



# Utilizing Lean Six Sigma to Attain CMMI® Maturities

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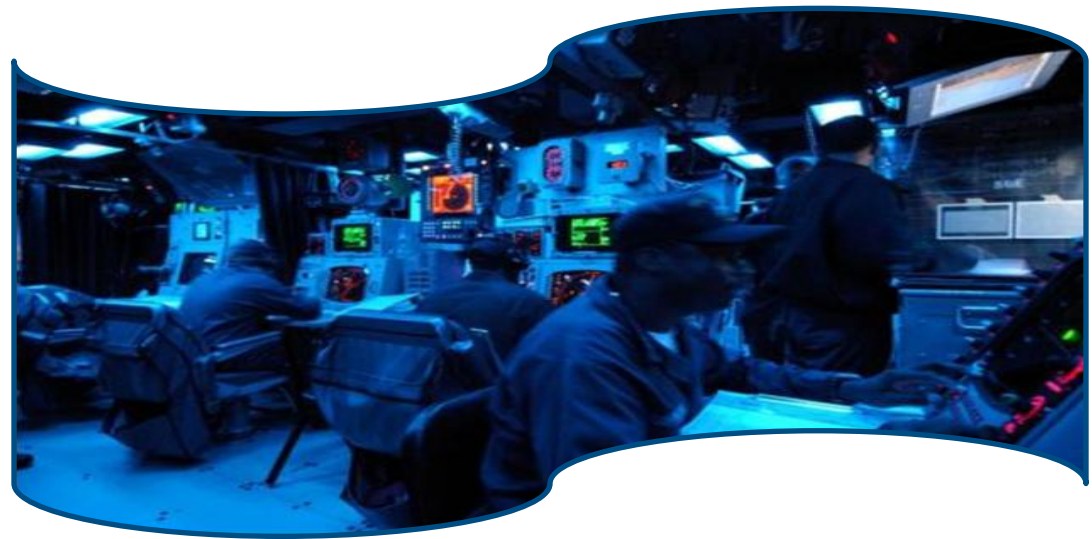
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# Agenda



- Presentation goal
- Background about SPAWAR PACIFIC
- Current situation
- Improvement focus
- Challenges
- Approach
- Questions



SPAWAR is the Navy expert in delivery and sustainment of C4ISR systems

SPAWAR = Space and Naval Warfare Systems Center C4ISR = command, control, communications, computers, intelligence, surveillance, and reconnaissance



# Presentation Goal



- How the organization utilized Lean and Six Sigma® process improvement techniques to affect implementation of CMMI® practices
  - Occurs during simultaneous organizational realignment
  - Involves consolidation of five major service-oriented projects
  - Focused on early improvements for the individuals working on the projects (In the trenches)
  - Assisted with institutionalizing selected targeted practices utilizing some Level III practices

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# Space and Naval Warfare Systems Center Pacific – SSC PAC



- DOD U.S. NAVY Organization
  - More than 4,000 scientists and engineers
  - Located in San Diego and throughout the globe
- INDUSTRY PATTERNS DOD U.S. NAVY Organization
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# Mission – Information Dominance



- Design, build, and sustain C4ISR information dominance systems



(Radar, networks, command and control, crypto devices, satellite communications, submarines electronic systems, etc.)



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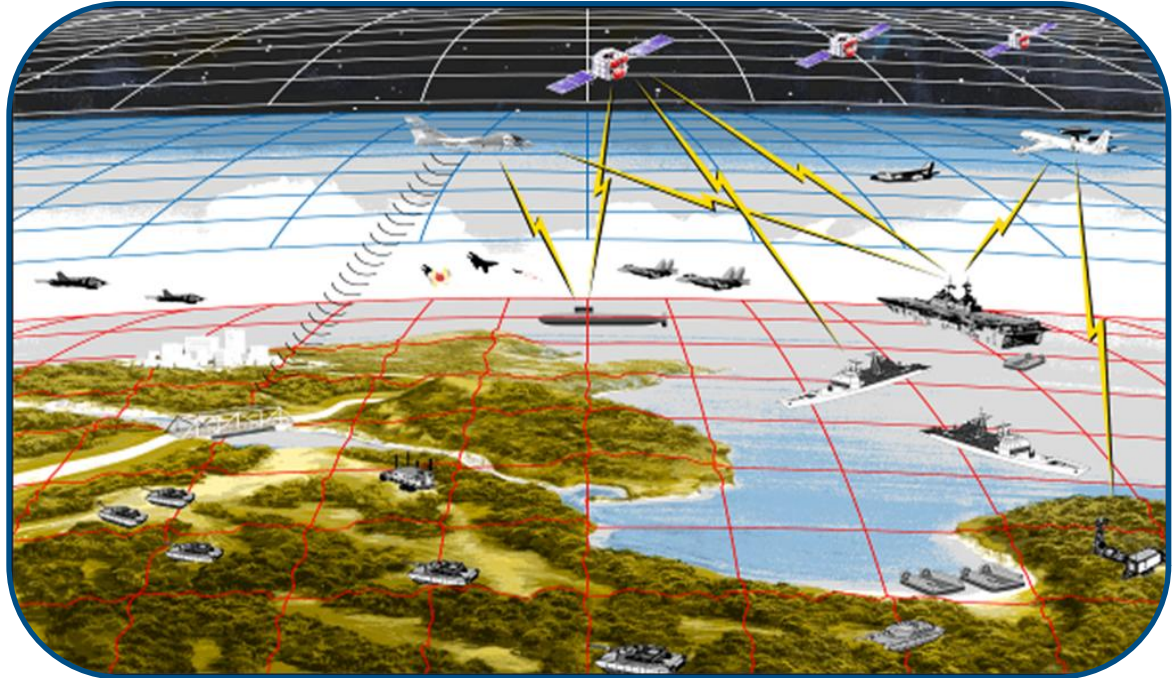
# Systems Engineering for Mission Success



 Reliability

 Availability

 Maintainability



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# SPAWAR Systems Center Pacific CMMI Timeline



1988

- Implemented Software (SW) Capability Maturity Model® CMM ® predecessor of CMMI® model.
- Systems Engineering Process Office (SEPO)

2000

- Attained SW-CMM Level 3 in October 2000.
- SSC PAC transited from SW-CMM to CMMI- DEV model and continues with its process improvement road.

2009

- Implementing CMMI-SVC ML2 model 1.2 for Services projects
- Achieve CMMI-DEV ML3 on 2012

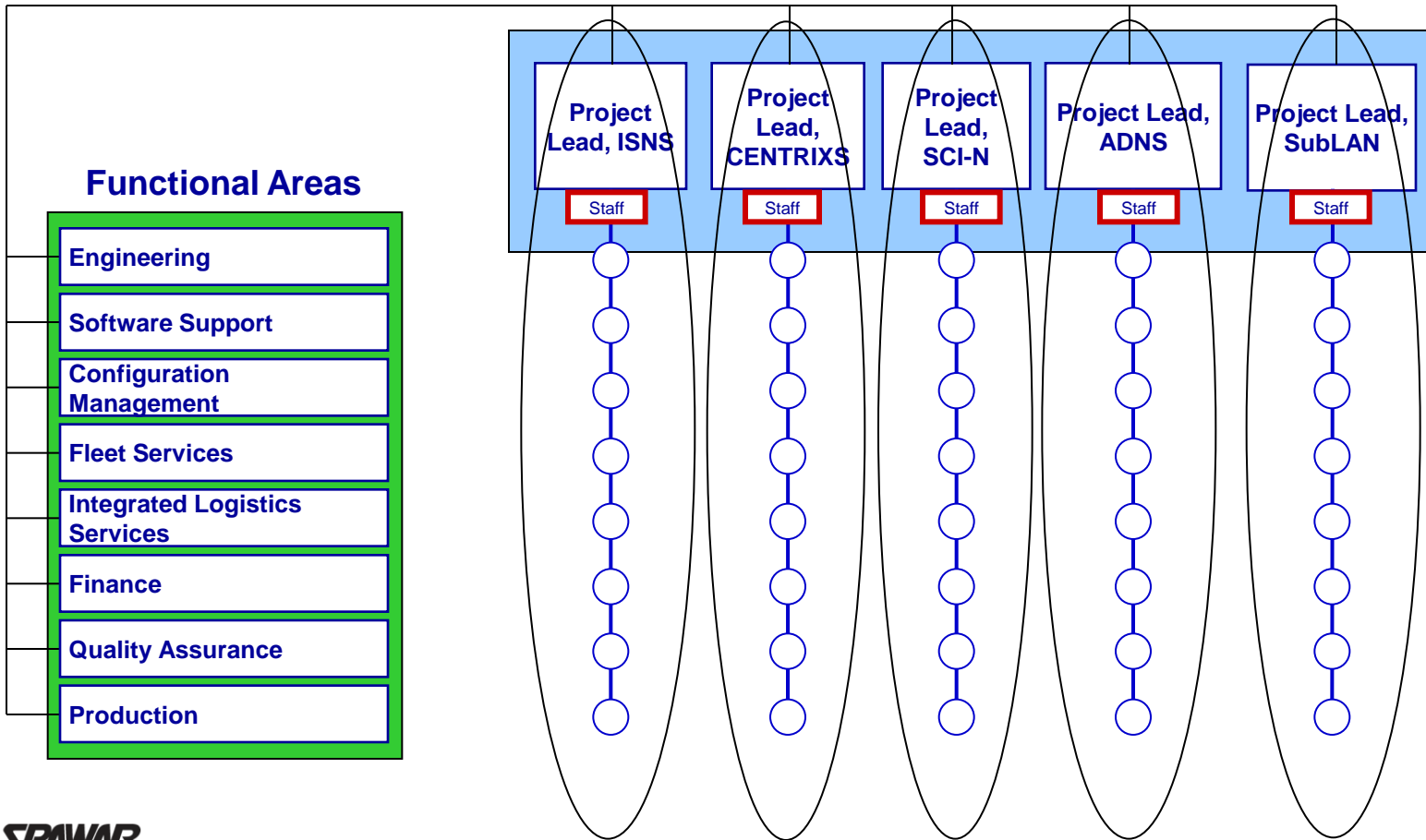


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Capability Maturity Model, CMM, and CMMI are registered in the U.S. Patent and Trademark Office by Carnegie Mellon University.



# Previous Organizational Structure

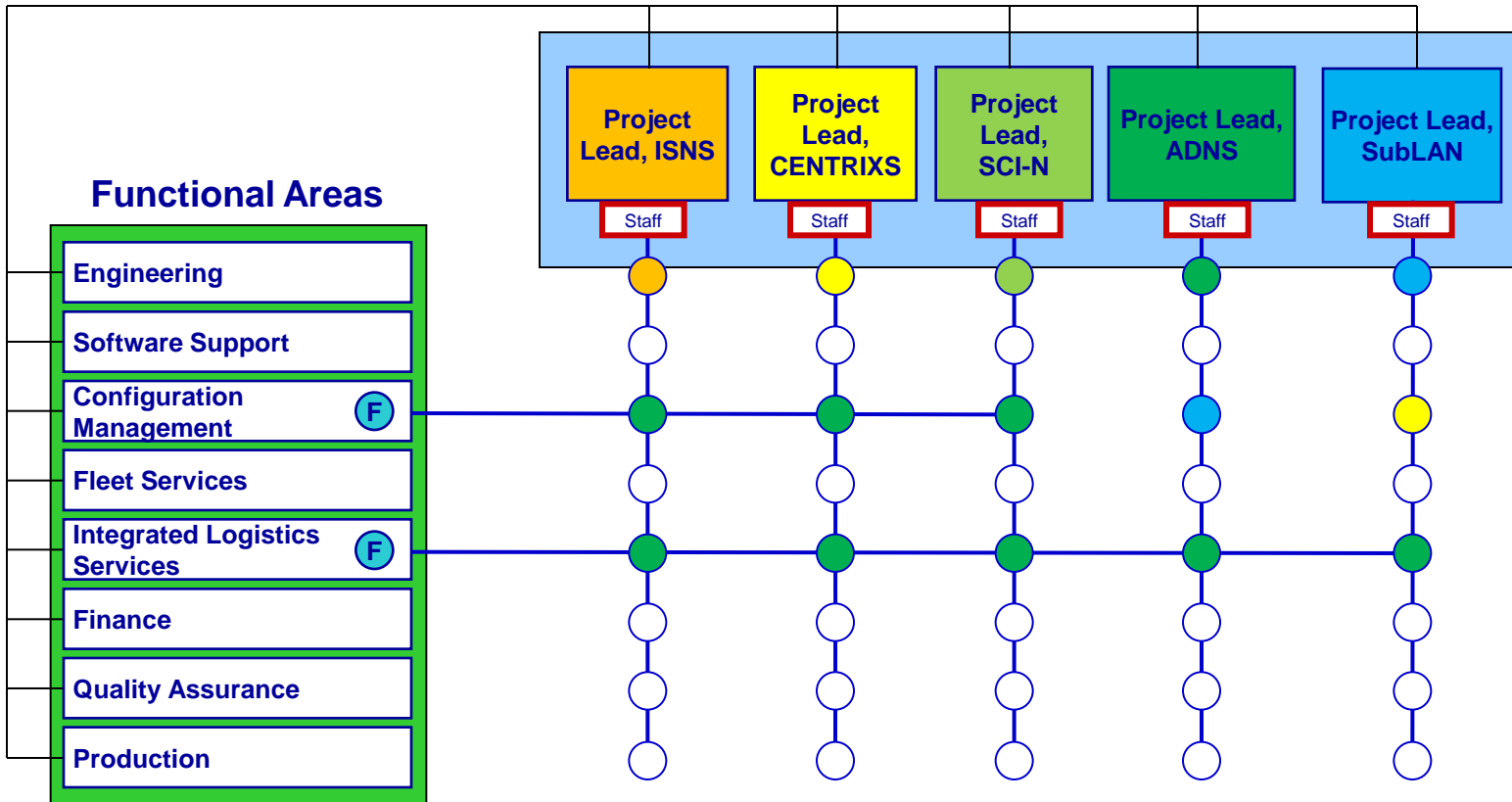


ISNS = Integrated Shipboard Network Systems CENTRIXS = Combined Enterprise Regional Exchange System SCI-N = Sensitive Compartmented Information Networks ADNS = Automated Digital Network System SubLAN = Submarine Local Area Network





# Different Levels of Existing Consolidation



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# Major Challenges



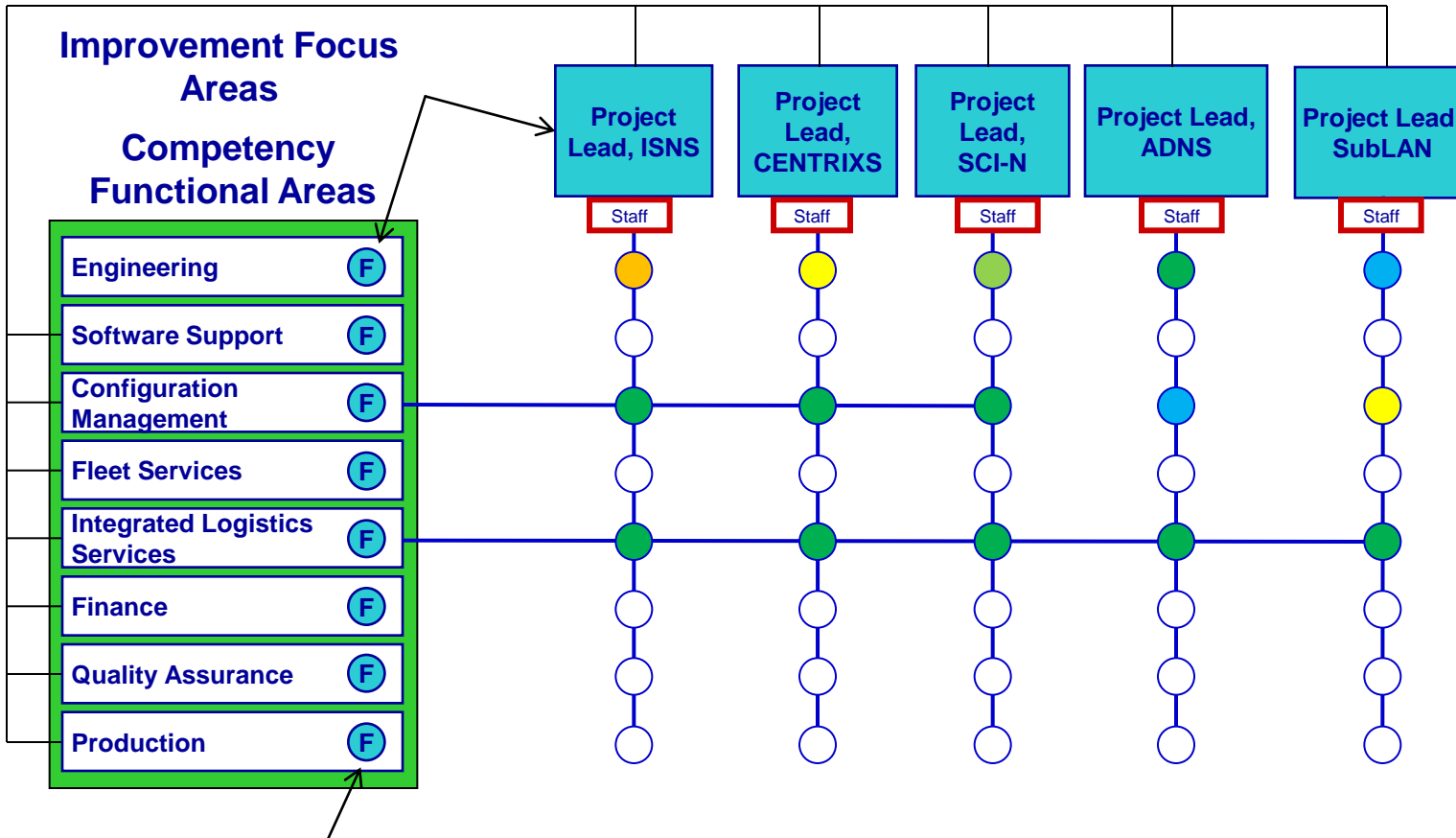
- Standard organizational change resistance
- Limited budget to accomplish improvements and certification
- Individual participant perception that they were being asked to do more with limited or no additional funding
  - Consolidating existing processes
  - Addressing gaps in CMMI® practices that weren't currently being accomplished
  - Perception that improvement benefits weren't going to be easily or quickly realized
- Revolving individual roles and responsibilities

# Approach



- Defined the “organization” as part of this initial effort as the five projects while monitoring/participating in the wider organization (SSC PAC) CMMI® efforts
- Develop and utilize draft Organizational Process Focus (OPF), Organizational Process Definition (OPD) and Integrated Project Management (IPM) practices from the very beginning to support aligning five projects. Pursued a continuous versus a staged approach for the five projects.
- Simultaneous improvement emphasis on the project planning and project monitoring and control processes so that all practitioners (project managers and functional leads) are performing in a similar, integrated fashion

# Improvement Focus



Functional Area Leads



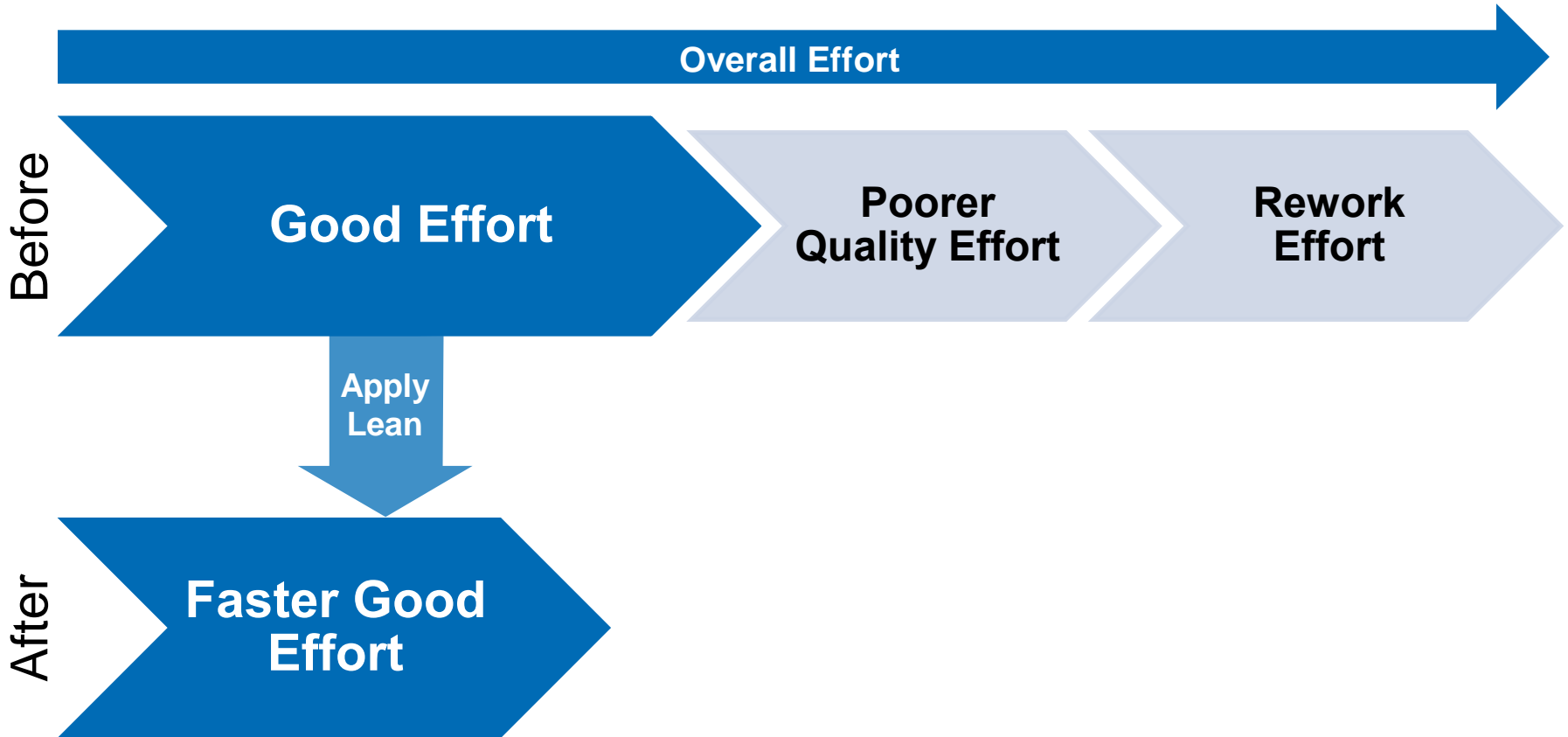
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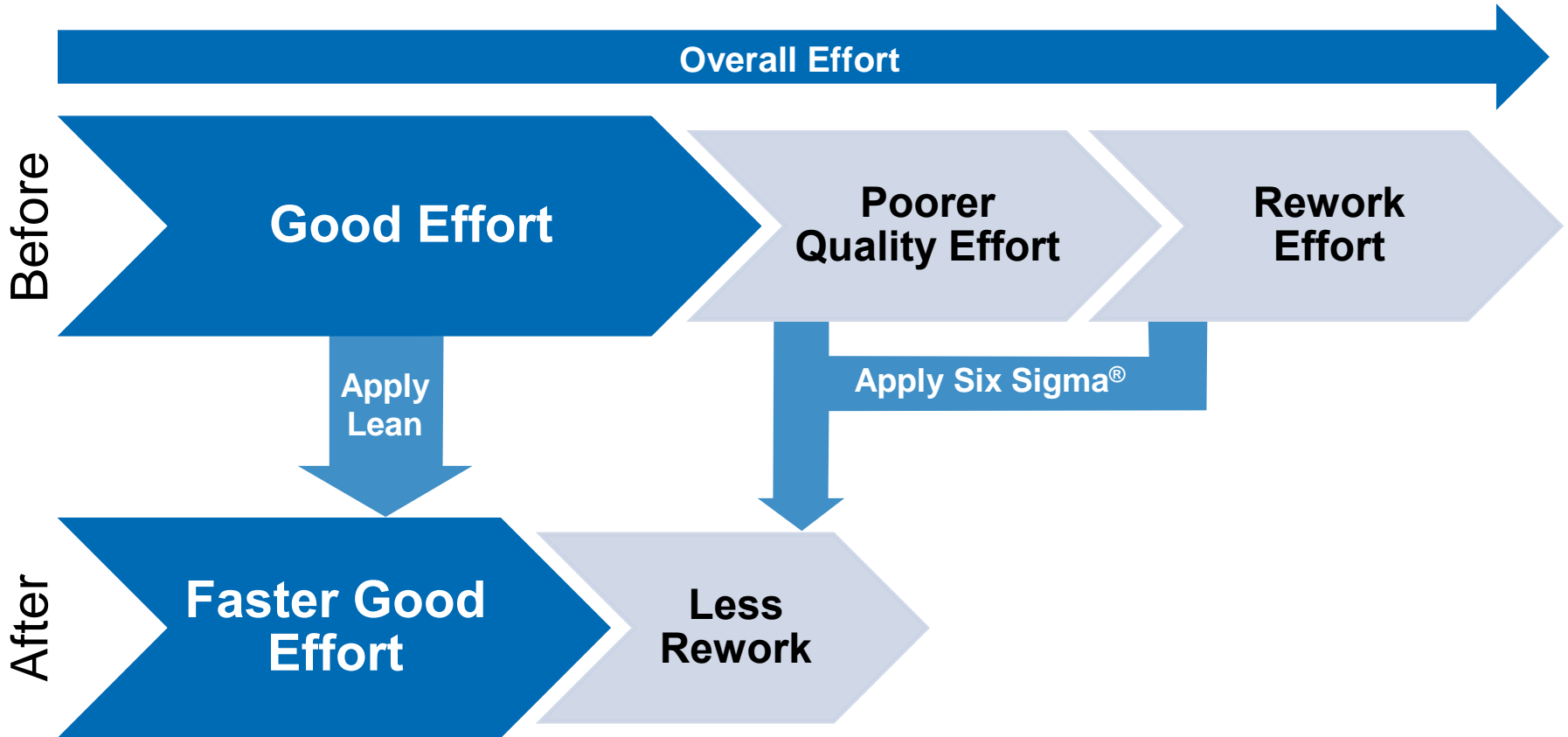
# Improvement Focus on Effort for a Particular Process Area



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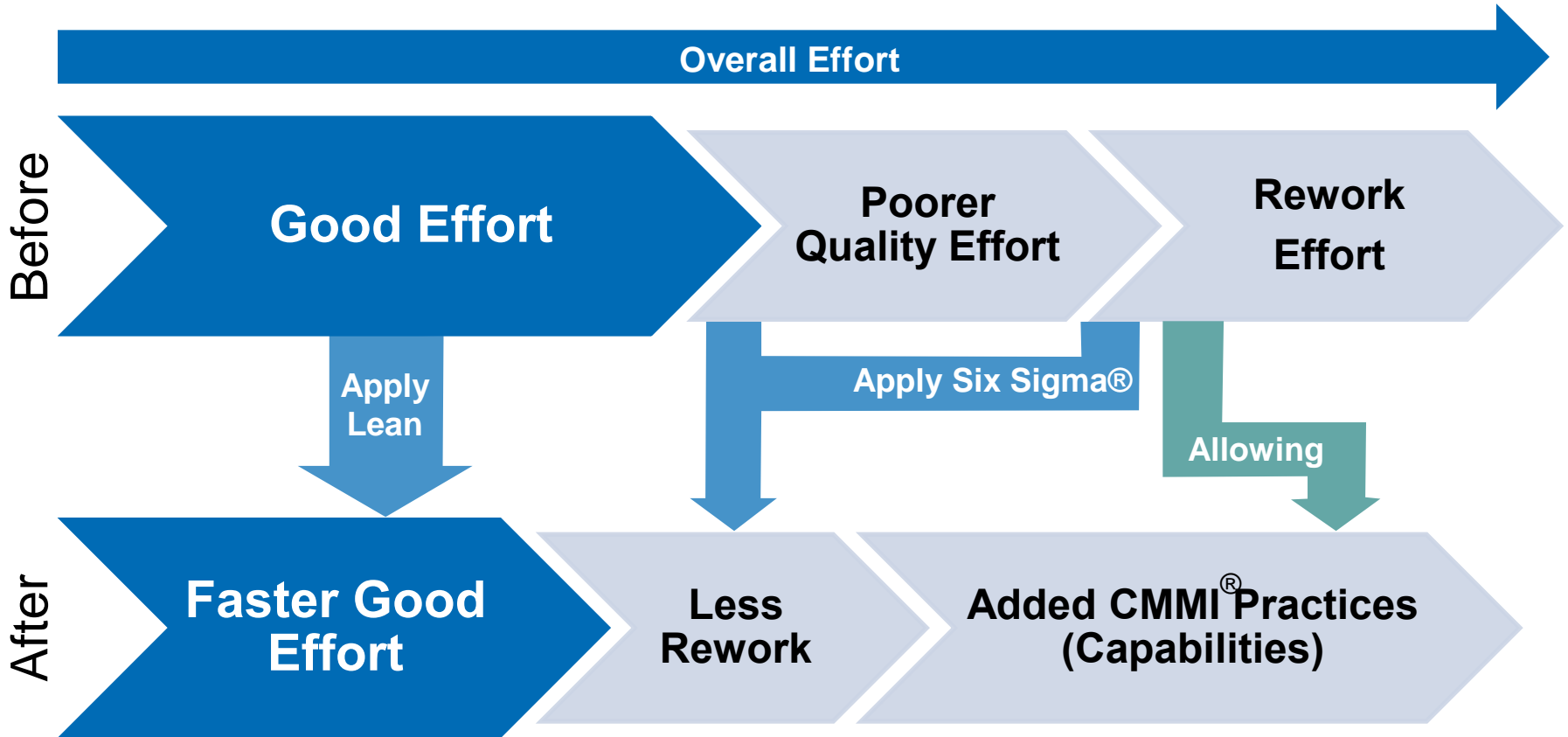
# Improvement Focus on Effort for a Particular Process Area



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# Summary Approach



- Apply Lean Six Sigma<sup>®</sup> (LSS) improvement efforts to establish and/or improve the “How” of the focused project processes, making sure that you incorporate the gaps between the existing processes and the CMMI<sup>®</sup> best practices
- Simultaneously
  - Apply Lean efforts to remove waste in current, focused project processes
  - Apply Six Sigma efforts to improve the quality and reduce the rework of current focused processes
  - Ensure that the improvement phase incorporates the gaps and adapts CMMI practices to the business environment, thus improving the focused processes



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# Additional Approach Considerations



- Get really close to the way the various personnel (practitioners) operate to apply the improvements and improve
  - To adopt practices practitioners need to be able to accomplish their work faster and with better quality and less rework
- Rather than adopt new technology (tools), we focused on improvements in the use of existing technology
  - This puts more focus on training and education as opposed to increased cost of acquiring new tools, adopting to existing processes, and conducting training
  - Practitioners are more comfortable with using existing tool sets but in improved ways as opposed to adopting newer, unfamiliar tool sets
- Design the new way (improvement) to doing business, ensuring that it incorporates the “What” of CMMI® practices for the particular process area

# Results



- Accomplished Level II certification on time for all five projects
- Continued to apply the improvement technique to mature the projects toward Level III selected process areas in a continuous approach

# Questions?

