

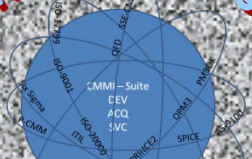
# Lesson Learned from Cross Constellations and Multi Models Process Improvement Initiatives

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+972522946676



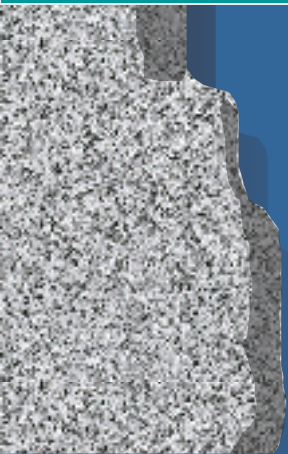
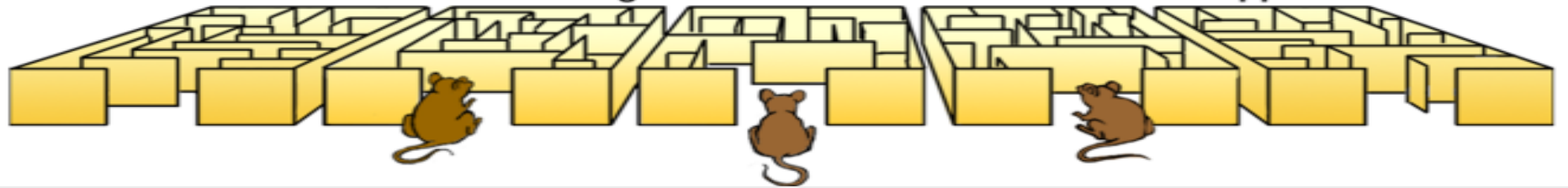
**R&D**

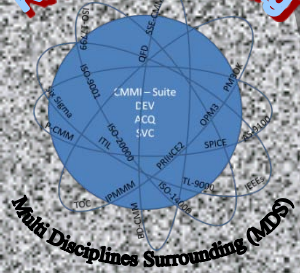
**Sales & Marketing**

**Finance**

**Manufacturing**

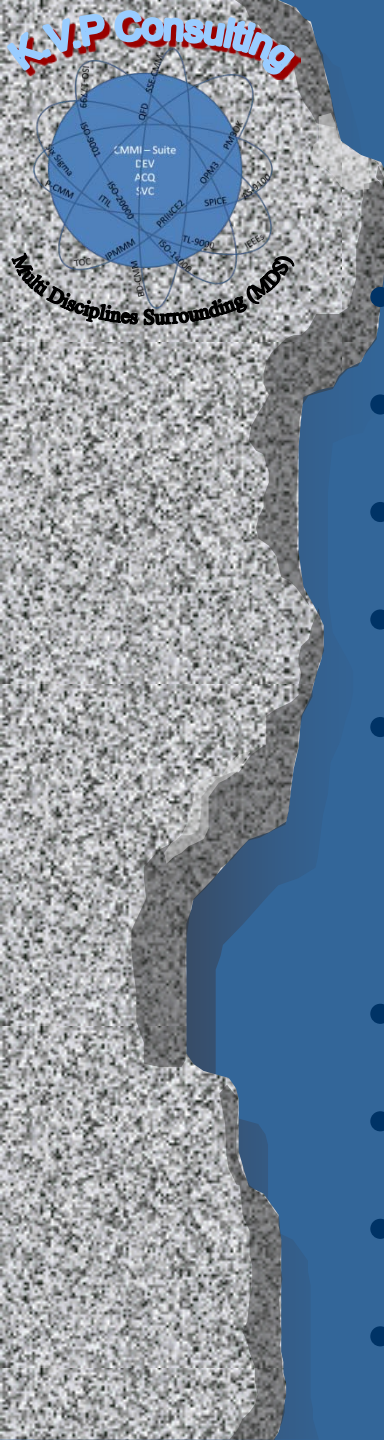
**Service & Support**





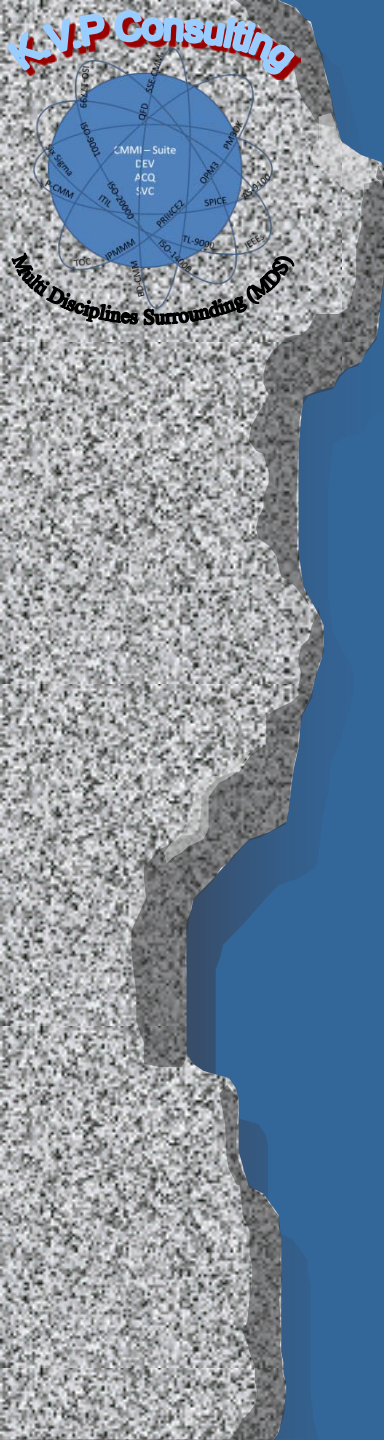
# Agenda

- Process flow
- Background
- First Level Filtering (PA Level)
- Second Level Filtering (Goal Level)
- How We Approach the Combination and Integration of the Common PAs
- Suggestions and Open Questions



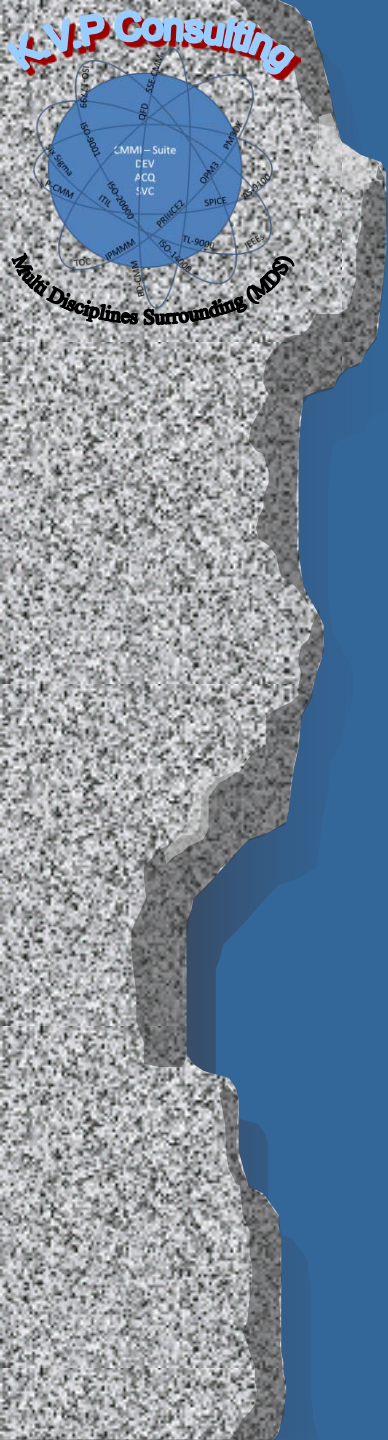
# Process flow

- Organizational Structure Review and Mapping
- Organizational Scope Planning
- Process Improvement Effort Objectives
- Supporting Quality Standards Scope
- Correlating the Organizational Mission and Responsibilities to the CMMIs Content and context
- Supporting Quality Standards Mapping
- CMMI Harmonization Process
- Conducting Detailed Gap Analysis
- Gap Analysis Result Segmentation



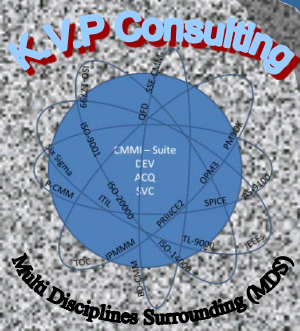
# Organizational Structure Review and Mapping

- Government Agency
- Structure and Size
  - 6 Senior Managers
  - ~250 Project / Program Managers
  - ~900 In-house Development, Service and Maintenance Personal
  - ~2000 External Contractors
  - Internal R&D Team
  - Internal Reliability and Performance Team



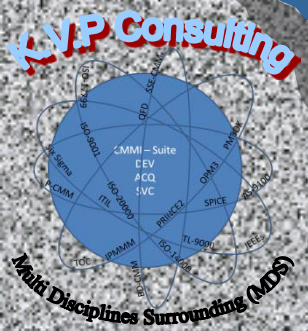
# Process Improvement Effort Objectives

- Group Target is Process Improvement:
  - Increase Processes Efficiency
  - Increase Budget utilization
  - Reduce Cost of Poor Quality
  - Increase Uniformity in Processes
- Leading Standards to Compliance with
  - Internal Quality Standard
  - EFQM
  - CMMI Suite



# Supporting Quality Standards Scope

- All Groups
  - Smart Grid
- ACQ PMs / PMO
  - PMBOK
  - DoD 5000.01 & 5000.02
- Maintenance and Service
  - ISO 14000
  - OHAS 18000



# Additional Standards Elements

- ISO 9001-2008 = 216
- OHSAS 18001 = 132
- ISO 27001 = 126
- ISO 27002 = 134
- ISO 14001 = 139
- PMBOK 3<sup>rd</sup> = 804
- OPM3 = 1402
- DoD-AF V1.5 = 40
- ISO 20000 = 196
- ITIL V2.0 = 741
- Six Sigma = 148
- Baldrige = 127
- EFQM = 804

Total of

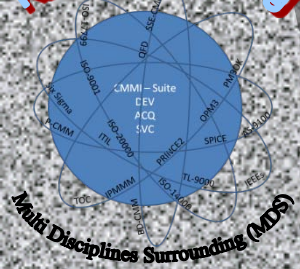
**5009**

**ISTIT?**

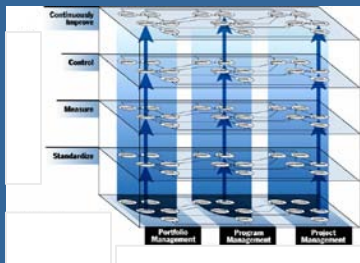
'Additional' Elements

- Not Counted
  - Domain Specific Regulations
  - LEAN
  - DoD-AF V2
  - SOA-MM





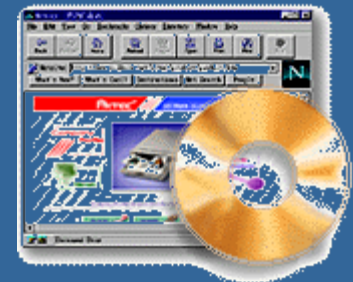
# Supporting Quality Standards Mapping



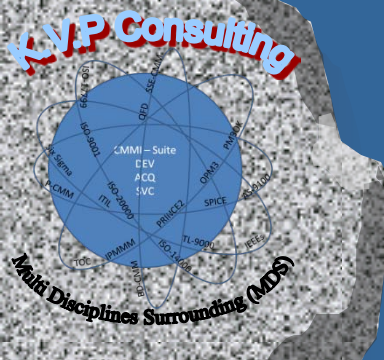
**SGMM**



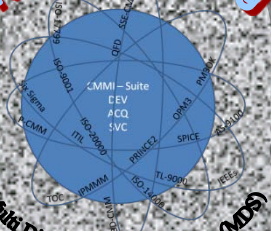
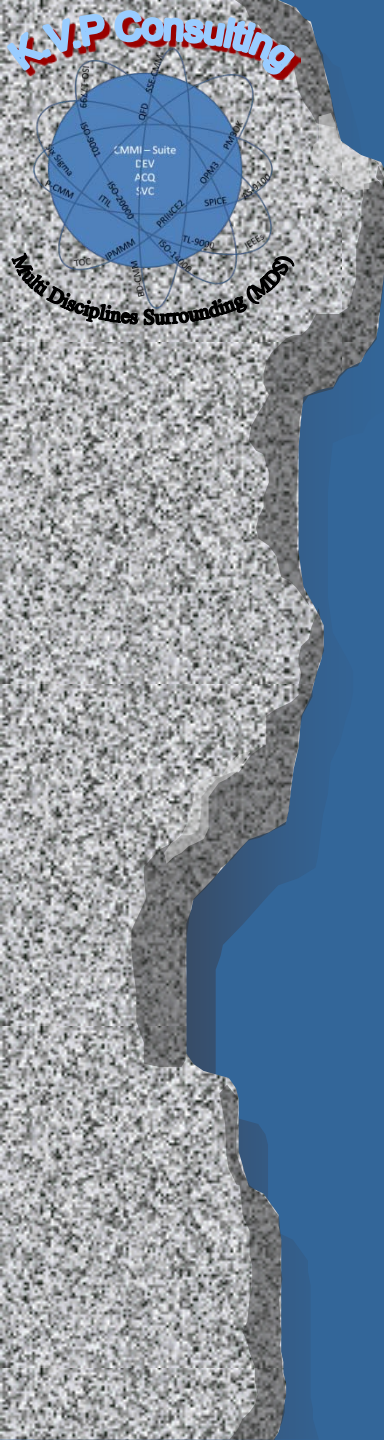
**Tool**



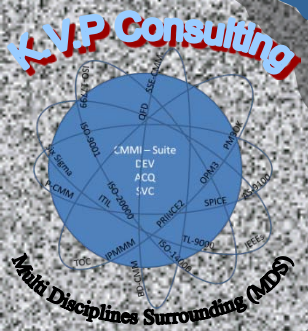
**Slides**



| A   | B                          | C   | D | E   | F   | G   | H    | I    | J   | K  | L  | M   | N    | O   | P   | Q   | R   |    |  |
|---|----------------------------|---|---|---|-----|-----|------|------|-----|----|----|-----|------|-----|-----|-----|-----|----|--|
| Strategy, Management, and Regulatory  |                            |   |   | Black text = Requirements for this level<br>Blue text = Descriptive characteristics or desired traits |     |     |      |      |     |    |    |     |      |     |     |     |     |    |  |
| Vision, planning, decision making, strategy execution, discipline, regulatory, and investment   |                            |   |   | CMMIs Interpretation  |     |     |      |      |     |    |    |     |      |     |     |     |     |    |  |
| SGMM Levels   |                            |   |   | ML2   |     |     |      |      |     |    |    |     |      |     |     |     |     |    |  |
|   |                            |   |   | PP  | PMC | M&A | PPQA | REQM | SAM | SD | AM | ARD | SSAD | DAR | OPD | OFF | IPM | OT |  |
| 1   | Exploring & Initiating     | Developing first Smart Grid vision<br>Support for experimentation<br>Informal discussion with regulators<br>Funding likely out of existing budget   |   |   |     |     |      |      |     |    |    |     |      |     |     |     |     |    |  |
| 2   | Functional Investing       | Integrated vision and acknowledgement<br>Initial strategy and business plan approved<br>Initial alignment of investments to vision<br>Distinct Smart Grid Funding and budget created in collaboration with regulators and stakeholders<br>Commitment to proof of concepts<br>Identify Initial Smart Grid leader |   |   |     |     |      |      |     |    |    |     |      |     |     |     |     |    |  |
| 3   | Integrating Cross Function | Completed Smart Grid strategy and business case incorporated into Corporate strategy<br>Smart Grid governance model deployed<br>Smart Grid leader(s) (with authority) ensure cross-LOB application<br>Mandate/consensus with regulators to make and fund Smart Grid investments<br>Corporate strategy expanded  |   |   |     |     |      |      |     |    |    |     |      |     |     |     |     |    |  |
| 4   | Optimizing Enterprise      | Smart Grid is a core competency that drives strategy and influences Corporate direction<br>External stakeholders share in strategy<br>Willing to invest and divest, or engage in JV and IP sharing to execute strategy  |   |   |     |     |      |      |     |    |    |     |      |     |     |     |     |    |  |
| <b>Strategy, Management</b> Organization, Structure Technology Societal & Environmental Grid Operations Work & Asset Management Customer Management |                            |   |   |   |     |     |      |      |     |    |    |     |      |     |     |     |     |    |  |

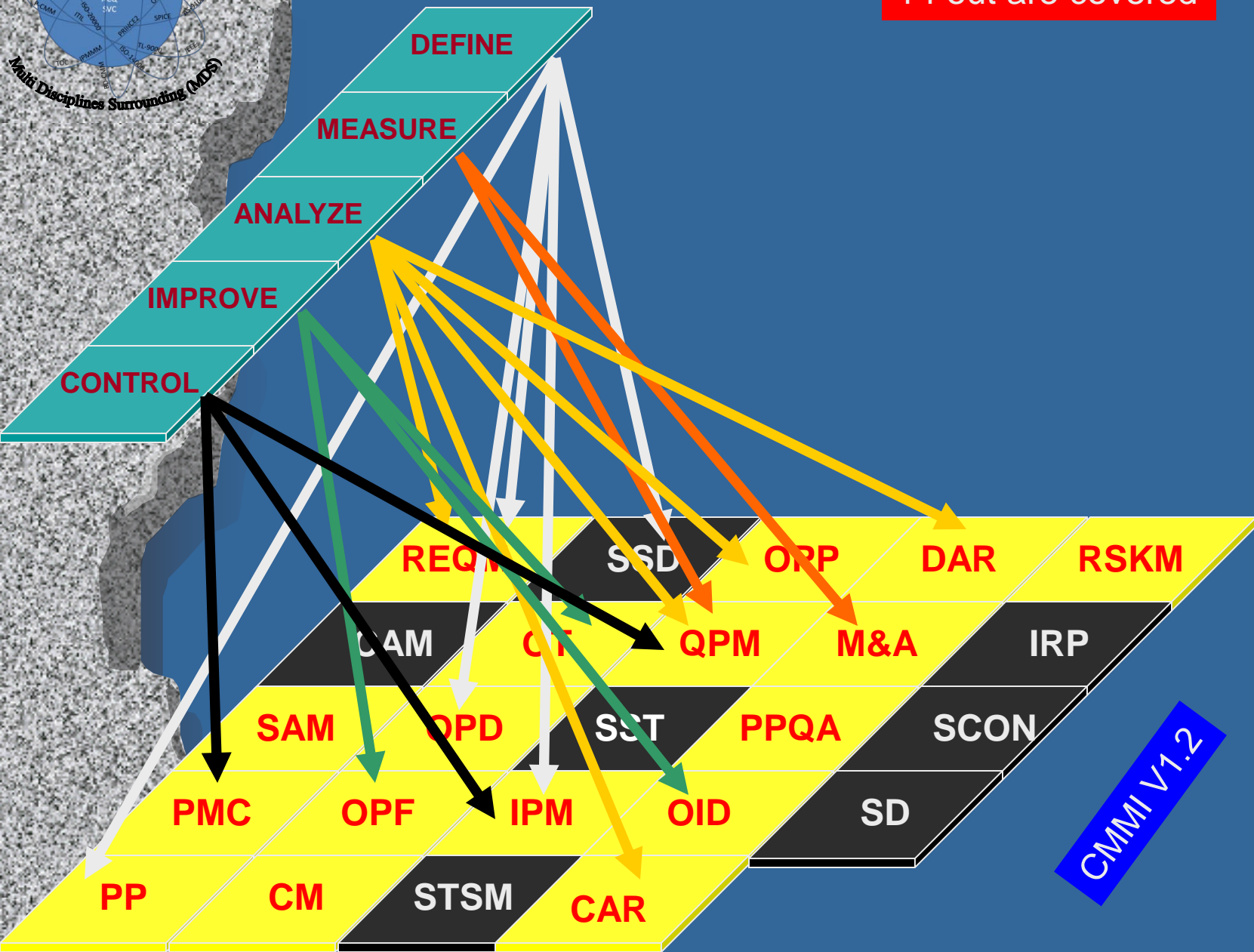


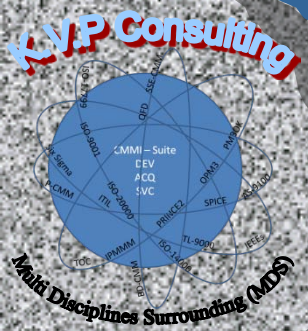
# Some Mapping Examples



# Six Sigma Correlation Snapshot

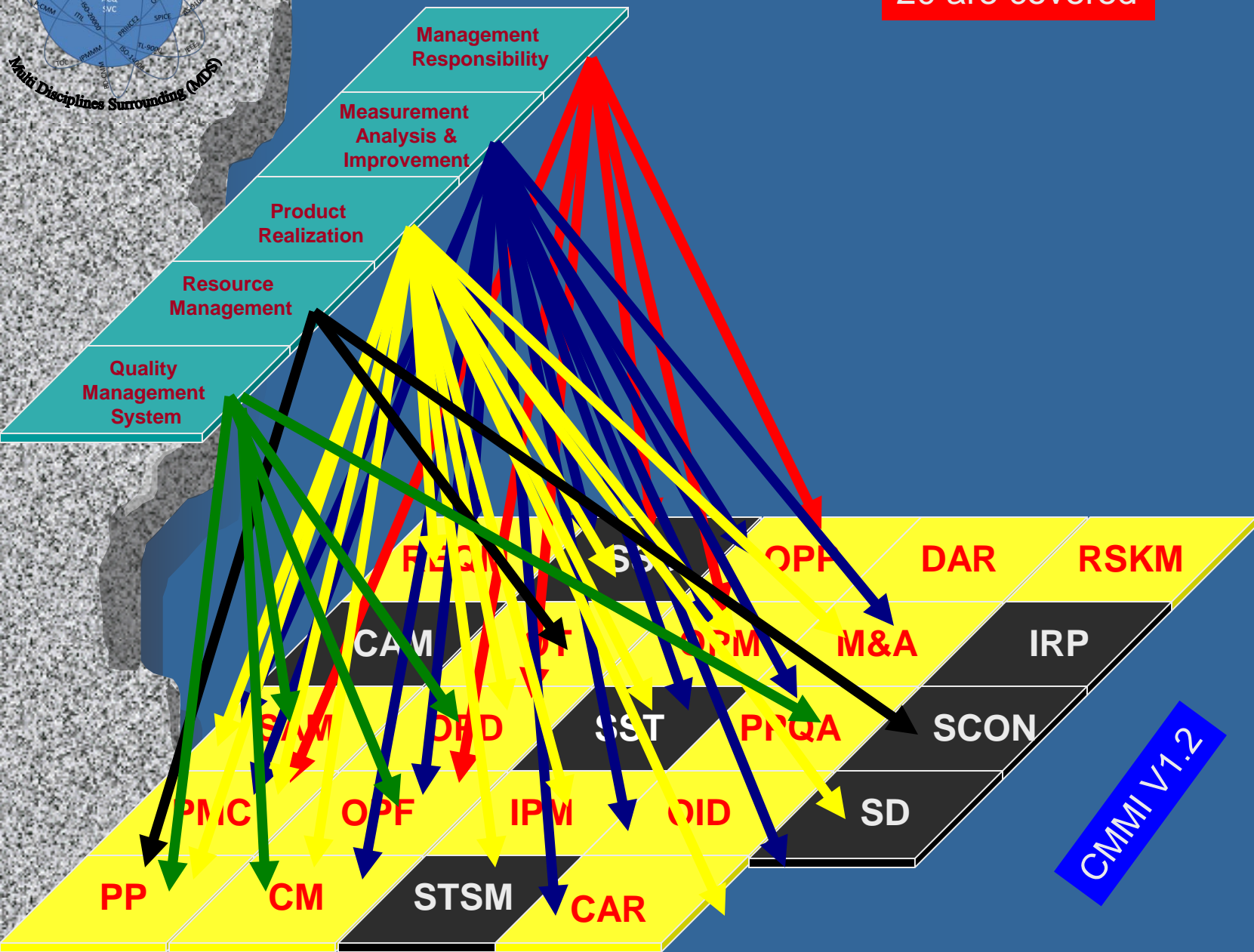
14 out are covered



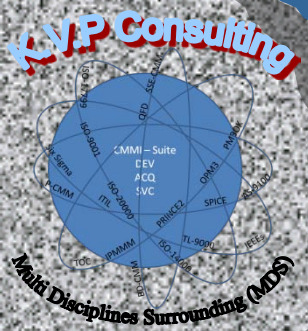


# ISO 9000:2008 Correlation Snapshot

20 are covered

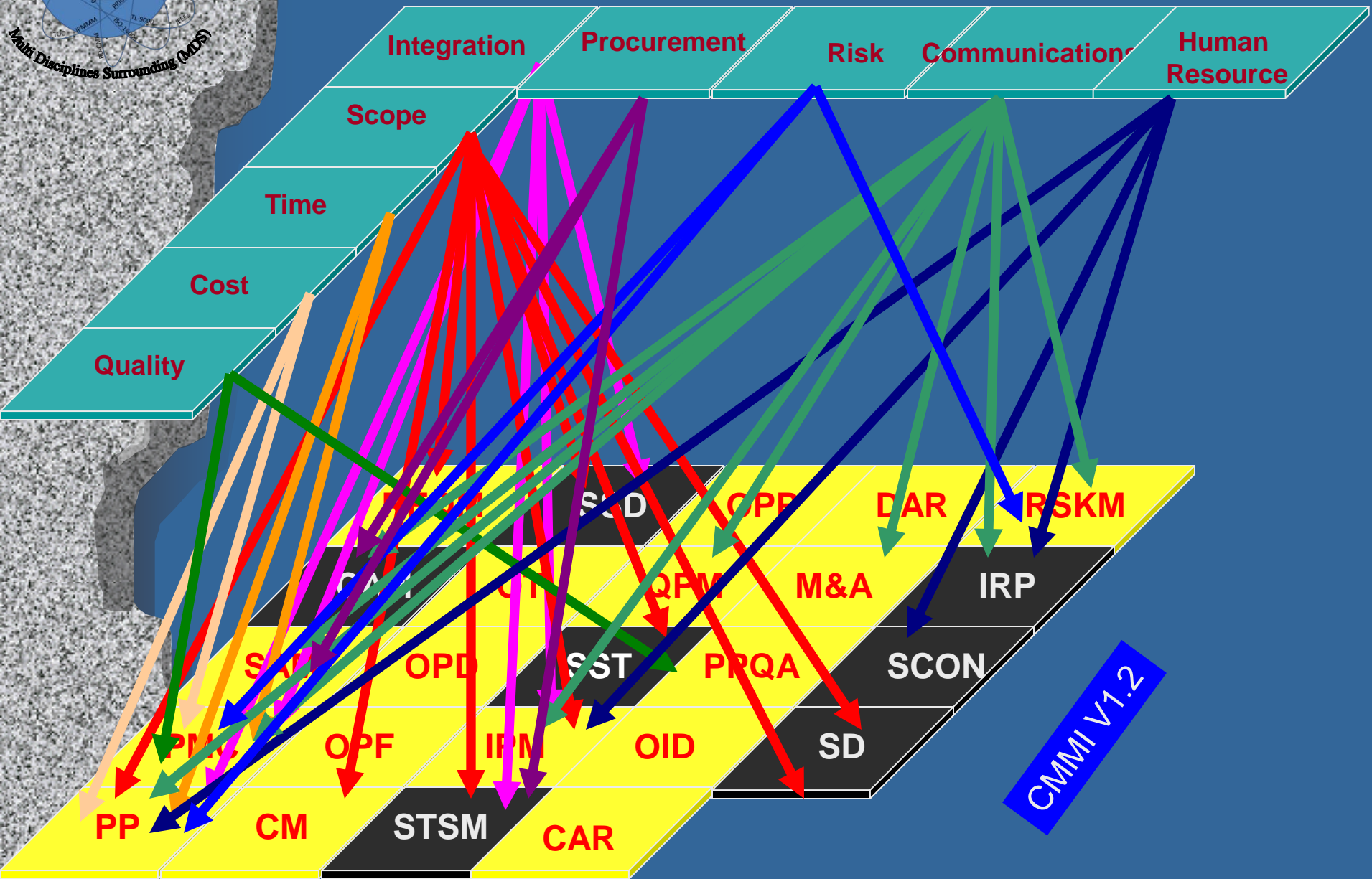


CMMI V1.2

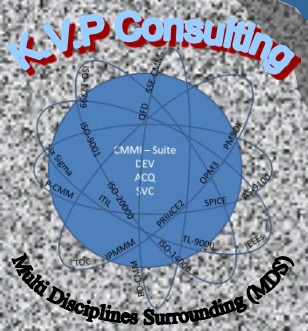


# PMBOK Correlation Snapshot

15 PAs are covered

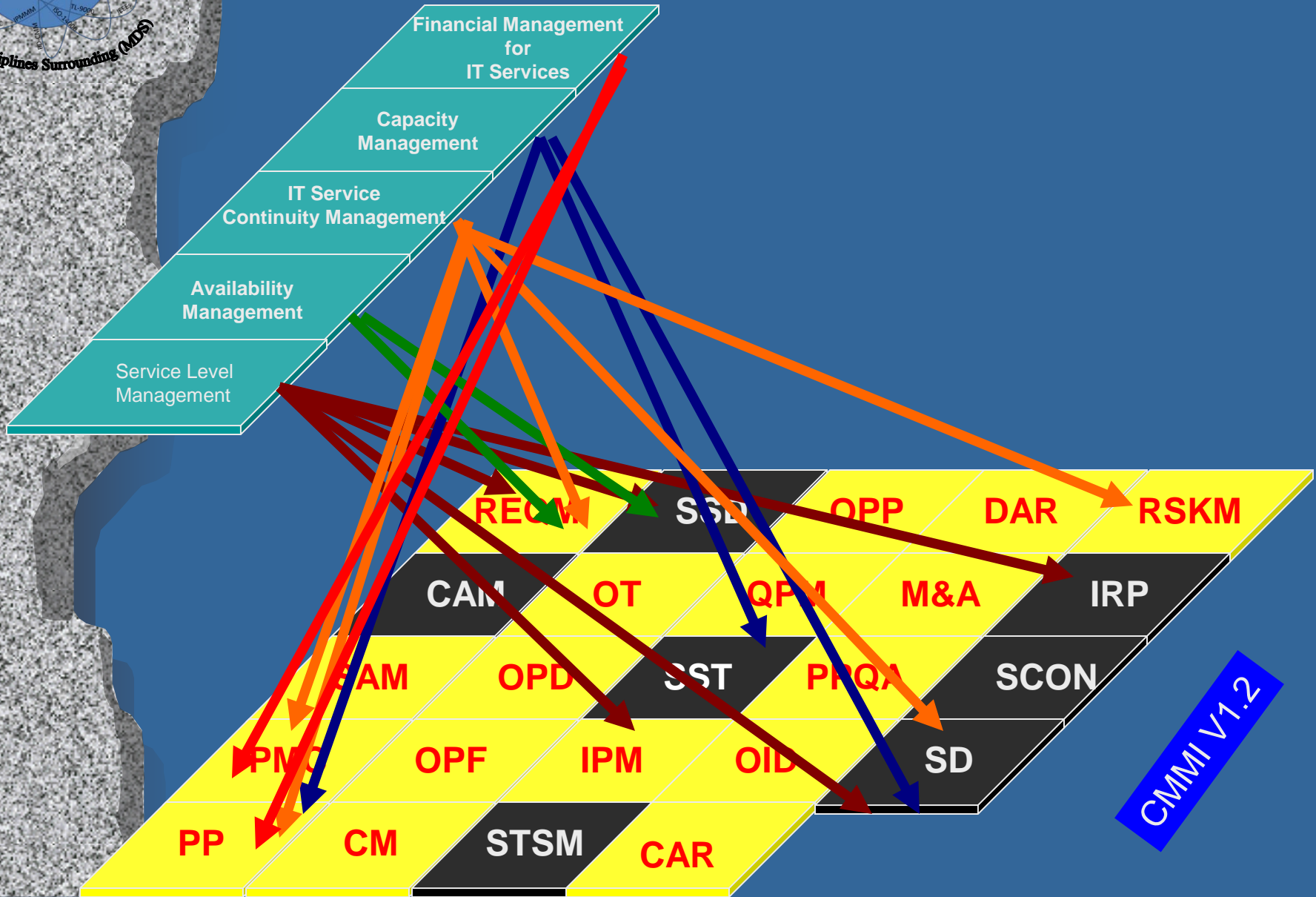


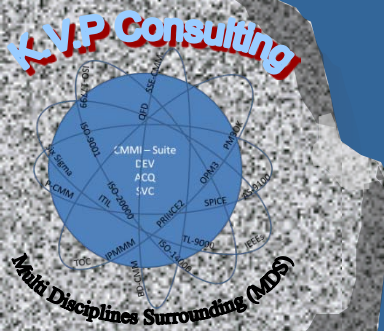
CMMI V1.2



# ITIL – CMMI Correlation Snapshot

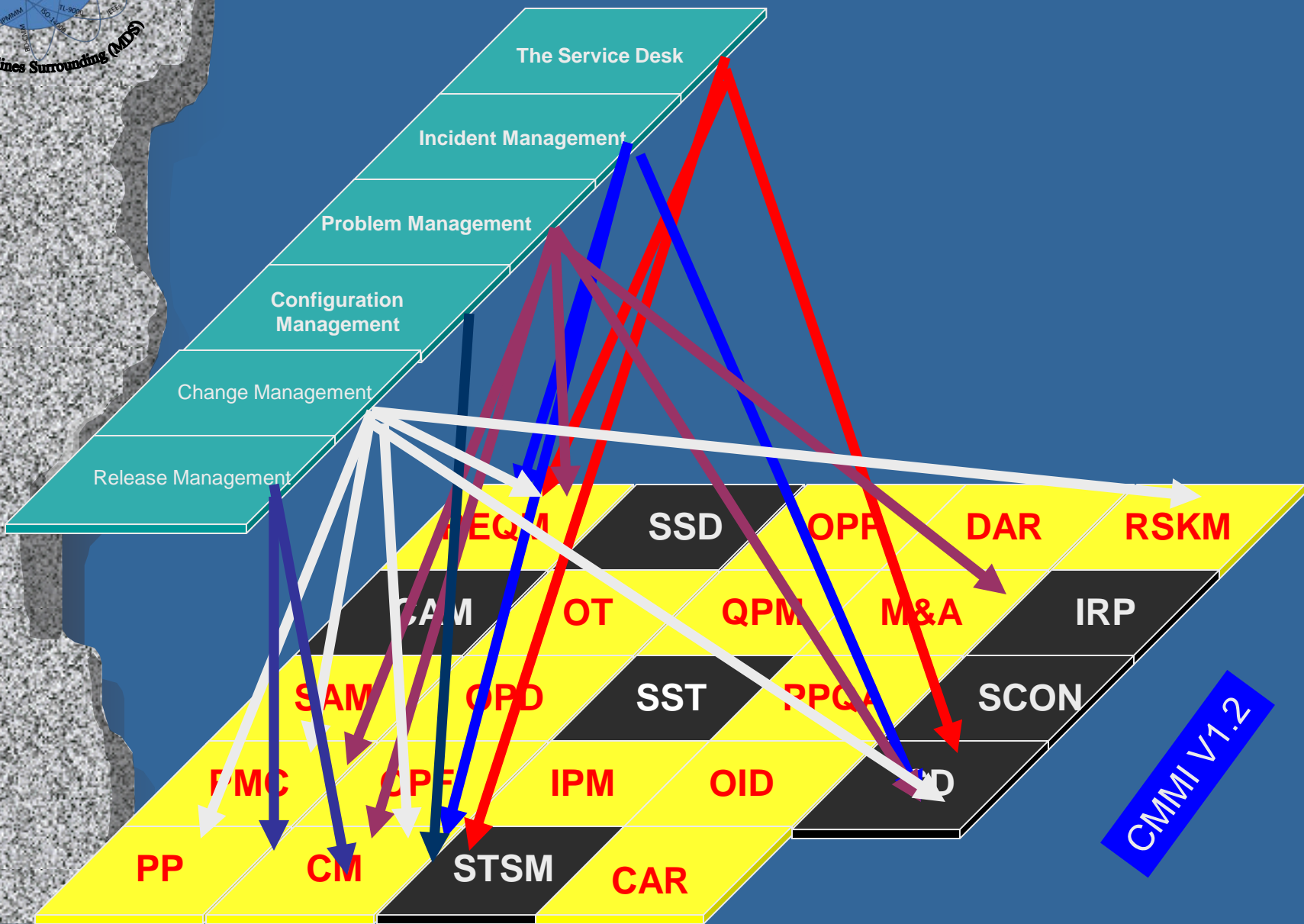
## Service Delivery





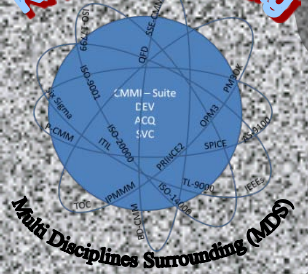
# ITIL – CMMI Correlation Snapshot

## Service Support

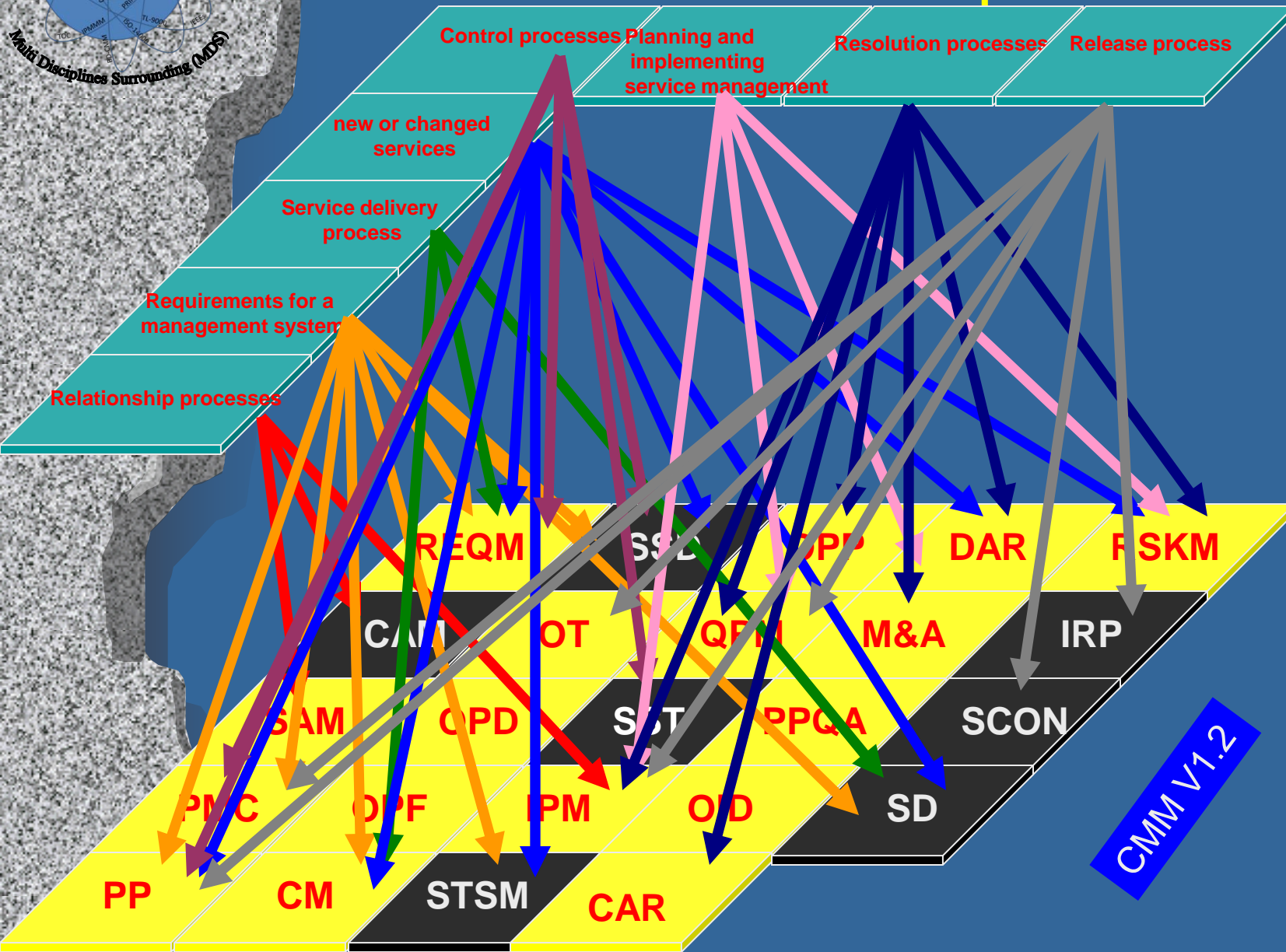


**CMMI V1.2**

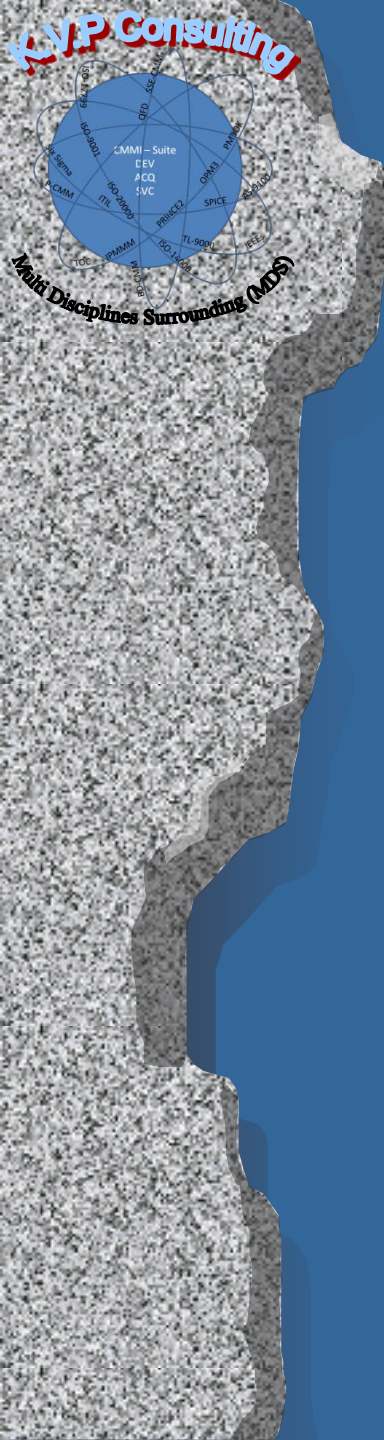




# ISO 20000 – CMMI Correlation Snapshot



**CMM V1.2**



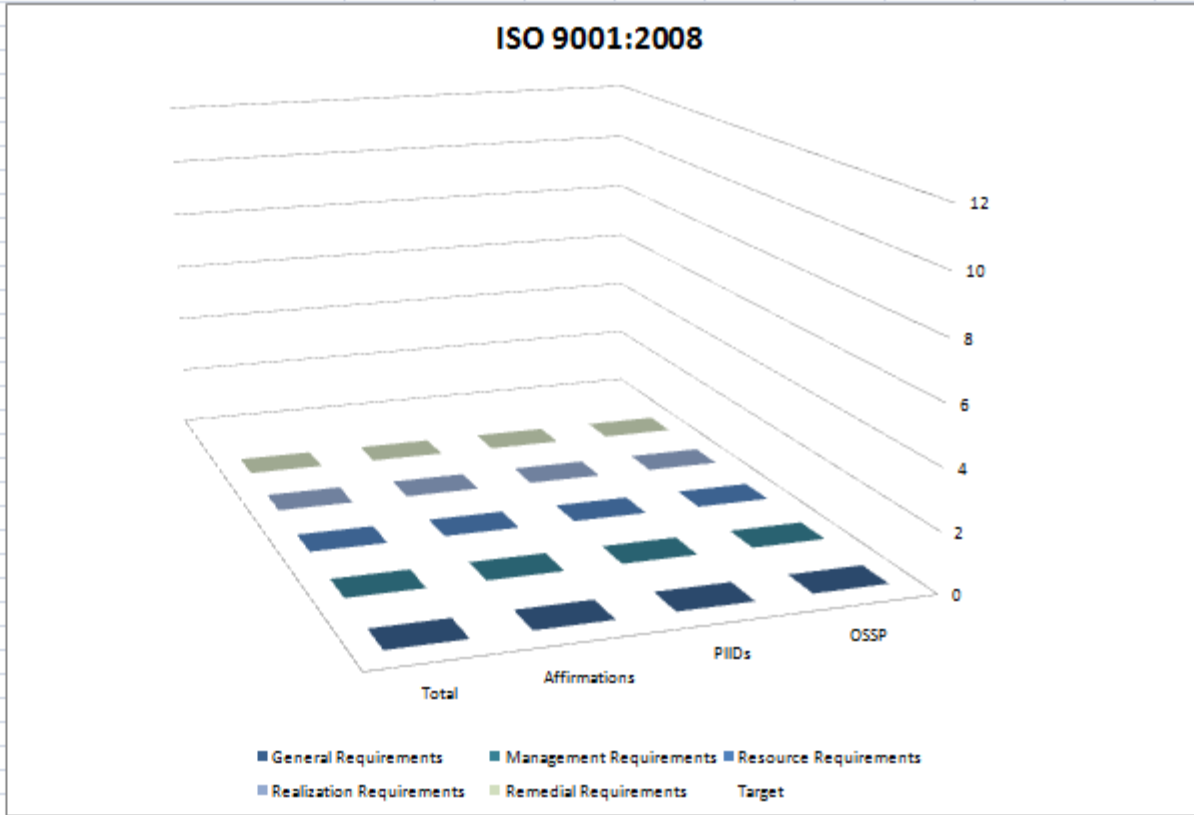
|                       |
|-----------------------|
| ISO 9001 2008         |
| OHSAS 18001 2007      |
| ISO9000-3             |
| ISO IEC 27001 2005    |
| ISO IEC 27002 (17799) |
| ISO 14001 2004        |
| ISO 12207             |
| ISO 13485             |
| AS 9100               |
|                       |
| PMBOK 3rd             |
| OPM3                  |
| PRINCE                |
| PMMM                  |
|                       |
| 5-S                   |
| LEAN                  |
| LEAN for Development  |
|                       |
| Six Sigma 12 Steps    |
| DMAIC Tool Kit        |
| Six Sigma             |
| DFSS                  |
| LEAN Six Sigma        |

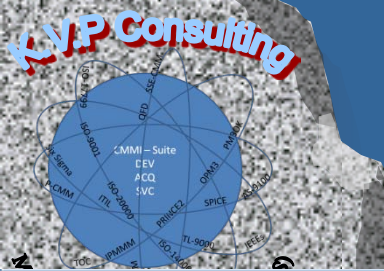
|               |
|---------------|
|               |
| ITIL V2.0     |
| ITIL V3.0     |
| ISO 20000     |
|               |
| Baldrige      |
| EFQM          |
|               |
| DoDAF v1.5    |
| SOA MM        |
| DoD 5000.01   |
| DoD 5000.02   |
|               |
| COBIT         |
| SOX           |
| Clinger Cohen |
|               |
| EIA 632       |
|               |
| Safty         |

|   |  |         |              |                                    |       |              |       |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|--|---------|--------------|------------------------------------|-------|--------------|-------|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 1 |  |         |              |                                    |       |              |       |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 | Chapter  | Section | Requirements | OSSP                               | PIIDs | Affirmations | Total |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | General Requirements                             |         |              |                                    | 0     | 0            | 0     | 0    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | 4.1 Develop Your Quality Management System (QMS) |         |              |                                    | 0     | 0            | 0     | 0    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |         | 4.1.1        | Establish your organization's QMS. | 0.00  | 0.00         | 0.00  | 0.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  |         | 4.1.2        | Document your organization's QMS.  | 0.00  | 0.00         | 0.00  | 0.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

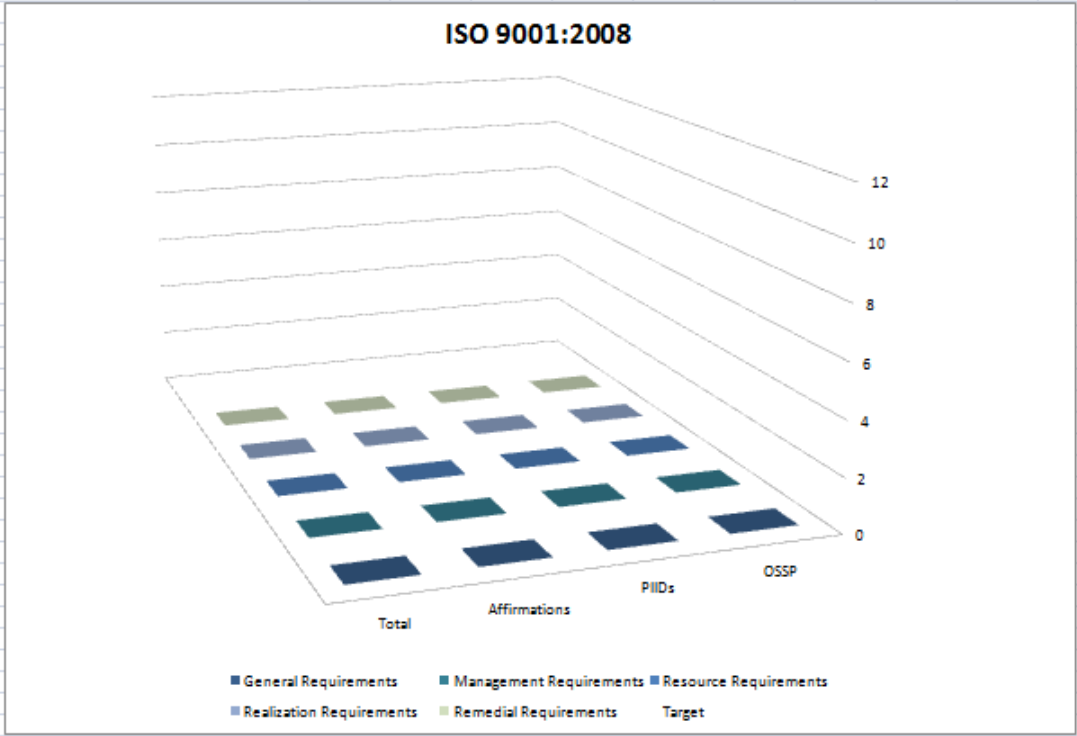
|  |                                |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |
|--|--------------------------------|----|----|----|---|---|---|---|---|---|---|---|---|---|---|---|
|  | C                              | D  | E  | F  | G | H | I | J | K | L | M | N | O | P | Q | R |
|  |                                |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |
|  | OSSP PIIDs Affirmations: Total |    |    |    |   |   |   |   |   |   |   |   |   |   |   |   |
|  | 12                             | 12 | 12 | 12 |   |   |   |   |   |   |   |   |   |   |   |   |
|  | 0                              | 0  | 0  | 0  |   |   |   |   |   |   |   |   |   |   |   |   |

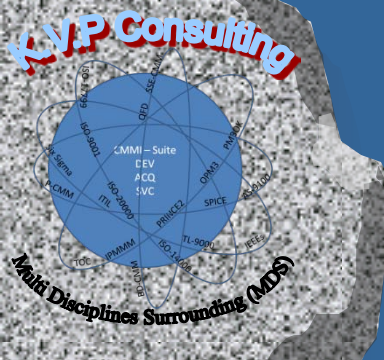
|                         |          |          |          |          |
|-------------------------|----------|----------|----------|----------|
| Management System (QMS) | 0        | 0        | 0        | 0        |
| Management System (QMS) | 0        | 0        | 0        | 0        |
| <b>Requirements</b>     | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| Quality                 | 0        | 0        | 0        | 0        |
|                         | 0        | 0        | 0        | 0        |
|                         | 0        | 0        | 0        | 0        |
| ing                     | 0        | 0        | 0        | 0        |
| g and Authority         | 0        | 0        | 0        | 0        |
| Reviews                 | 0        | 0        | 0        | 0        |
| <b>Resources</b>        | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| ources                  | 0        | 0        | 0        | 0        |
| ersonnel                | 0        | 0        | 0        | 0        |
| tructure                | 0        | 0        | 0        | 0        |
| onment                  | 0        | 0        | 0        | 0        |
| <b>Processes</b>        | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| Planning                | 0        | 0        | 0        | 0        |
| Processes               | 0        | 0        | 0        | 0        |
| Development             | 0        | 0        | 0        | 0        |
| urchased Products       | 0        | 0        | 0        | 0        |
| ervice Provision        | 0        | 0        | 0        | 0        |
| asuring Equipment       | 0        | 0        | 0        | 0        |
| <b>Measurement</b>      | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| asurement Processes     | 0        | 0        | 0        | 0        |
| asurement Activities    | 0        | 0        | 0        | 0        |
| forming Products        | 0        | 0        | 0        | 0        |
| Management Data         | 0        | 0        | 0        | 0        |
| ake Remedial Actions    | 0        | 0        | 0        | 0        |





|    | A               | B | C        | D        | E        | F            | G        | H | I | J | K | L | M | N | O | P | Q | R |
|----|-----------------|---|----------|----------|----------|--------------|----------|---|---|---|---|---|---|---|---|---|---|---|
| 1  | <b>To Index</b> |   |          |          |          |              |          |   |   |   |   |   |   |   |   |   |   |   |
| 2  |                 |   | OSSP     |          | PIIDs    | Affirmations | Total    |   |   |   |   |   |   |   |   |   |   |   |
| 3  |                 |   | 12       | 12       | 12       | 12           | 12       |   |   |   |   |   |   |   |   |   |   |   |
| 4  |                 |   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>     | <b>0</b> |   |   |   |   |   |   |   |   |   |   |   |
| 5  |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 6  |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 7  |                 |   |          |          |          |              |          |   |   |   |   |   |   |   |   |   |   |   |
| 8  |                 |   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>     | <b>0</b> |   |   |   |   |   |   |   |   |   |   |   |
| 9  |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 10 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 11 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 12 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 13 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 14 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 15 |                 |   |          |          |          |              |          |   |   |   |   |   |   |   |   |   |   |   |
| 16 |                 |   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>     | <b>0</b> |   |   |   |   |   |   |   |   |   |   |   |
| 17 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 18 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 19 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 20 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 21 |                 |   |          |          |          |              |          |   |   |   |   |   |   |   |   |   |   |   |
| 22 |                 |   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>     | <b>0</b> |   |   |   |   |   |   |   |   |   |   |   |
| 23 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 24 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 25 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 26 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 27 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 28 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 29 |                 |   |          |          |          |              |          |   |   |   |   |   |   |   |   |   |   |   |
| 30 |                 |   | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b>     | <b>0</b> |   |   |   |   |   |   |   |   |   |   |   |
| 31 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 32 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 33 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 34 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 35 |                 |   | 0        | 0        | 0        | 0            | 0        |   |   |   |   |   |   |   |   |   |   |   |
| 36 |                 |   |          |          |          |              |          |   |   |   |   |   |   |   |   |   |   |   |
| 37 |                 |   |          |          |          |              |          |   |   |   |   |   |   |   |   |   |   |   |
| 38 |                 |   |          |          |          |              |          |   |   |   |   |   |   |   |   |   |   |   |
| 39 |                 |   |          |          |          |              |          |   |   |   |   |   |   |   |   |   |   |   |
| 40 |                 |   |          |          |          |              |          |   |   |   |   |   |   |   |   |   |   |   |

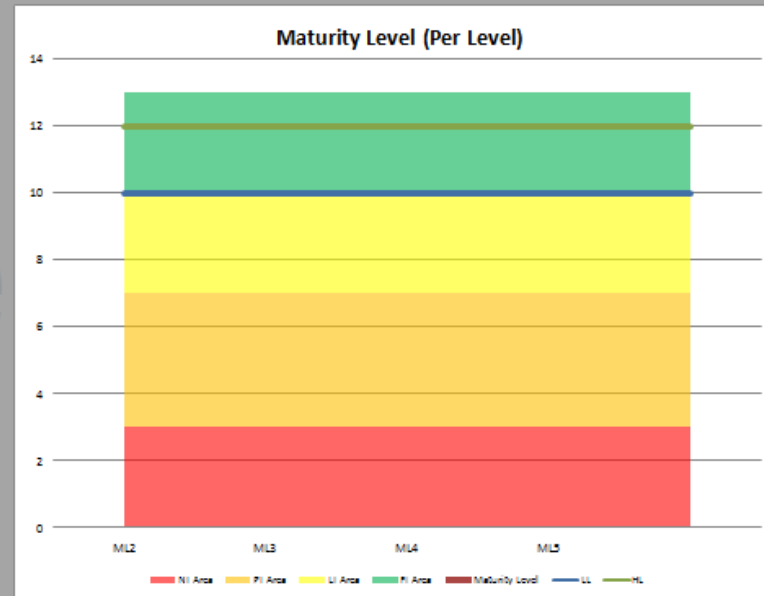
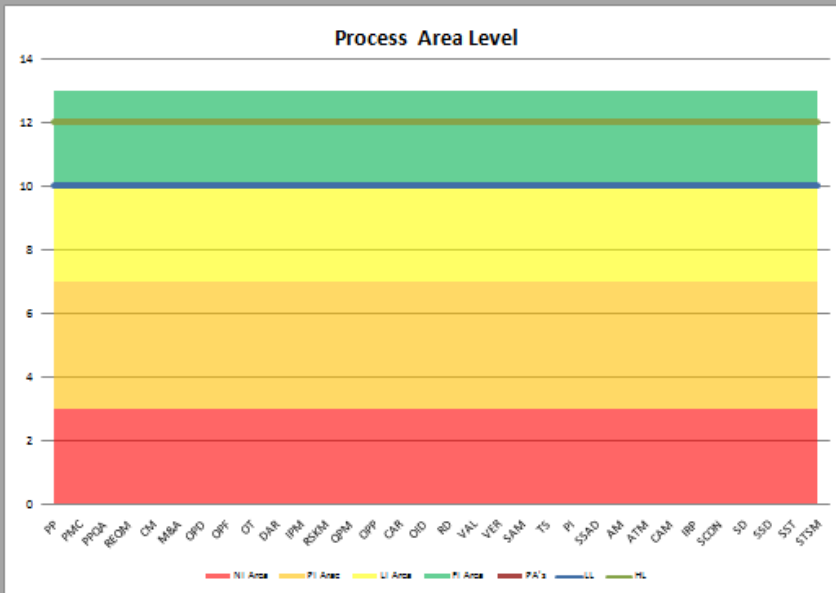


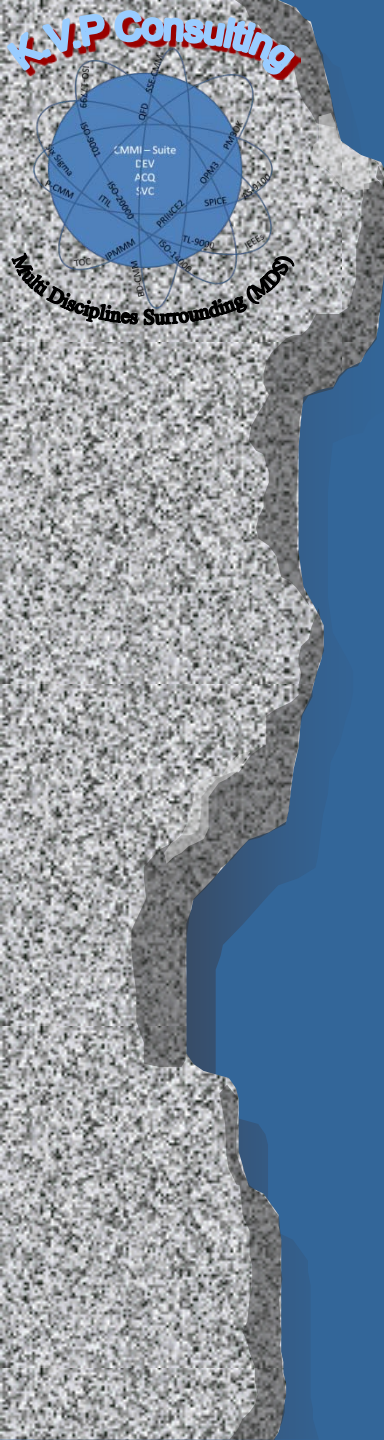


| Process Level |     |
|---------------|-----|
| REGM          |     |
| PP            |     |
| PMC           |     |
| M&A           |     |
| PPQA          |     |
| CM            |     |
| SAM           |     |
| RD            |     |
| TS            | VAL |
| PI            |     |
| VER           |     |
| VAL           |     |
| OPF           |     |
| OPD           |     |
| OT            |     |
| IPM           |     |
| RSKM          |     |
| DAR           |     |
| OPP           |     |
| OPM           |     |
| OID           |     |
| CA&R          |     |

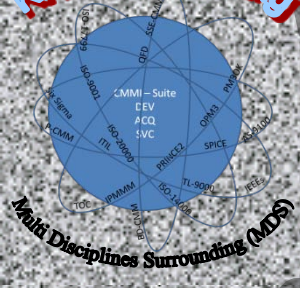
| Color  | EV    | Rating | LL    | HL    |
|--------|-------|--------|-------|-------|
| red    | 1*3   | NI     | 1.00  | 3.00  |
| orange | 4*6   | PI     | 4.00  | 6.00  |
| yellow | 7*9   | LI     | 7.00  | 9.00  |
| green  | 10*12 | FI     | 10.00 | 12.00 |

| Maturity Level (Per Level) |      |
|----------------------------|------|
| ML2                        |      |
| ML3                        |      |
| ML4                        | 0.00 |
| ML5                        | 0.00 |

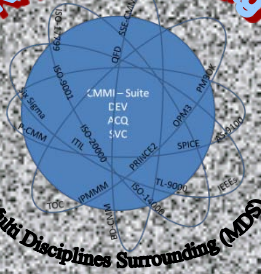
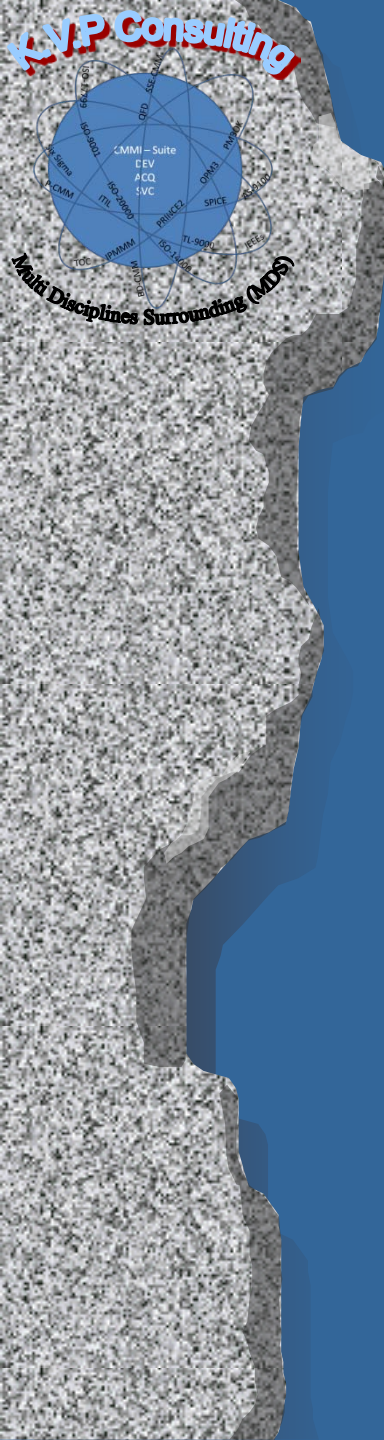




# CMMI Harmonization Process



| CMMI-SVC V 1.2   |     |         |            |             |      |      |         |     |     | CMMI-ACQ V 1.2   |         |      |      |       |      |     |     |      |         | CMMI-DEV V 1.2  |       |      |      |  |  |  |  |  |  |
|--|-----|---------|------------|-------------|------|------|---------|-----|-----|--|---------|------|------|-------|------|-----|-----|------|---------|---|-------|------|------|--|--|--|--|--|--|
| Col  | Mat | Process | Process    | Proc        | SO N | SP N | Titc    | Col | Mat | Proc   | Process | Proc | SO N | SP N  | Titc | Col | Mat | Proc | Process | Proc  | SO N  | SP N | Titc |  |  |  |  |  |  |
| <p>The purpose of Causal Analysis and Resolution (CAR) is to identify causes of defects and problems and take action to prevent them from occurring in the future.</p>   |     |         |            |             |      |      |         |     |     | <p>The purpose of Causal Analysis and Resolution (CAR) is to identify causes of defects and other problems and take action to prevent them from occurring in the future.</p>   |         |      |      |       |      |     |     |      |         | <p>The purpose of Causal Analysis and Resolution (CAR) is to identify causes of defects and other problems and take action to prevent them from occurring in the future.</p>                        |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  |      | Purpose | ACC | S   | Sup  | Cau     | CAR  |      |       | DEV  | S   | Sup | Cau  | CAR     |   |       |      |      |  |  |  |  |  |  |
| <p>Determine Causes of Defects and Problems<br/>Root causes of defects and problems are systematically determined</p>  |     |         |            |             |      |      |         |     |     | <p>Determine Causes of Defects<br/>Root causes of defects and other problems are systematically determined</p>   |         |      |      |       |      |     |     |      |         | <p>Root causes of defects and other problems are systematically determined</p>  |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 1    | 1.1     | ACC | S   | Sup  | Cau     | CAR  | 1    | 1.1   | DEV  | S   | Sup | Cau  | CAR     | 1   | 1.1   |      |      |  |  |  |  |  |  |
| <p>Select Defects and Problems<br/>1. Gather relevant defect and problem data</p>  |     |         |            |             |      |      |         |     |     | <p>Select Defect Data for Analysis<br/>1.1.1 Gather relevant defect or problem data</p>  |         |      |      |       |      |     |     |      |         | <p>Select Defect Data for Analysis<br/>1.1.1 Gather relevant defect or problem data</p>   |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 1    | 1.1.1   | ACC | S   | Sup  | Cau     | CAR  | 1    | 1.1.1 | DEV  | S   | Sup | Cau  | CAR     | 1   | 1.1.1 |      |      |  |  |  |  |  |  |
| <p>2. Determine the defects and problems to be analyzed further</p>  |     |         |            |             |      |      |         |     |     | <p>1.1.2 Determine the defects and other problems to be analyzed further</p>   |         |      |      |       |      |     |     |      |         | <p>1.1.2 Determine which defects and other problems will be analyzed further</p>  |       |      |      |  |  |  |  |  |  |
| <p>Analyze Causes<br/>Perform causal analysis of selected defects and problems and propose actions to address them</p>   |     |         |            |             |      |      |         |     |     | <p>Analyze Causes<br/>Perform causal analysis of selected defects and other problems and propose actions to address them</p>   |         |      |      |       |      |     |     |      |         | <p>Analyze Causes<br/>Perform causal analysis of selected defects and other problems and propose actions to address them</p>  |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 1    | 1.1.2   | ACC | S   | Sup  | Cau     | CAR  | 1    | 1.1.2 | DEV  | S   | Sup | Cau  | CAR     | 1   | 1.1.2 |      |      |  |  |  |  |  |  |
| <p>1.2.1 Conduct causal analysis with those responsible for performing the task</p>  |     |         |            |             |      |      |         |     |     | <p>1.2.1 Conduct causal analysis with those responsible for performing the task</p>  |         |      |      |       |      |     |     |      |         | <p>1.2.1 Conduct causal analysis with the people who are responsible for performing the task</p>  |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 1    | 1.2.1   | ACC | S   | Sup  | Cau     | CAR  | 1    | 1.2.1 | DEV  | S   | Sup | Cau  | CAR     | 1   | 1.2.1 |      |      |  |  |  |  |  |  |
| <p>1.2.2 Analyze selected defects and problems to determine their root causes</p>  |     |         |            |             |      |      |         |     |     | <p>1.2.2 Analyze selected defects and other problems to determine their root causes</p>  |         |      |      |       |      |     |     |      |         | <p>1.2.2 Analyze selected defects and other problems to determine their root causes</p>   |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 1    | 1.2.2   | ACC | S   | Sup  | Cau     | CAR  | 1    | 1.2.2 | DEV  | S   | Sup | Cau  | CAR     | 1   | 1.2.2 |      |      |  |  |  |  |  |  |
| <p>2. Group selected defects and problems based on their root causes</p>   |     |         |            |             |      |      |         |     |     | <p>1.2.3 Group selected defects and other problems based on their root causes</p>  |         |      |      |       |      |     |     |      |         | <p>1.2.3 Group the selected defects and other problems based on their root causes</p>   |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 1    | 1.2.3   | ACC | S   | Sup  | Cau     | CAR  | 1    | 1.2.3 | DEV  | S   | Sup | Cau  | CAR     | 1   | 1.2.3 |      |      |  |  |  |  |  |  |
| <p>4. Prepare and document actions to be taken to prevent the future occurrence of similar defects and problems</p>  |     |         |            |             |      |      |         |     |     | <p>1.2.4 Prepare and document actions to be taken to prevent the future occurrence of similar defects or other problems</p>  |         |      |      |       |      |     |     |      |         | <p>1.2.4 Prepare and document actions that need to be taken to prevent the future occurrence of similar defects or other problems</p>   |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 1    | 1.2.4   | ACC | S   | Sup  | Cau     | CAR  | 1    | 1.2.4 | DEV  | S   | Sup | Cau  | CAR     | 1   | 1.2.4 |      |      |  |  |  |  |  |  |
| <p>Address Causes of Defects and Problems<br/>Root causes of defects and problems are systematically addressed to prevent their future occurrence</p>  |     |         |            |             |      |      |         |     |     | <p>Address Causes of Defects<br/>Root causes of defects and other problems are systematically addressed to prevent their future occurrence</p>   |         |      |      |       |      |     |     |      |         | <p>Address Causes of Defects<br/>Root causes of defects and other problems are systematically addressed to prevent their future occurrence</p>  |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 2    |         | ACC | S   | Sup  | Cau     | CAR  | 2    |       | DEV  | S   | Sup | Cau  | CAR     | 2   |       |      |      |  |  |  |  |  |  |
| <p>Implement Action Proposals<br/>Implement selected action proposals developed in causal analysis</p>   |     |         |            |             |      |      |         |     |     | <p>Implement Action Proposals<br/>Implement selected action proposals developed in causal analysis</p>   |         |      |      |       |      |     |     |      |         | <p>Implement the Action Proposals<br/>Implement the selected action proposals that were developed in causal analysis</p>  |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 2    | 2.1     | ACC | S   | Sup  | Cau     | CAR  | 2    | 2.1   | DEV  | S   | Sup | Cau  | CAR     | 2   | 2.1   |      |      |  |  |  |  |  |  |
| <p>2.1.1 Analyze action proposals and determine their priorities</p>   |     |         |            |             |      |      |         |     |     | <p>2.1.1 Analyze action proposals and determine their priorities</p>   |         |      |      |       |      |     |     |      |         | <p>2.1.1 Analyze the action proposals and determine their priorities</p>  |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 2    | 2.1.1   | ACC | S   | Sup  | Cau     | CAR  | 2    | 2.1.1 | DEV  | S   | Sup | Cau  | CAR     | 2   | 2.1.1 |      |      |  |  |  |  |  |  |
| <p>2.1.2 Select action proposals to be implemented</p>   |     |         |            |             |      |      |         |     |     | <p>2.1.2 Select action proposals to be implemented</p>   |         |      |      |       |      |     |     |      |         | <p>2.1.2 Select the action proposals that will be implemented</p>   |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 2    | 2.1.2   | ACC | S   | Sup  | Cau     | CAR  | 2    | 2.1.2 | DEV  | S   | Sup | Cau  | CAR     | 2   | 2.1.2 |      |      |  |  |  |  |  |  |
| <p>2.1.3 Create action items for implementing the action proposals</p>   |     |         |            |             |      |      |         |     |     | <p>2.1.3 Create action items for implementing the action proposals</p>   |         |      |      |       |      |     |     |      |         | <p>2.1.3 Create action items for implementing the action proposals</p>  |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 2    | 2.1.3   | ACC | S   | Sup  | Cau     | CAR  | 2    | 2.1.3 | DEV  | S   | Sup | Cau  | CAR     | 2   | 2.1.3 |      |      |  |  |  |  |  |  |
| <p>4. Identify and remove similar defects and problems that may exist in other processes and work products</p>   |     |         |            |             |      |      |         |     |     | <p>2.1.4 Identify and remove similar defects that may exist in other processes and work products</p>   |         |      |      |       |      |     |     |      |         | <p>2.1.4 Identify and remove similar defects that may exist in other processes and work products</p>  |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 2    | 2.1.4   | ACC | S   | Sup  | Cau     | CAR  | 2    | 2.1.4 | DEV  | S   | Sup | Cau  | CAR     | 2   | 2.1.4 |      |      |  |  |  |  |  |  |
| <p>2.1.5 Identify and document improvement proposals for the organization's set of standard processes</p>  |     |         |            |             |      |      |         |     |     | <p>2.1.5 Identify and document improvement proposals for the organization's set of standard processes</p>  |         |      |      |       |      |     |     |      |         | <p>2.1.5 Identify and document improvement proposals for the organization's set of standard processes</p>   |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 2    | 2.1.5   | ACC | S   | Sup  | Cau     | CAR  | 2    | 2.1.5 | DEV  | S   | Sup | Cau  | CAR     | 2   | 2.1.5 |      |      |  |  |  |  |  |  |
| <p>Evaluate the Effect of Changes<br/>Evaluate the effect of changes on process performance</p>  |     |         |            |             |      |      |         |     |     | <p>Evaluate the Effect of Changes<br/>Evaluate the effect of changes on process performance</p>  |         |      |      |       |      |     |     |      |         | <p>Evaluate the Effect of Changes<br/>Evaluate the effect of changes on process performance</p>   |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 2    | 2.2     | ACC | S   | Sup  | Cau     | CAR  | 2    | 2.2   | DEV  | S   | Sup | Cau  | CAR     | 2   | 2.2   |      |      |  |  |  |  |  |  |
| <p>2.2.1 Measure the change in performance of the project's defined process or of subprocesses as appropriate</p>  |     |         |            |             |      |      |         |     |     | <p>2.2.1 Measure the change in performance of the project's defined process or of subprocesses, as appropriate</p>   |         |      |      |       |      |     |     |      |         | <p>2.2.1 Measure the change in the performance of the project's defined process or of subprocesses, as appropriate</p>  |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 2    | 2.2.1   | ACC | S   | Sup  | Cau     | CAR  | 2    | 2.2.1 | DEV  | S   | Sup | Cau  | CAR     | 2   | 2.2.1 |      |      |  |  |  |  |  |  |
| <p>2.2.2 Measure the capability of the project's defined process or of subprocesses as appropriate</p>   |     |         |            |             |      |      |         |     |     | <p>2.2.2 Measure the capability of the project's defined process or of subprocesses, as appropriate</p>  |         |      |      |       |      |     |     |      |         | <p>2.2.2 Measure the capability of the project's defined process or of subprocesses, as appropriate</p>   |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 2    | 2.2.2   | ACC | S   | Sup  | Cau     | CAR  | 2    | 2.2.2 | DEV  | S   | Sup | Cau  | CAR     | 2   | 2.2.2 |      |      |  |  |  |  |  |  |
| <p>Record Data<br/>Record causal analysis and resolution data for use across the project and organization</p>  |     |         |            |             |      |      |         |     |     | <p>Record Data<br/>Record causal analysis and resolution data for use across the project and organization</p>  |         |      |      |       |      |     |     |      |         | <p>Record Data<br/>Record causal analysis and resolution data for use across the project and organization</p>   |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Process | Mat        | Causal Anal | CAR  | 2    | 2.3     | ACC | S   | Sup  | Cau     | CAR  | 2    | 2.3   | DEV  | S   | Sup | Cau  | CAR     | 2   | 2.3   |      |      |  |  |  |  |  |  |
| <p>The purpose of Configuration Management (CM) is to establish and maintain the integrity of work products using configuration identification, configuration control, configuration status accounting, and configuration audits</p> |     |         |            |             |      |      |         |     |     | <p>The purpose of Configuration Management (CM) is to establish and maintain the integrity of work products using configuration identification, configuration control, configuration status accounting, and configuration audits</p> |         |      |      |       |      |     |     |      |         | <p>The purpose of Configuration Management (CM) is to establish and maintain the integrity of work products using configuration identification, configuration control, and configuration audits</p> |       |      |      |  |  |  |  |  |  |
| SVC  | S   | Support | Configurat | CM          |      |      | Purpose | ACC | S   | Sup  | Con     | CM   |      |       | DEV  | S   | Sup | Con  | CM      |   |       |      |      |  |  |  |  |  |  |

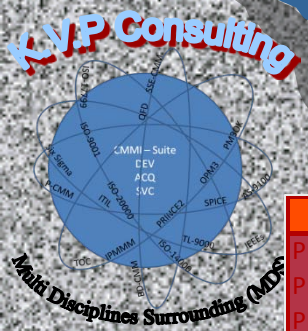


# CMMI Harmonization Process Tool



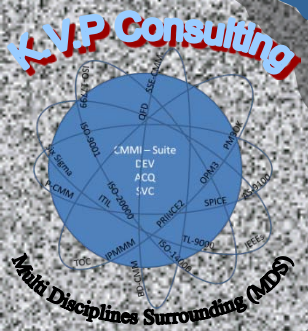


| DEV                                      | ACQ   | SVC                                      |
|--|---|--|
| Project Planning                         | Project Planning                                | Project Planning                         |
| Project Monitoring and Control           | Project Monitoring and Control                  | Project Monitoring and Control           |
| Process and Product Quality Assurance    | Process and Product Quality Assurance           | Process and Product Quality Assurance    |
| Requirements Management                  | Requirements Management                         | Requirements Management                  |
| Configuration Management                 | Configuration Management                        | Configuration Management                 |
| Measurement and Analysis                 | Measurement and Analysis                        | Measurement and Analysis                 |
| Disciplines Surrounding                  |   |  |
| Organizational Process Definition +IPPD  | Organizational Process Definition               | Organizational Process Definition        |
| Organizational Process Focus             | Organizational Process Focus                    | Organizational Process Focus             |
| Organizational Training                  | Organizational Training                         | Organizational Training                  |
| Decision Analysis and Resolution         | Decision Analysis and Resolution                | Decision Analysis and Resolution         |
| Integrated Project Management +IPPD      | Integrated Project Management                   | Integrated Project Management            |
| Risk Management                          | Risk Management                                 | Risk Management                          |
|  |   |  |
| Quantitative Project Management          | Quantitative Project Management                 | Quantitative Project Management          |
| Organizational Process Performance       | Organizational Process Performance              | Organizational Process Performance       |
|  |   |  |
| Causal Analysis and Resolution           | Causal Analysis and Resolution                  | Causal Analysis and Resolution           |
| Organizational Innovation and Deployment | Organizational Innovation and Deployment        | Organizational Innovation and Deployment |
|  |   |  |
| Supplier Agreement Management            |   | Supplier Agreement Management            |
|  |   |  |
| Requirements Development                 | Acquisition Requirements Development            |  |
| Validation                               | Acquisition Validation                          |  |
| Verification                             | Acquisition Verification                        |  |
|  |   |  |
| Technical Solution                       | Solicitation and Supplier Agreement Development | Capacity and Availability Management     |
| Product Integration                      | Agreement Management                            | Incident Resolution and Prevention       |
|  | Acquisition Technical Management                | Service Continuity                       |
|  |   | Service Delivery                         |
|  |   | Service System Development               |
|  |   | Service System Transition                |
|  |   | Strategic Service Management             |



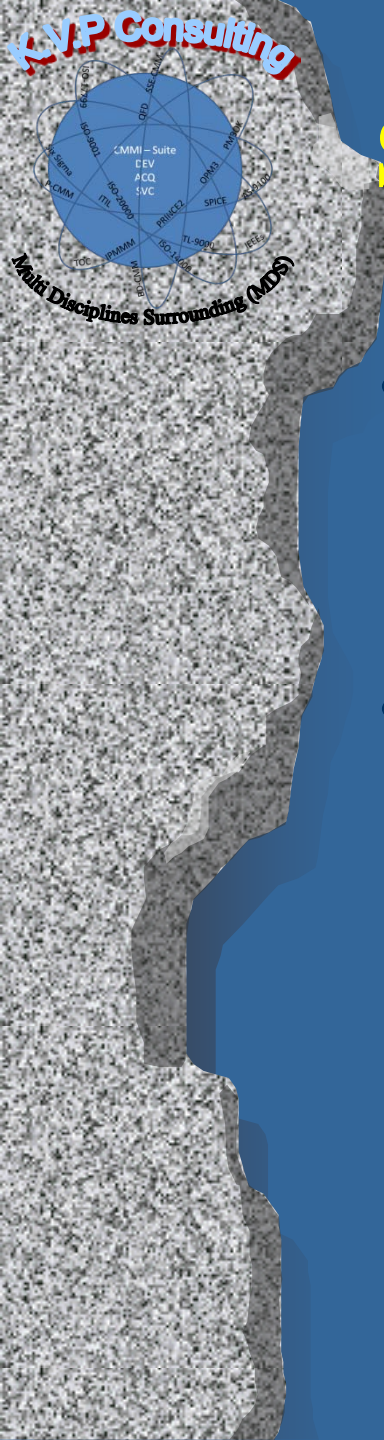
# First Level Filtering (PA Level)

| DEV                                      | ACQ   | SVC                                      |
|--|---|--|
| Project Planning                         | Project Planning                                | Project Planning                         |
| Project Monitoring and Control           | Project Monitoring and Control                  | Project Monitoring and Control           |
| Process and Product Quality Assurance    | Process and Product Quality Assurance           | Process and Product Quality Assurance    |
| Requirements Management                  | Requirements Management                         | Requirements Management                  |
| Configuration Management                 | Configuration Management                        | Configuration Management                 |
| Measurement and Analysis                 | Measurement and Analysis                        | Measurement and Analysis                 |
|  |   |  |
| Organizational Process Definition +IPPD  | Organizational Process Definition               | Organizational Process Definition        |
| Organizational Process Focus             | Organizational Process Focus                    | Organizational Process Focus             |
| Organizational Training                  | Organizational Training                         | Organizational Training                  |
| Decision Analysis and Resolution         | Decision Analysis and Resolution                | Decision Analysis and Resolution         |
| Integrated Project Management +IPPD      | Integrated Project Management                   | Integrated Project Management            |
| Risk Management                          | Risk Management                                 | Risk Management                          |
|  |   |  |
| Quantitative Project Management          | Quantitative Project Management                 | Quantitative Project Management          |
| Organizational Process Performance       | Organizational Process Performance              | Organizational Process Performance       |
|  |   |  |
| Causal Analysis and Resolution           | Causal Analysis and Resolution                  | Causal Analysis and Resolution           |
| Organizational Innovation and Deployment | Organizational Innovation and Deployment        | Organizational Innovation and Deployment |
|  |   |  |
| Supplier Agreement Management            |   | Supplier Agreement Management            |
|  |   |  |
| Requirements Development                 | Acquisition Requirements Development            |  |
| Validation                               | Acquisition Validation                          |  |
| Verification                             | Acquisition Verification                        |  |
|  |   |  |
| Technical Solution                       | Solicitation and Supplier Agreement Development | Capacity and Availability Management     |
| Product Integration                      | Agreement Management                            | Incident Resolution and Prevention       |
|  | Acquisition Technical Management                | Service Continuity                       |
|  |   | Service Delivery                         |
|  |   | Service System Development               |
|  |   | Service System Transition                |
|  |   | Strategic Service Management             |



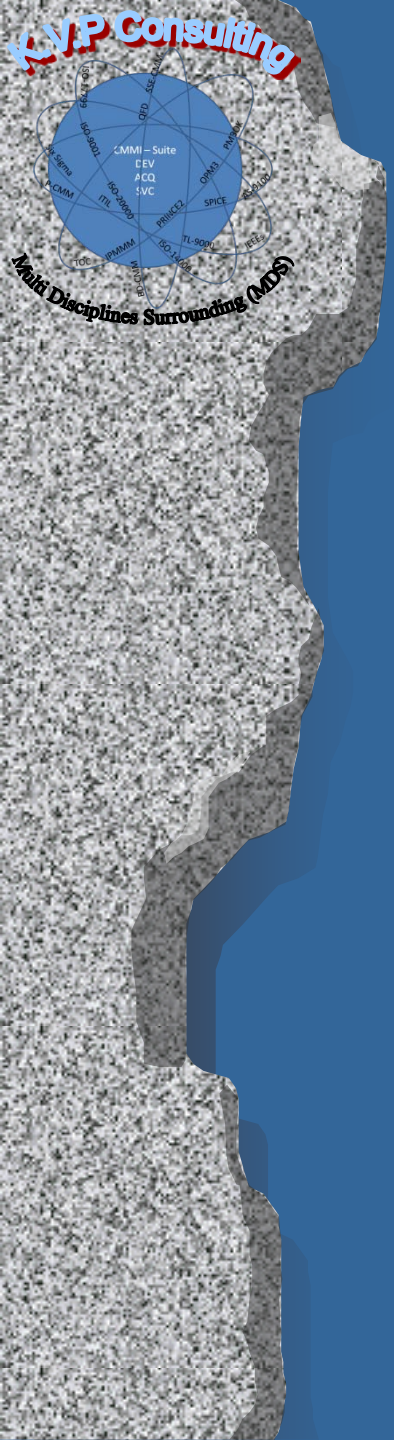
# Second Level Filtering (Goal Level)

- Service System Development (SSD),  
SG 1 – Develop and Analyze Stakeholder Requirements  
can be found in Requirements Development
- Acquisition Technical Management (ATM),  
SG 1 – Evaluate Technical Solutions  
can be found in Technical Solution
- Acquisition Technical Management (ATM),  
SG 2 – Perform Interface Management  
can be found in Technical Solution and Product Integration

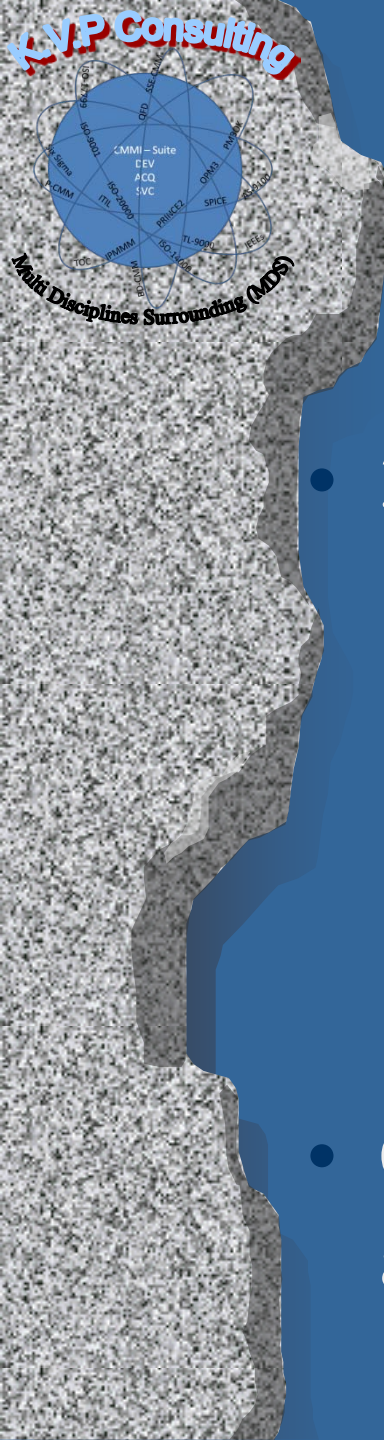


# Second Level Filtering (Goal Level)

- Service Continuity (SCON),  
SG 3 - Verify and Validate the Service Continuity Plan can be found in Verification and Validation
- Service System Development (SSD),  
SG 3 - Verify and Validate Service Systems can be found in Verification and Validation



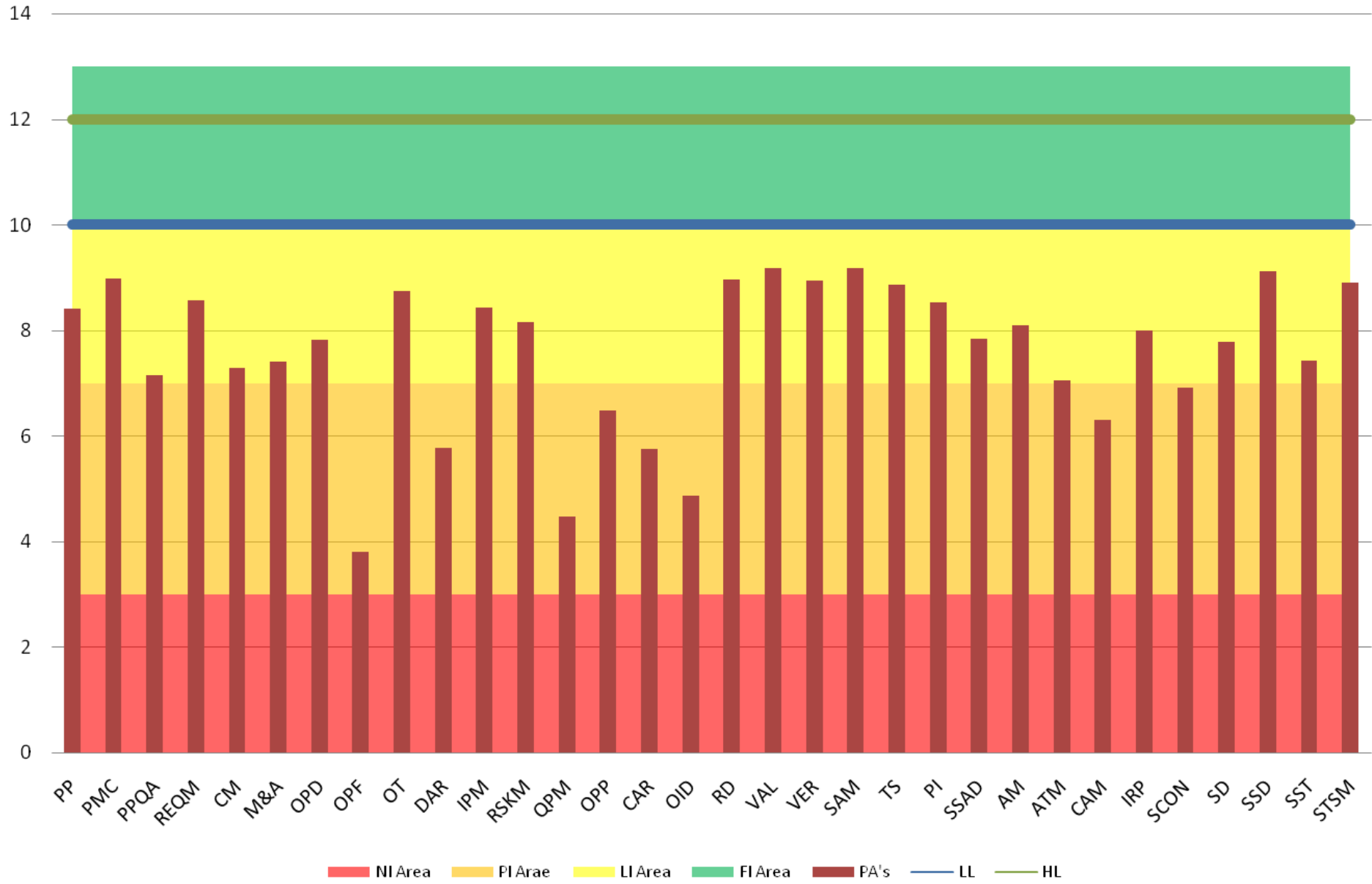
# Conducting Detailed Gap Analysis

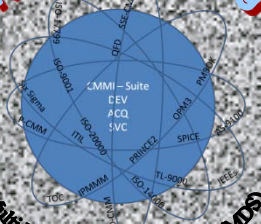
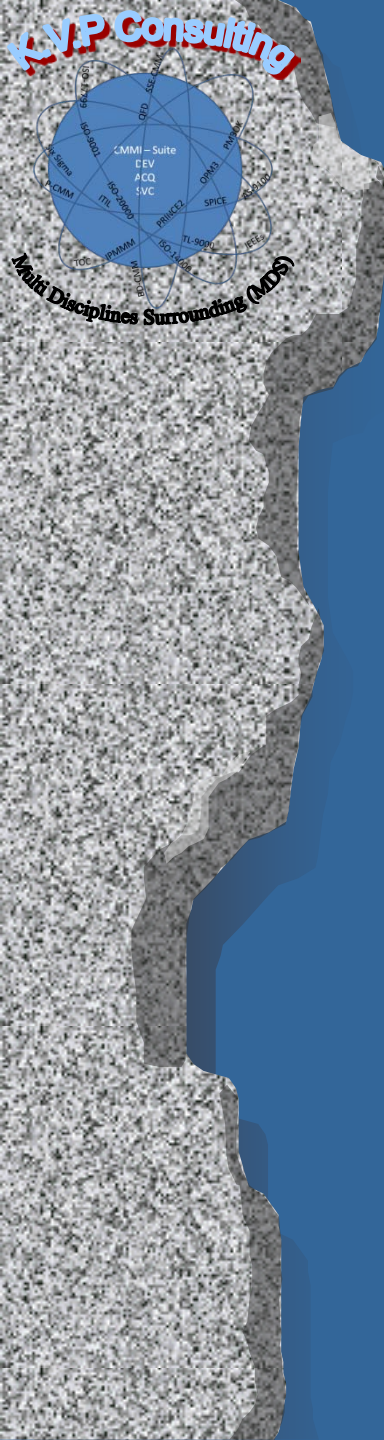


# Gap Analysis Model Scope

- 32 CMMI Process Areas
  - 75 CMMI Specific Goals
    - 249 CMMI Specific Practices
      - 1169 CMMI Specific Subpractices
  - 5 ‘Classic’ CMMI Generic Goals (Extended)
    - 17 ‘Classic’ CMMI Generic Practices (Extended)
      - 34 ‘Classic’ CMMI Generic Subpractices (Extended)
- Cross-referenced with the following additional standards elements

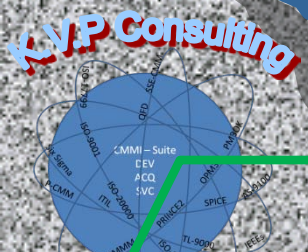
# Process Area Level





# Processing the Results

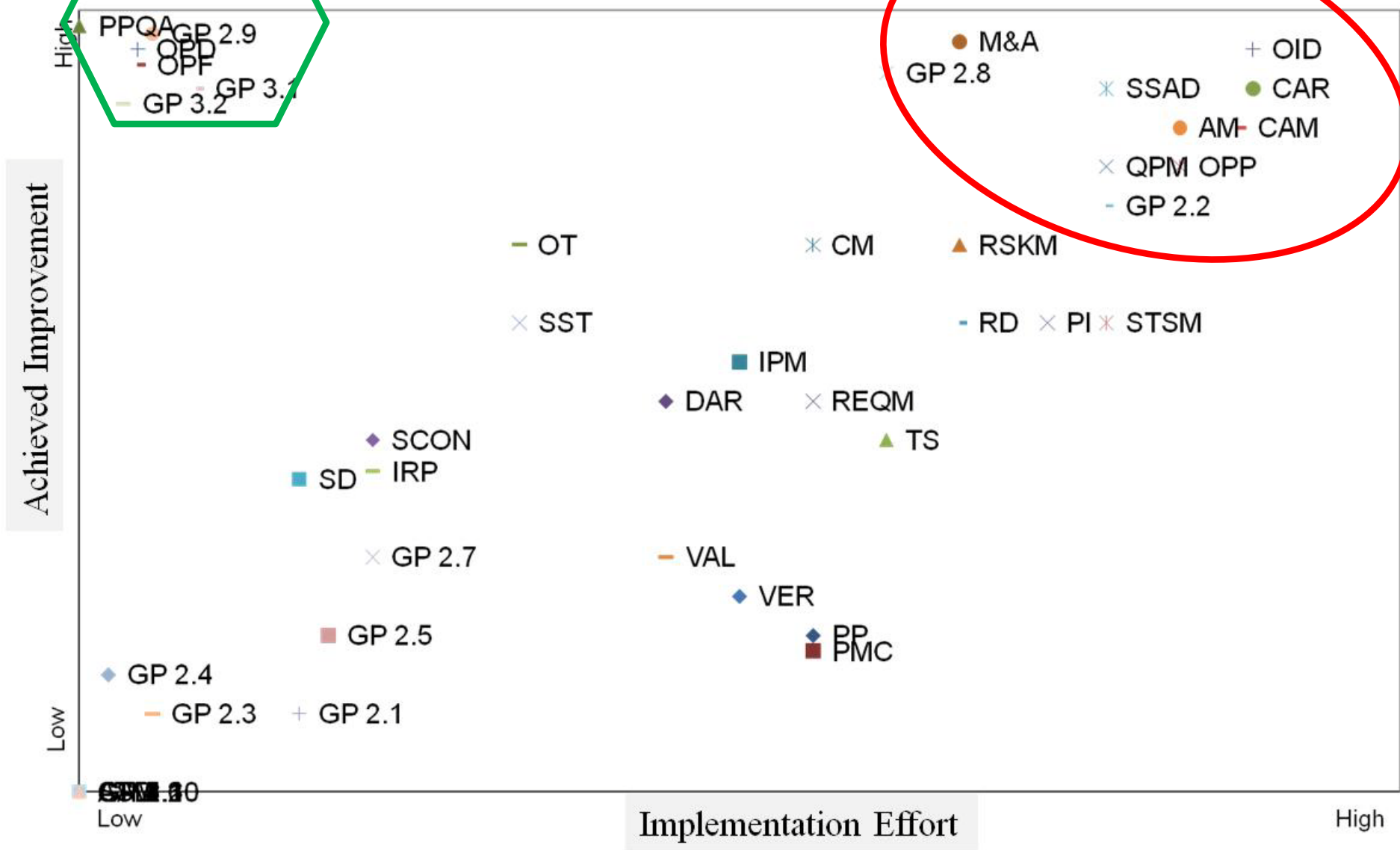




# Improvement vs. Implementation

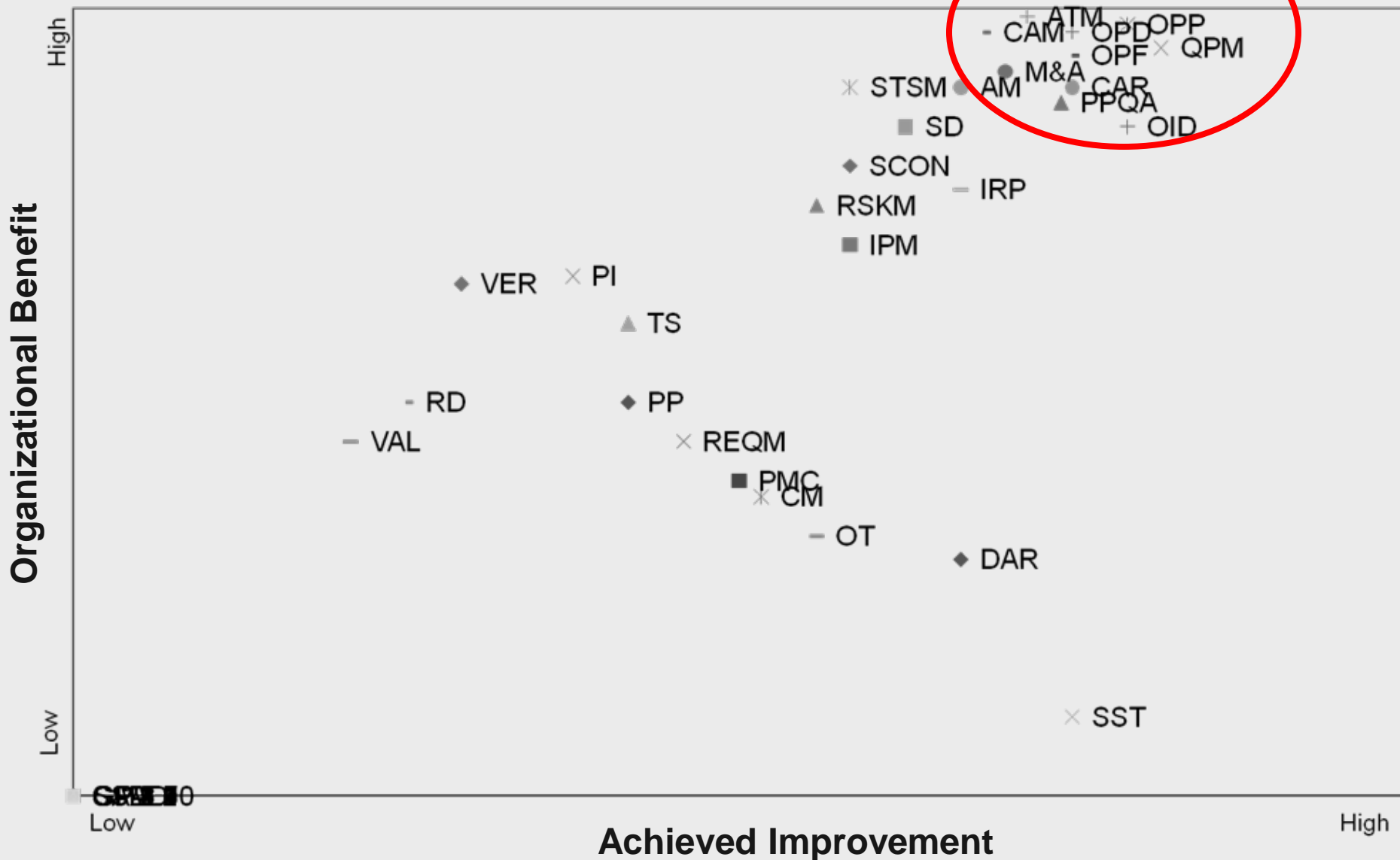
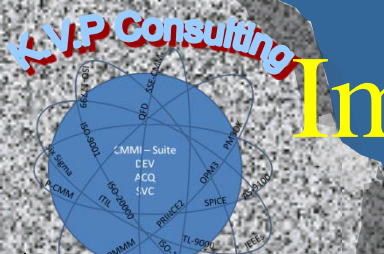
## Process Improvements

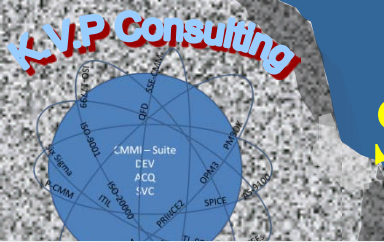
## ROI



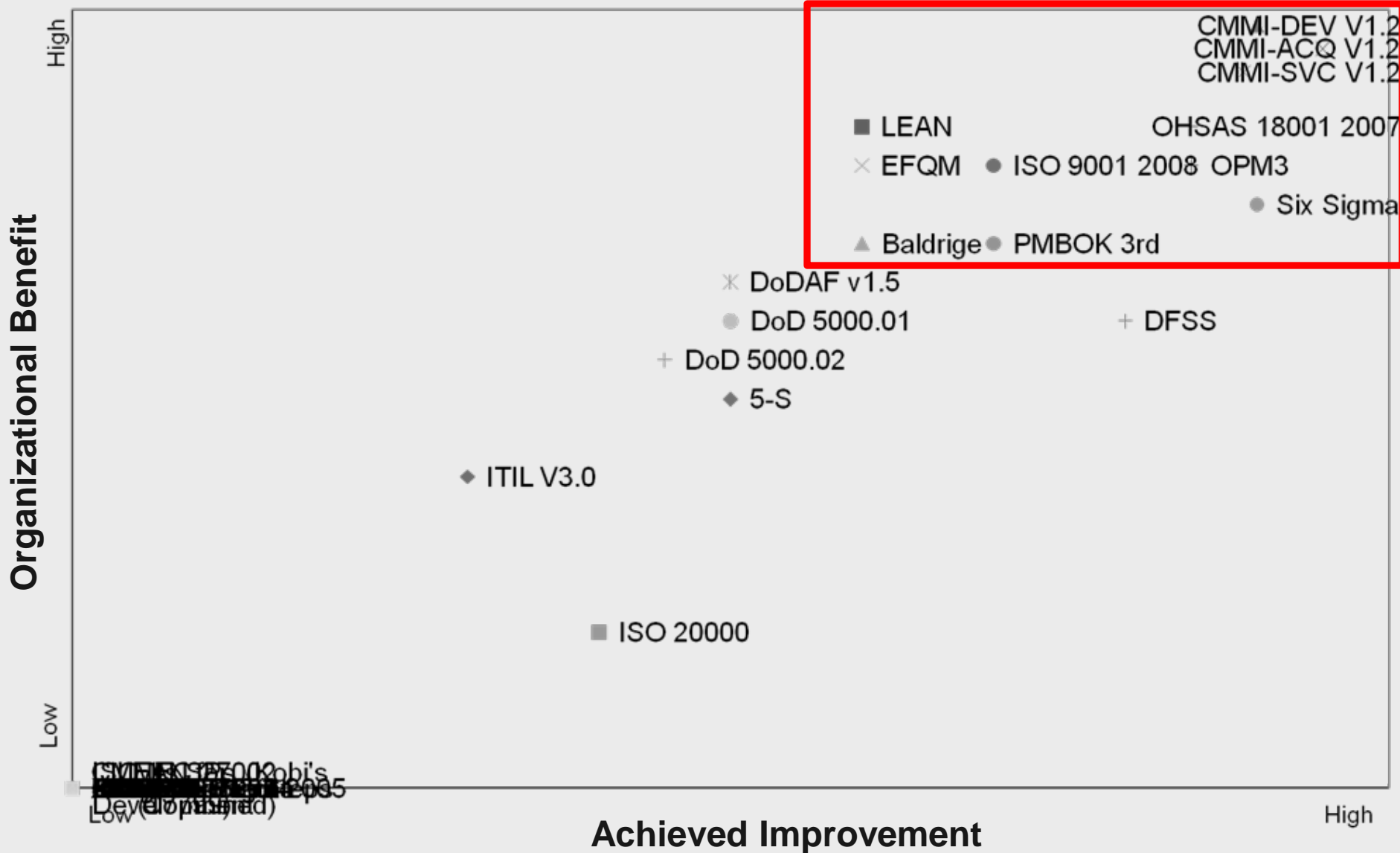
# Improvement vs. Benefit

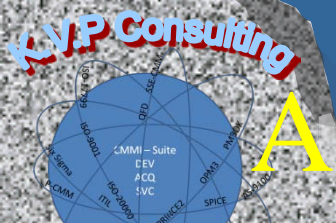
Add Value



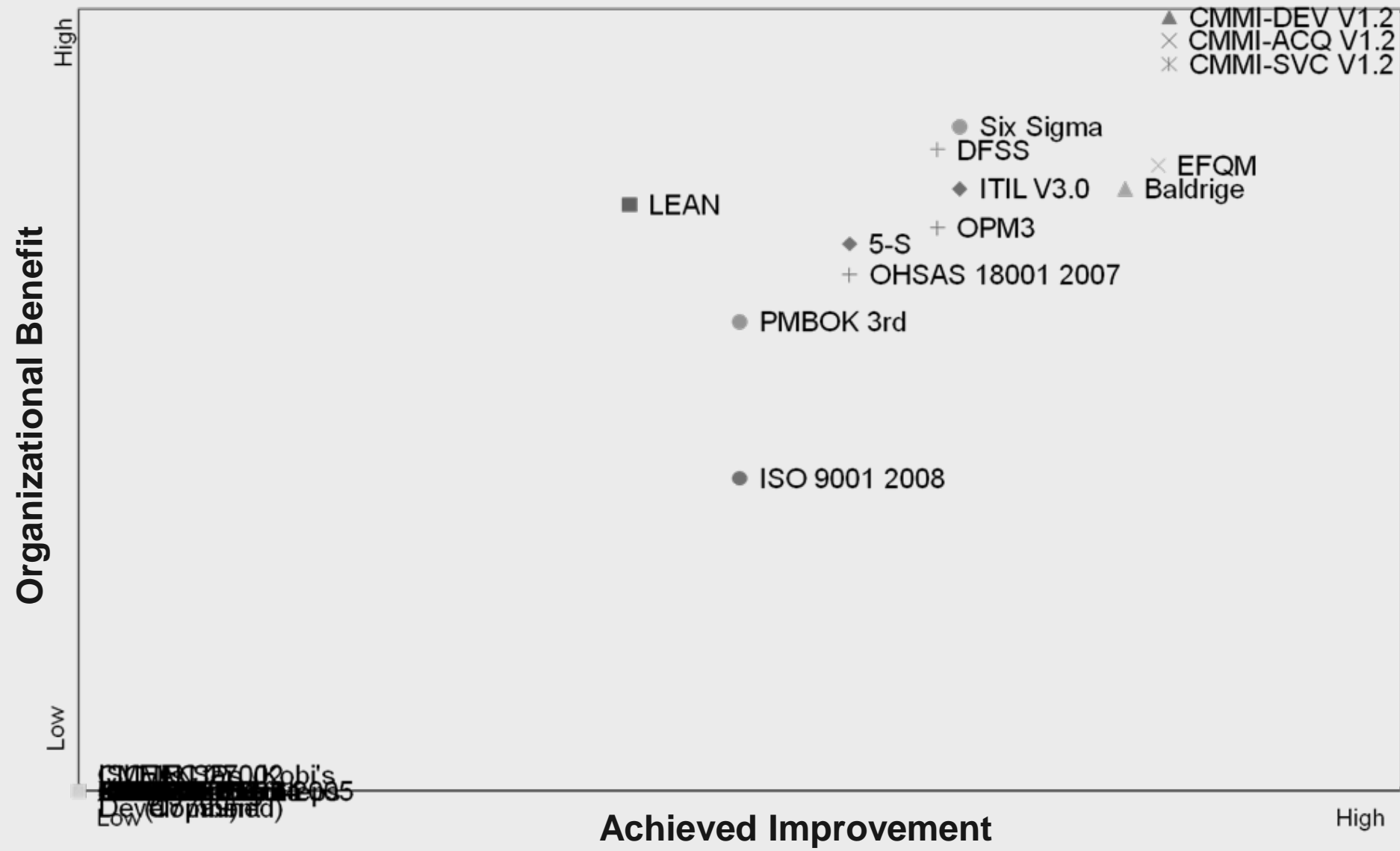


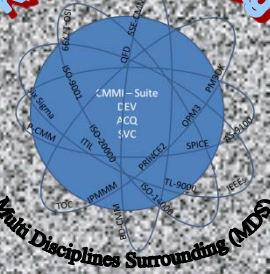
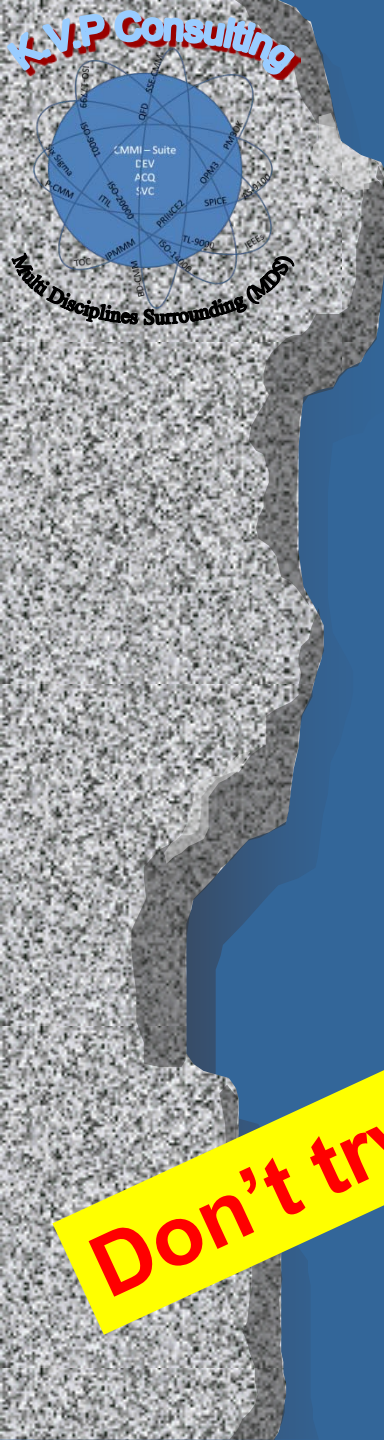
# Standards Compliance to ORG Mission





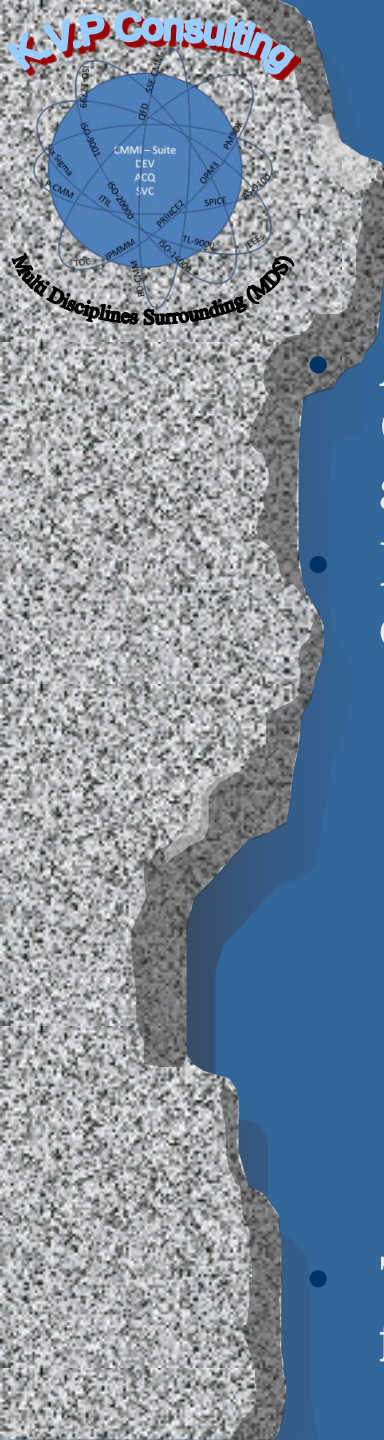
# Additional Standards Contribution





# Some of Our Suggestions

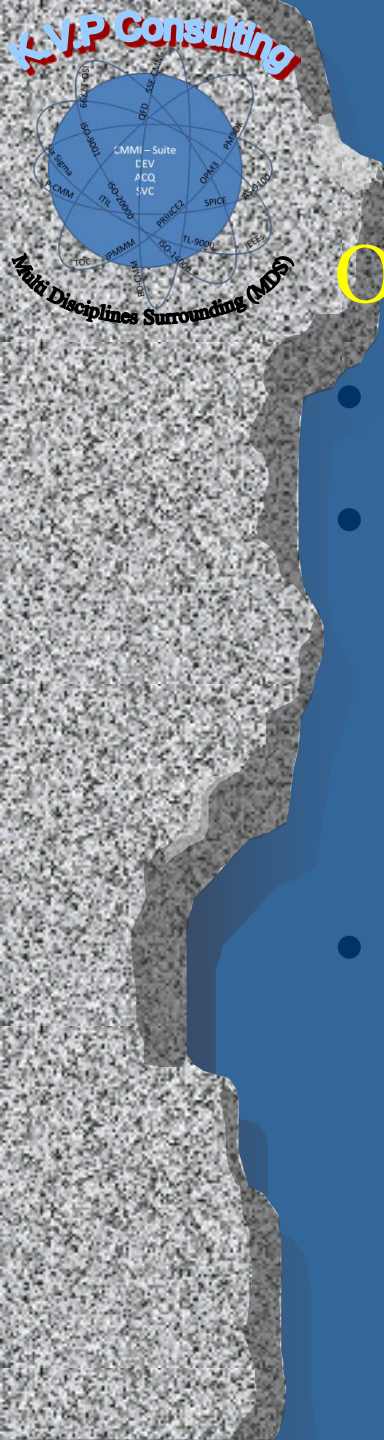
**Don't try this at Home without adult helping you**



# Survival Quick guidelines

- A method to support multi appraisals in line with CMMI must be compatible with the Reference Model and discipline
- Requirements for Compatibility are expressed in terms of:
  - Purpose
    - Of combined models
    - Of going there
  - Scope
    - Of selected models
    - Of organization
  - Model elements and indicators
  - Mapping
    - Knowledge on....
  - Translation
- These requirements span various levels and model features





# Some of Our Suggestions

## Our Suggestions to the integration approach

- Add more elaborations
- Create more objective wording in PAs, e.g.
  - Project Planning to Delivery / Assignment / Product Planning
  - Technical Solution to Solution Development
- Add more examples

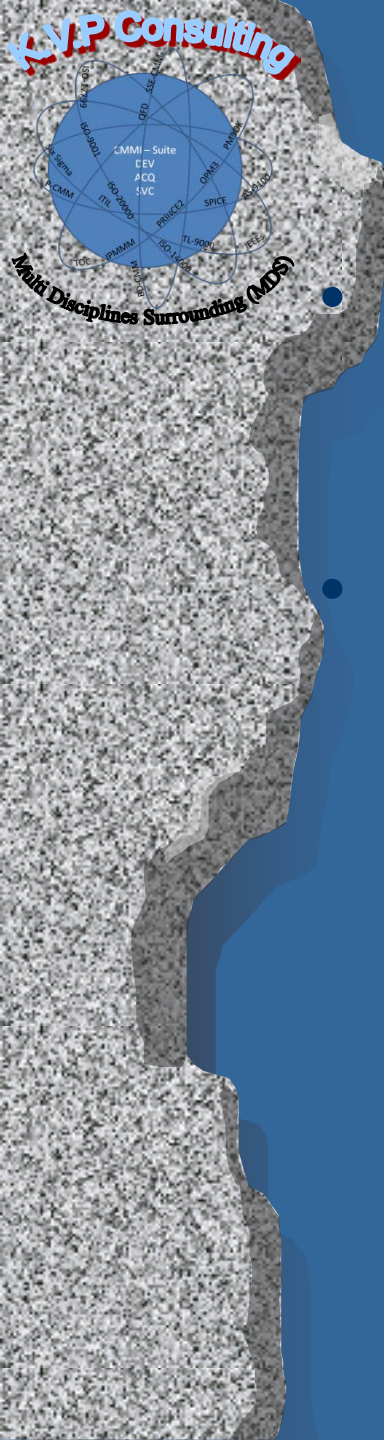


# Some of Our Future Discussions

## Additional Generic Practice for Security as defined process

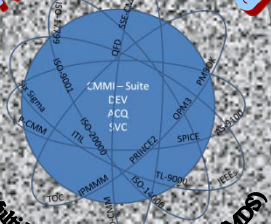
- Our suggestion: GP 3.3 Information Management and Security Control
  - *Place designated information entities and work products of the process and product under appropriate levels of classification and control*
  - *Including five subpractices*
    - *Identify*
    - *Analysis*
    - *Evaluate*
    - *Prepare plan*
    - *Execute and recover*

- Approach to P-CMM
- Approach to Resiliency Engineering Framework (REF) and Operationally Critical Threat, Asset, and Vulnerability Evaluation (OCTAVE)
- Approach Smart Grid at three levels



# Some of Our Future Discussions

- Cross constellation support team
  - Prerequisite knowledge
  - Team qualification / certifications
- Cross constellations Appraisal team
  - Team training
  - Team qualification / certifications
  - PIIDs
  - Structure of mini teams
  - Consensus process



# Questions