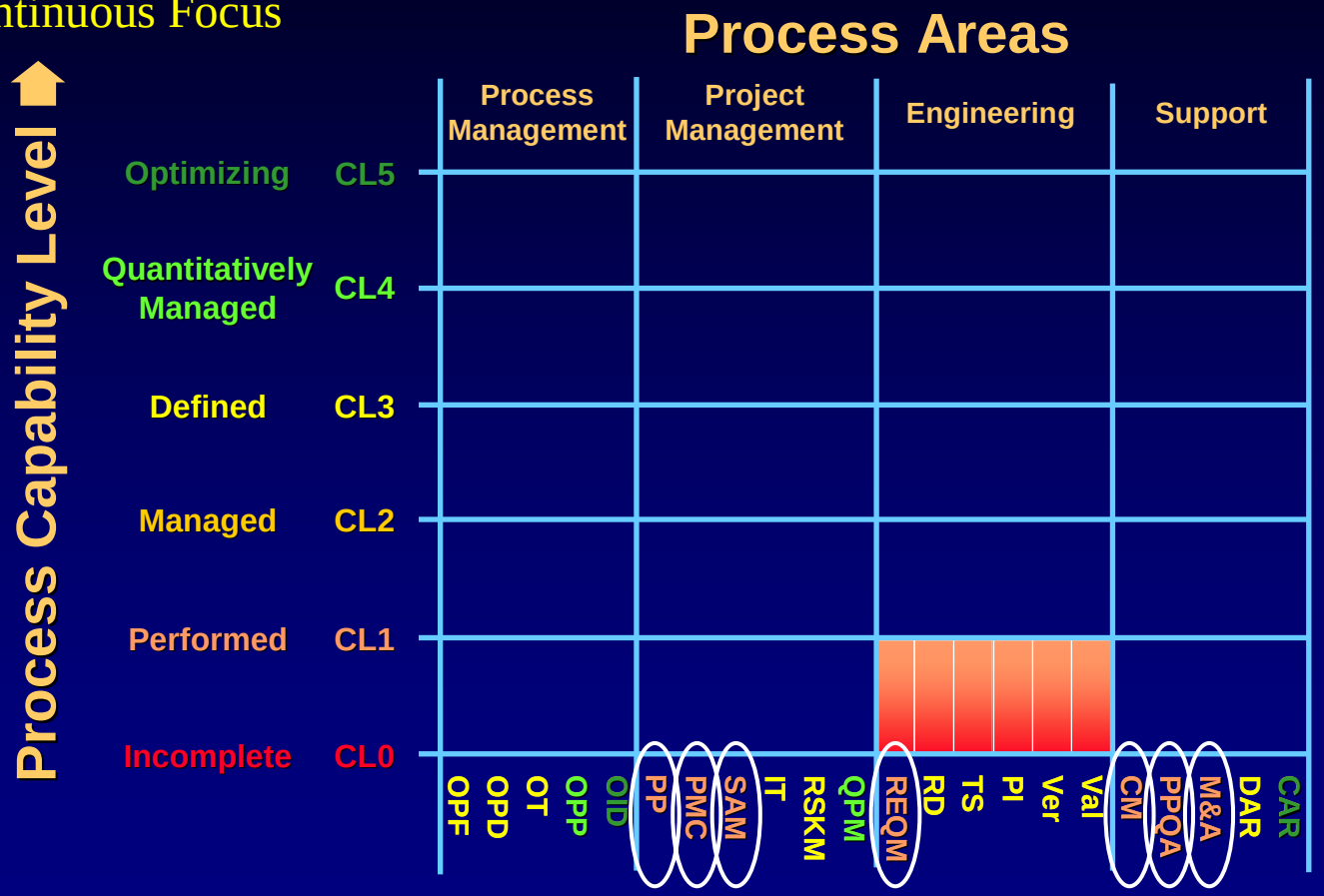


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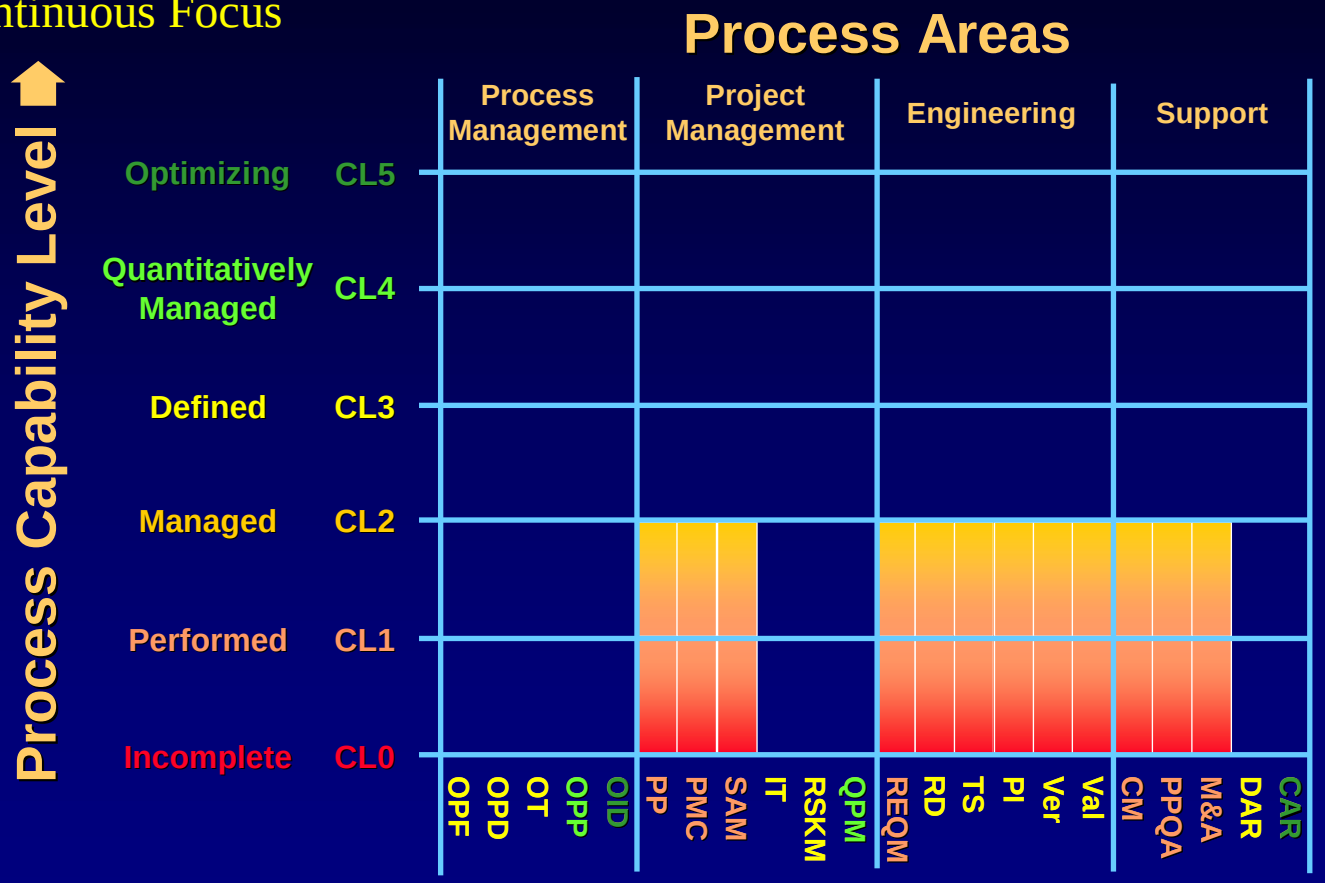
# Starting with Engineering: Concept 1.02

Continuous Focus

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# Starting with Engineering: Concept 1.03

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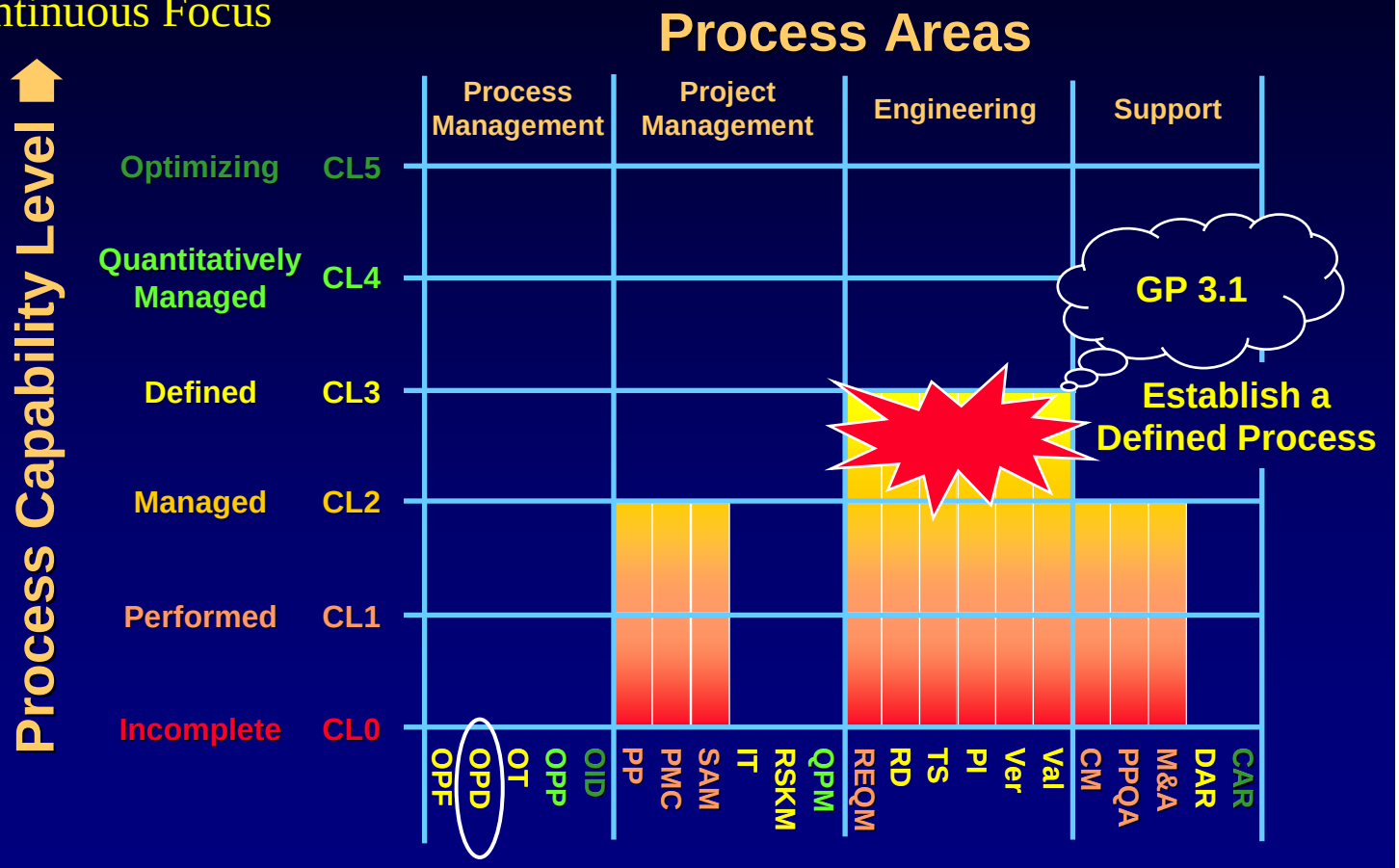


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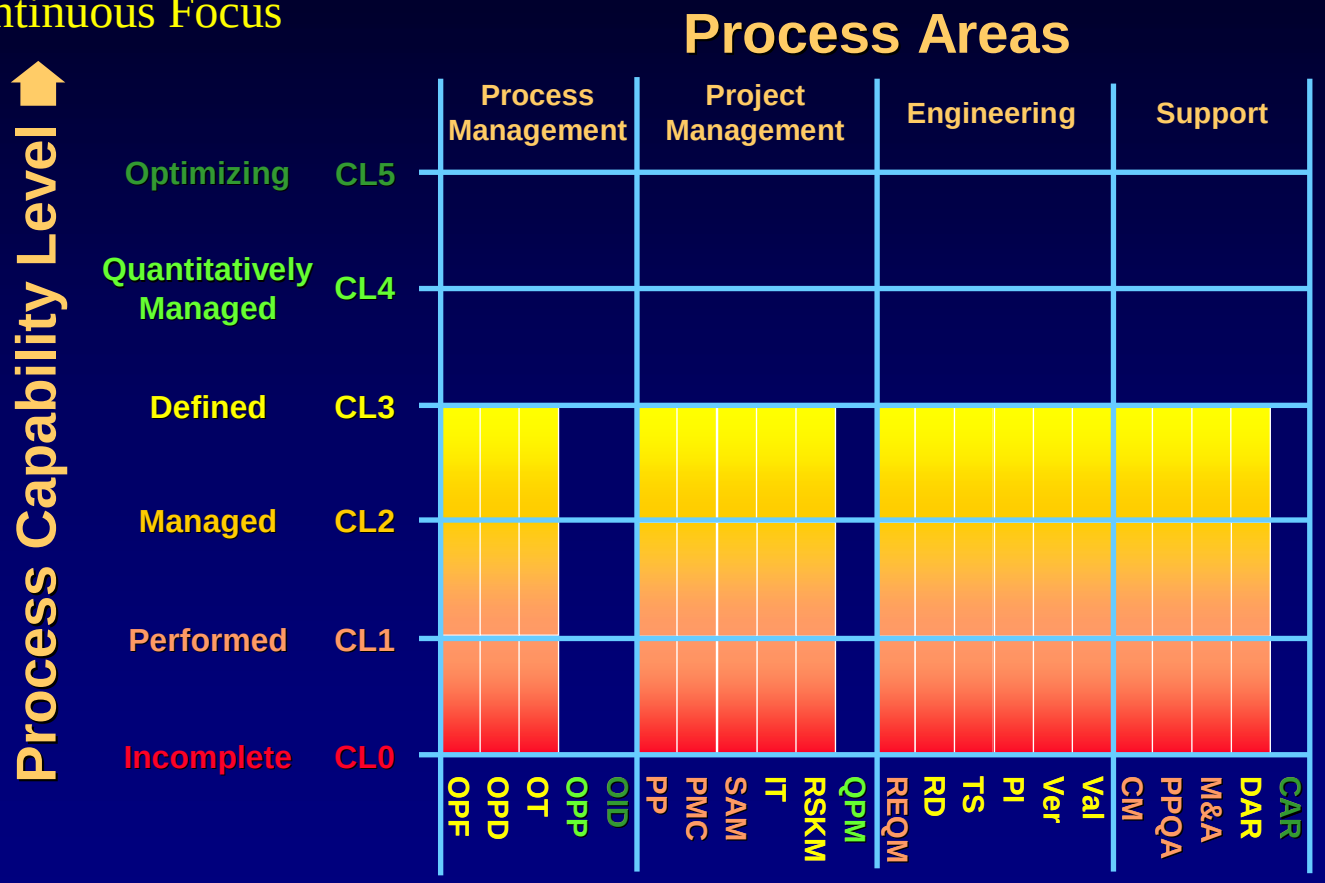
# Starting with Engineering: Concept 1.04

Continuous Focus

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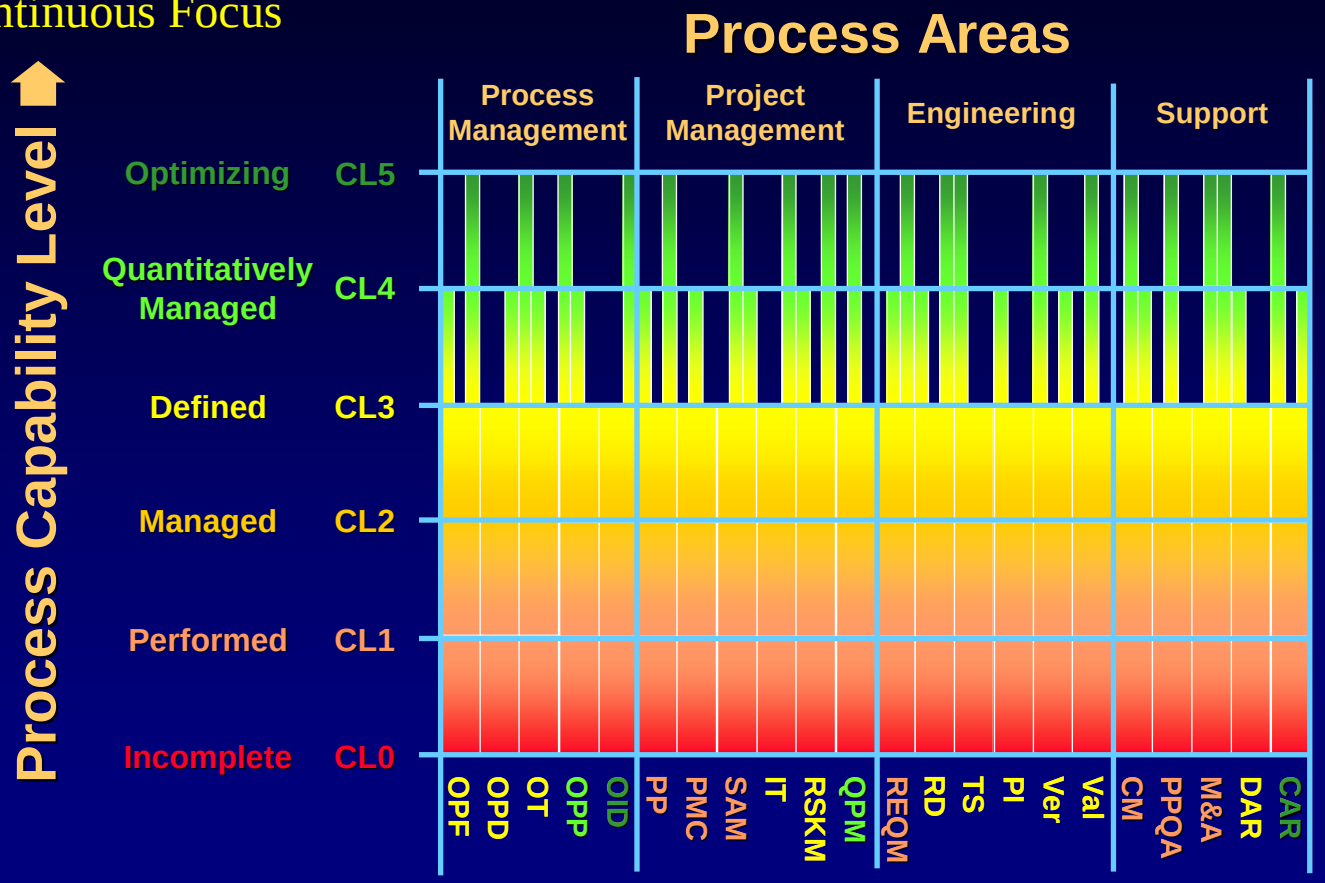
# Starting with Engineering: Concept 1.04

Continuous Focus

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# Continuous Supported by Staged

In summary, the staged representation can provide structure for a continuous-focus initiative:

- as a guide for big picture “strategic” planning
- to “chunk” higher-granularity activities for senior management
- as a means for representing high-level success in “industry standard” terms key stakeholders will more readily understand

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# The Point of All This

Two representations provide orthogonal views of the CMMI process areas.

Multiple perspectives facilitate understanding of process improvement and increase flexibility.

Using continuous and staged together

- takes advantage of the benefits of both representations
- minimizes the negative effects of their disadvantages

Using both representations increases the potential effectiveness and efficiency of process improvement initiatives.

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# That's all, folks!

Your questions and observations, please…

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