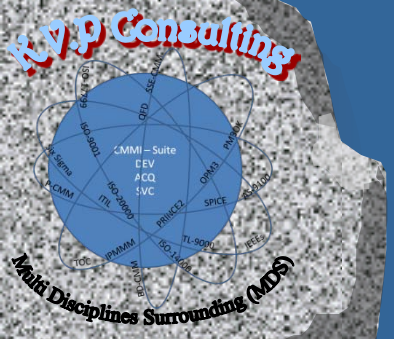
Supporting High Maturity Process Improvement and Understanding the Application of SCAMPI^{SM} Method to it



Agenda and Topics

- Opening
- Recap High Maturity Process Areas
- Main Questions for High Maturity Process Improvement
- Pilot Lessoned Learned

CMMI ML 4 & 5 PAs Recap

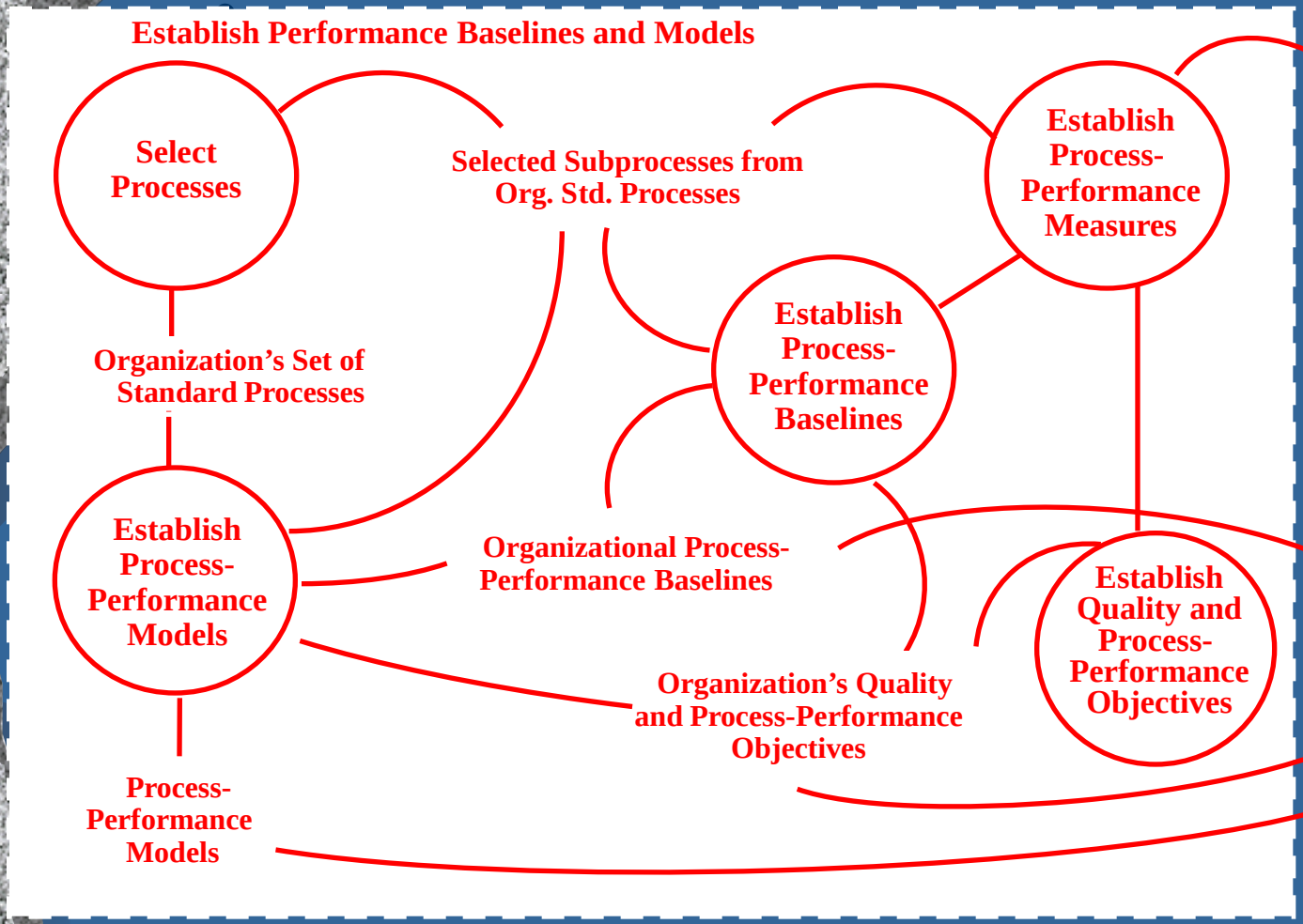
- Organizational Process Performance
- Quantitative Project Management
- Causal Analysis and Resolution
- Organizational Innovation and Deployment

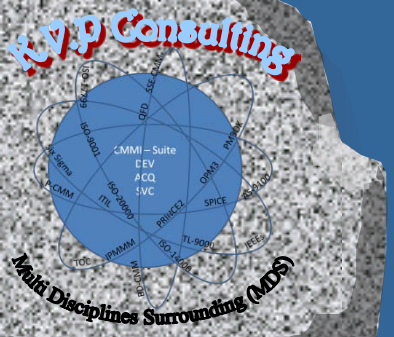
Specific Practices of OPP

SG 1 Establish Performance Baselines and Models

- SP 1.1 Select Processes
- SP 1.2 Establish Process-Performance Measures
- SP 1.3 Establish Quality and Process-Performance Objectives
- SP 1.4 Establish Process-Performance Baselines
- SP 1.5 Establish Process-Performance Models

Organizational Process Performance Context





OPP Summary

- The first three SPs establish processes (subprocesses), measures, and objectives at the organization level that focus and align the quantitative management activities of projects (QPM) with the business objectives of the organization.
- The last two SPs take the actual results obtained from projects to create baselines and models that enable the next project to predict what performance to expect from selecting certain subprocesses for its use, and thereby assess its ability to meet its objectives.

Specific Practices of QPM

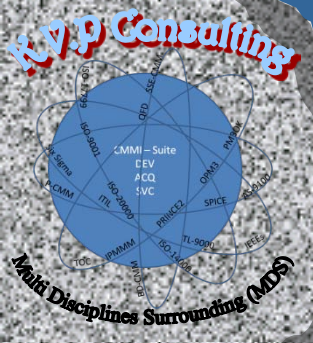
SG 1 Quantitatively Manage the Project

- SP 1.1 Establish the Project's Objectives
- SP 1.2 Compose the Defined Process
- SP 1.3 Select the Subprocesses That Will Be Statistically Managed
- SP 1.4 Manage Project Performance

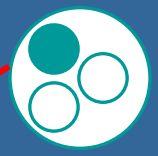
SG 2 Statistically Manage Subprocess Performance

- SP 2.1 Select Measures and Analytic Techniques
- SP 2.2 Apply Statistical Methods to Understand Variation
- SP 2.3 Monitor Performance of the Selected Subprocesses
- SP 2.4 Record Statistical Management Data

Quantitative Project Management Context



OPP



IPM

Quantitatively Manage the Project

Establish Project's Objectives

Project's Quality and Process-Performance Objectives

Compose the Defined Process

Remedial Actions

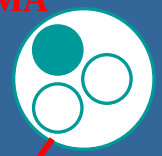
Manage Project Performance

Select the Subprocesses that Will Be Statistically Managed

Predictions of Quality and Process Performance

Organization's Measurement Repository

Selected Subprocesses



MA

Subprocess Capability

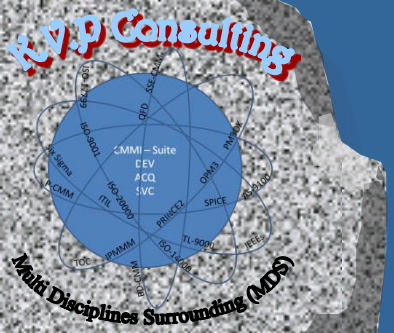
Statistically Manage Subprocess Performance

Record Statistical Management Data

Monitor Performance of the Selected Sub-processes

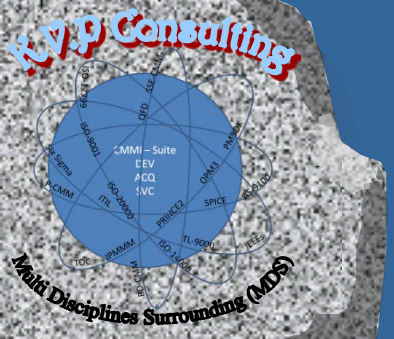
Apply Statistical Methods to Understand Variation

Select Measures and Analytic Techniques



QPM Summary

- QPM involves both quantitative and statistical management. The project
  - establishes quantitative objectives based on the organization's business objectives and needs of the customer
  - composes a defined process based on historical capability data that will help it meet those objectives
  - monitors the project quantitatively to assess whether the project is on course to achieve its objectives.
- For each subprocess to be statistically managed,
  - objectives are established for its process performance
  - its variation is understood (subprocess is stable)
  - when the subprocess fails to achieve its objectives, corrective action is taken



Specific Practices of CAR

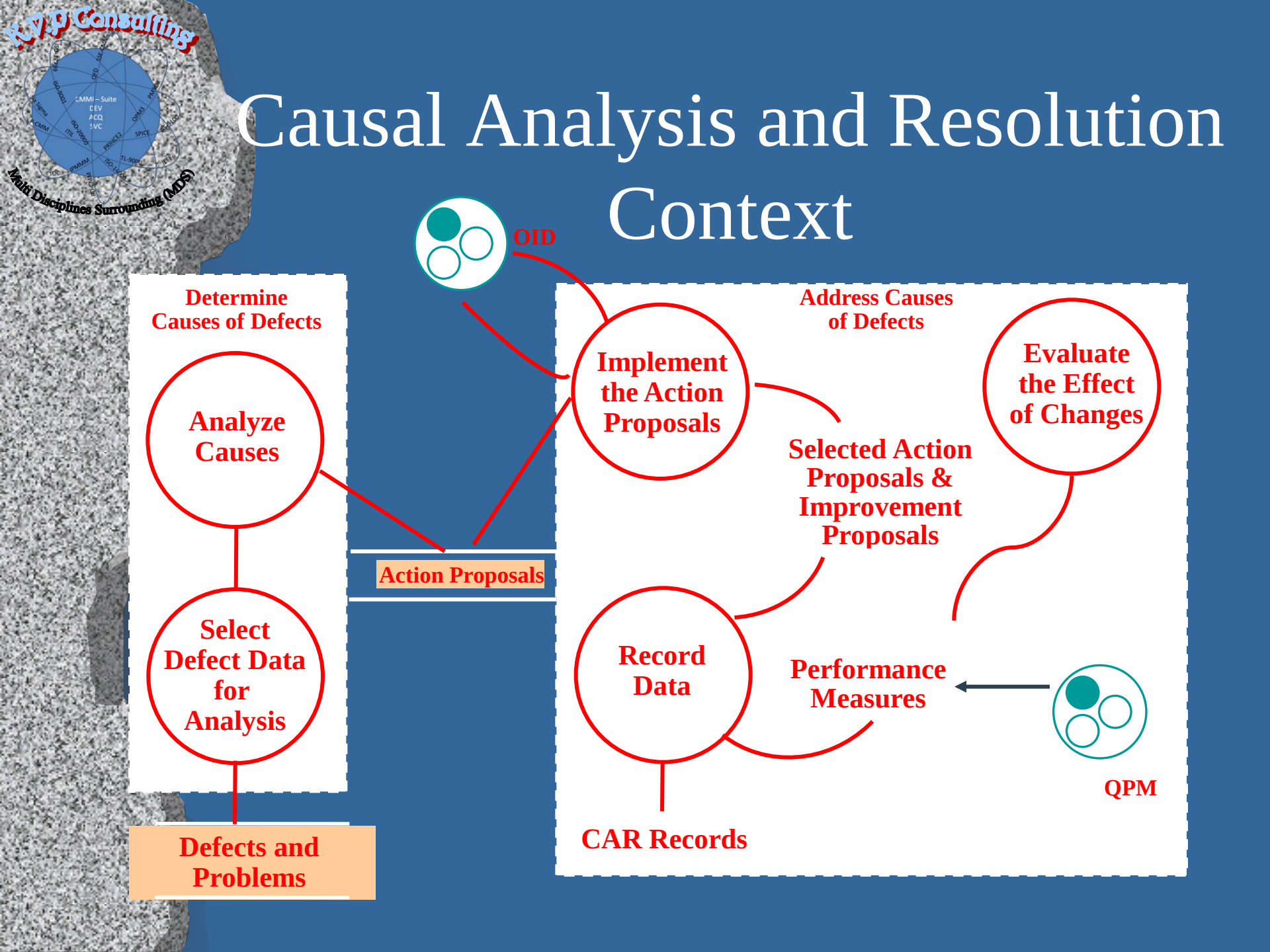
SG 1 Determine Causes of Defects

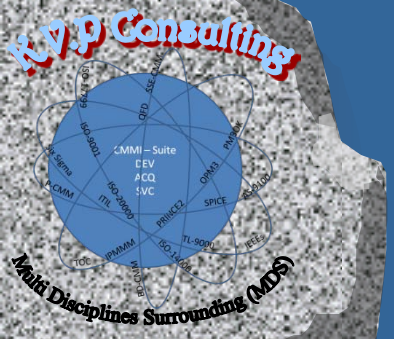
- SP 1.1 Select Defect Data for Analysis
- SP 1.2 Analyze Causes

SG 2 Address Causes of Defects

- SP 2.1 Implement the Action Proposals
- SP 2.2 Evaluate the Effect of Changes
- SP 3.2 Record Data

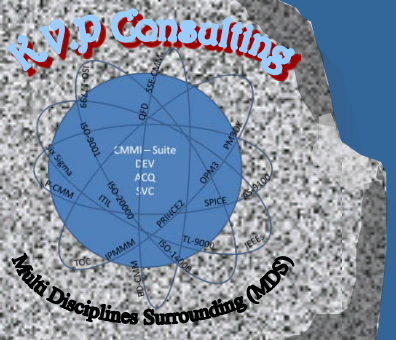
Causal Analysis and Resolution Context





CAR Summary

- CAR has its greatest value when performed in the context of a quantitatively managed process.
- CAR involves
  - a selection of defects or problems whose resolution would benefit the organization
  - a root cause analysis
  - development and implementation of an action plan to remove the root causes of the defects or problems



Specific Practices of OID

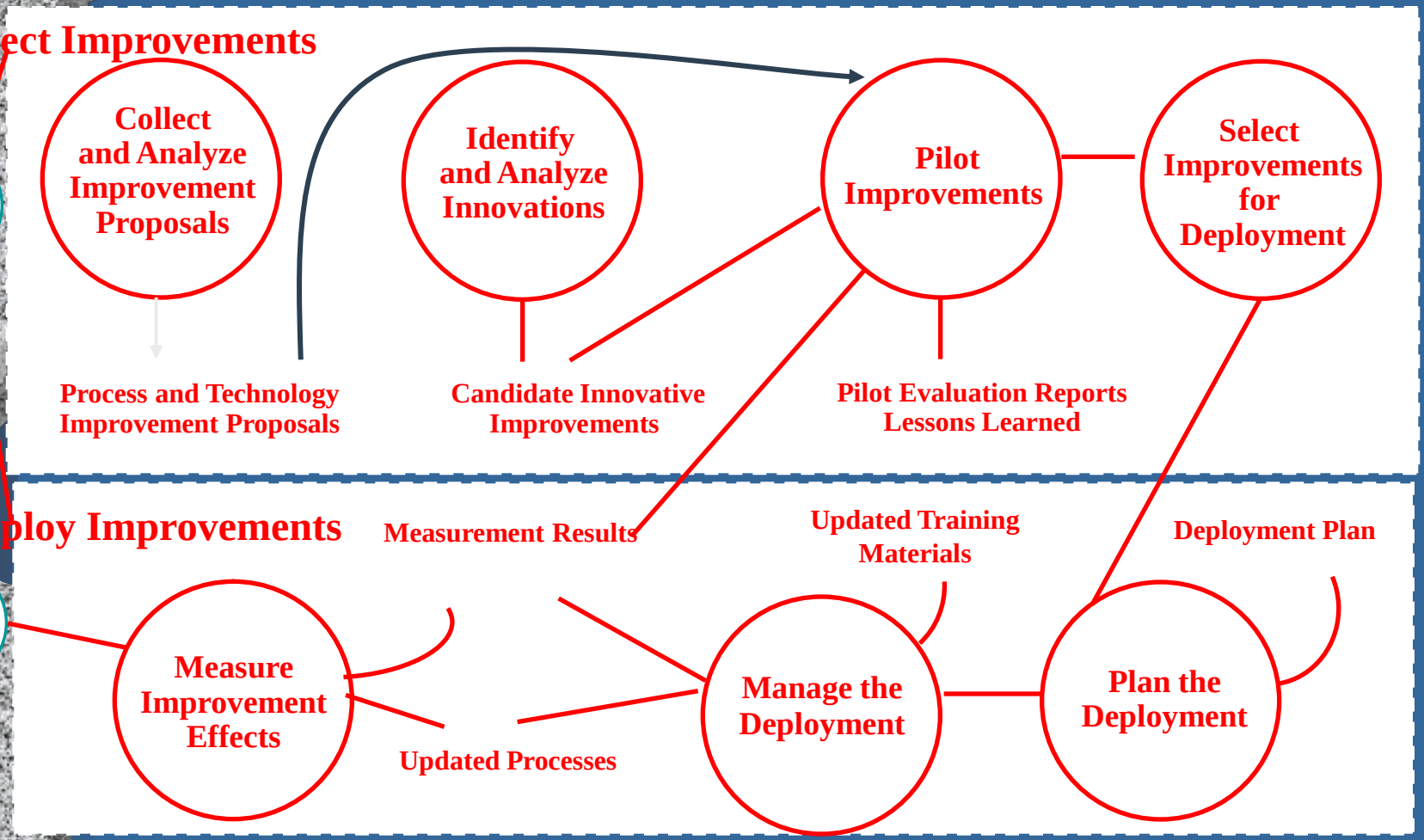
SG 1 Select Improvements

- SP 1.1 Collect and Analyze Improvement Proposals
- SP 1.2 Identify and Analyze Innovations
- SP 1.3 Pilot Improvements
- SP 1.4 Select Improvements for Deployment

SG 2 Deploy Improvements

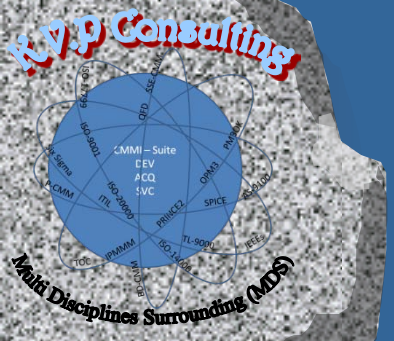
- SP 2.1 Plan the Deployment
- SP 2.2 Manage the Deployment
- SP 2.3 Measure Improvement Effects

Organizational Innovation and Deployment Context

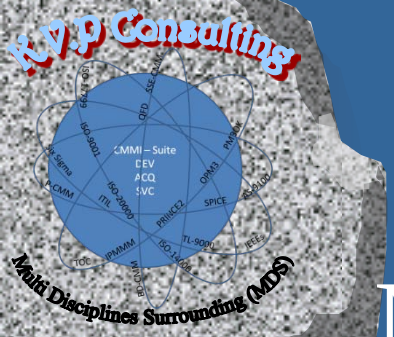


OID Summary

- OID uses the quantitative information developed at ML4 to identify, analyze, and select incremental and innovative improvements to the organization's processes and technologies.
- OID involves both incremental improvement (everyone in the organization is involved) and revolutionary improvements (outward looking and opportunistic) to targeted processes.
- Improvements are introduced systematically in the organization by conducting pilots, analyzing costs and benefits, and planning and managing deployment.
- OID embodies continuous improvement that results from implementing all the PAs in the model.



Main Questions for High Maturity Process Improvement

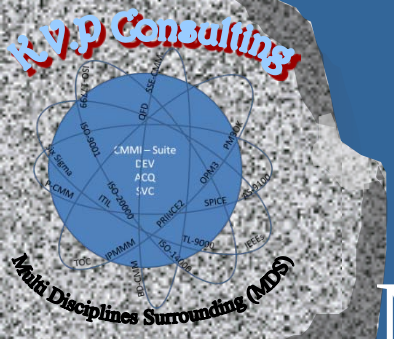


Main Questions for High Maturity Process Improvement

- Are able to determine which processes / subprocess are suitable to be measured
  - ** consideration note - selection of one process, measure, or objective will constrain the selection of the others **
- Do we know which measures are useful for determining process performance
- Do we have quality and process-performance objectives for those processes

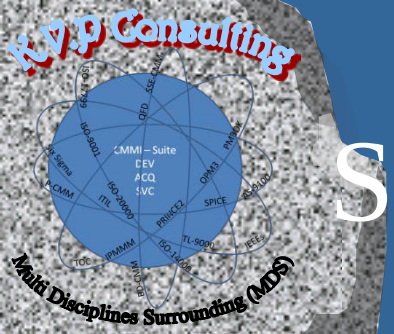
Main Questions for High Maturity Process Improvement

- Do we have the skills to statistically measure, analysis, communicate and act according to the numbers, what additional training we will need
- Do we have relevant historical data (at least 7~13 points) that enable us to establish baseline and trends



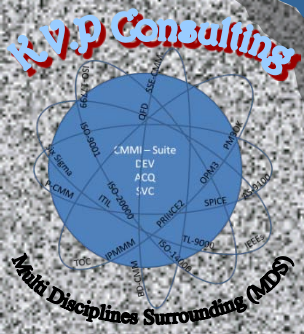
Main Questions for High Maturity Process Improvement

- Do we have the culture on identifying causes of defects and other problems and take action to prevent them from occurring in the future. And in what level
- Do we have the culture or the capability to plan develop and deploy incremental and innovative improvements that measurably improve the organization's processes and technologies



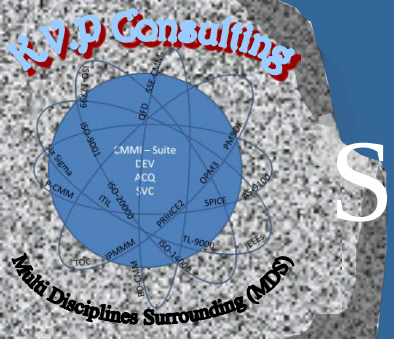
Supporting the SCAMPI Process for High Maturity

- The current experience shows that organizations that strive towards process improvements that targeting high maturity, do not always understand the model expectations and requirements.
- When we add to it the abstract level of the high maturity PAs, we are creating real challenge to the quality engineers and managers capability to support the business improvements.



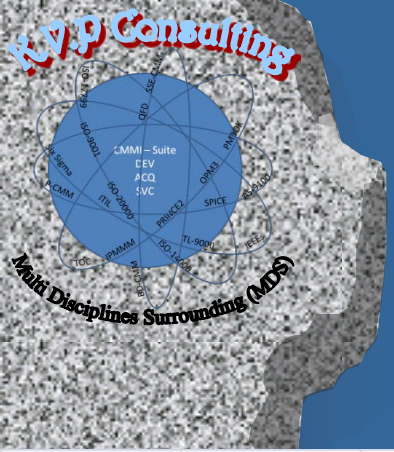
Supporting the SCAMPI Process for High Maturity

- Based on these observations and lessons learned and as part of these pilots we have developed a number of incremental papers and guide books with the intent to build an accumulative knowledge and capabilities to interpret and understand the model and SCAMPI^{SM} expectations from high maturity practices
- These papers and guide books also increase our support to the organization business units and programs in the different domains and to focus the use of statistical techniques and tools as appropriate for the deferent units



Supporting the SCAMPI Process for High Maturity

- Process performance application and appropriate usage – for the organization use
- High Level Maturity Lead Appraisal Guideline & Reference
- HLM ATM Training agenda
- High Level Maturity Appraisal Team Member Reference
- Measurements and Analysis Primer

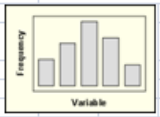


HLM ATM Training agenda

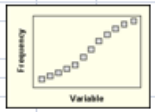
9:00	**9:10**	0:10	Gathering
9:10	**9:25**	0:15	CMMI GP2.8 in respect of all PA's, Product Lifecycle and it's significant place in the road map to level 4&5
9:25	**9:35**	0:10	CMMI M&A PA in respect of all PA's, Product Lifecycle and it's significant place in the road map to level 4&5
9:35	**11:05**	1:30	Terms and Concepts
11:05	**11:35**	0:30	Process Structure and Elements
11:35	**12:05**	0:30	Process objectives and related measurements
12:05	**13:05**	1:00	The Process Performance Concept and Definition
13:05	**13:50**	0:45	Lunch
13:50	**15:05**	1:15	The Process 'X' Parameters and their role
15:05	**15:50**	0:45	adjusting the process model to the appraisal context
15:50	**16:35**	0:45	Walkthrough Case Study
16:35	**16:50**	0:15	rap up

High Level Maturity Appraisal Team Member References

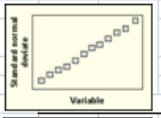
Graphs for one continuous variable



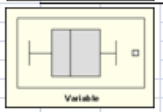
Histogram
Description: Shows distribution of observations of a sample. Bars represent the number of observations within ranges of values.
Requires: one continuous variable.



Cumulative frequency distribution.
Description: For each value of the variable the percentage of elements equal to or less than that value is plotted.
Requires: One continuous variable.

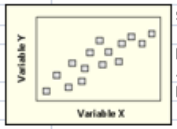


Normal plot
Description: Plots the sample data against their normal scores. Observations from a Normally distributed sample should follow a straight line.
Requires: One continuous variable



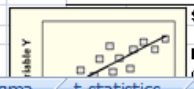
Box-and-whisker plot
Description: Graphical representation of non-parametric descriptive statistics, identifies outliers.
Requires: One continuous variable.

Scatter diagrams



Scatter diagram

Description: Plots paired observations against each other. The graph shows possible association between variables.
Requires: 2 continuous variables.



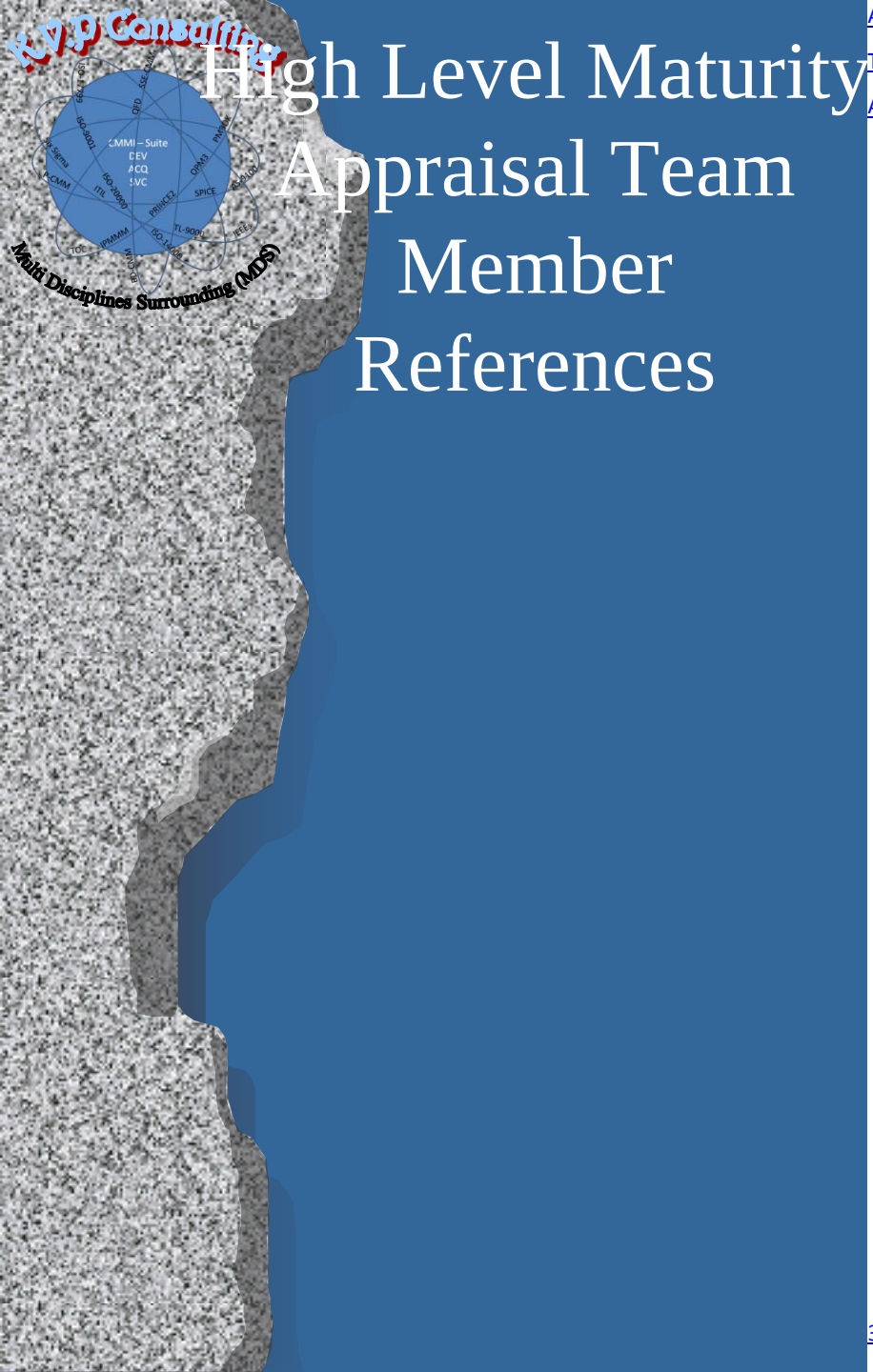
Scatter diagram with regression line

Description: Plots paired observations against each other, and draws the regression line. The graph shows possible linear relationship between variables.

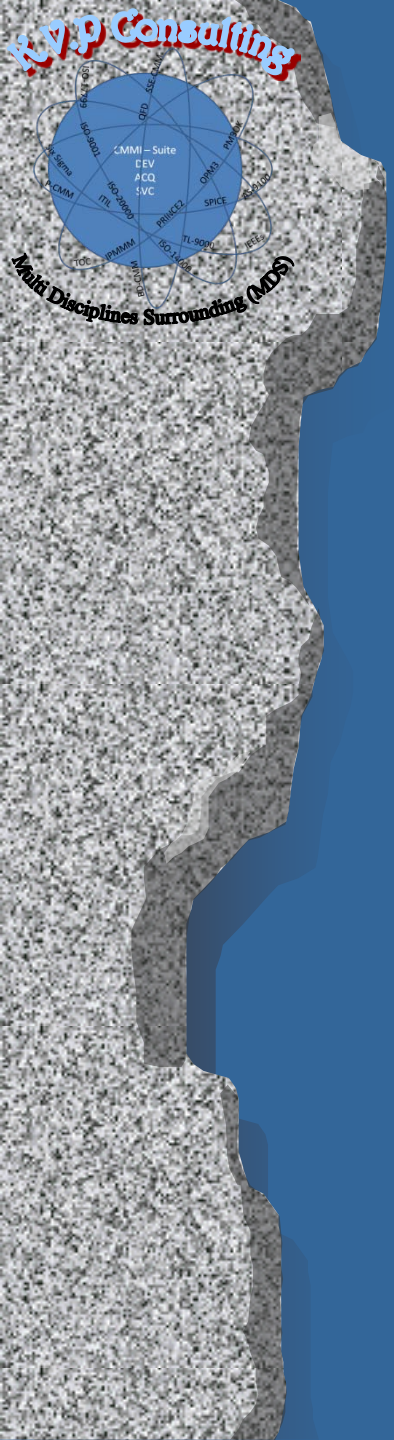
Yield to Sigma | t-statistics | t-distribution (two-tailed) | Standard t Value | Normal distribution | Chi-square distribution | F Distribution | Logit transformation | graph gallery | S Curve

High Level Maturity Appraisal Team Member References

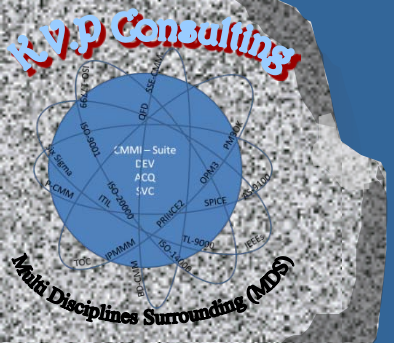
Statistical Methods



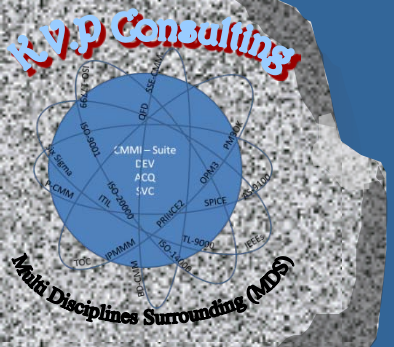
High Level Maturity Appraisal Team Member References



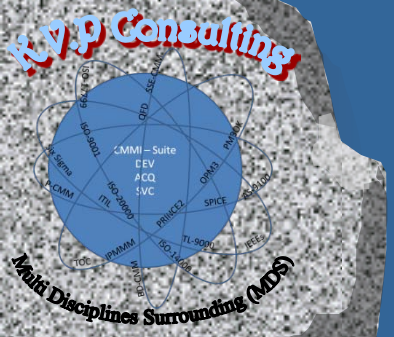
PPM-BOK



High Level Maturity Lead Appraisal Guideline

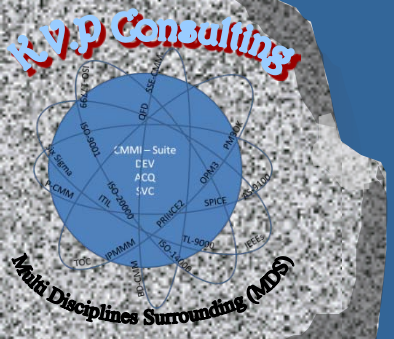


Pilot Lessoned Learned



Pilot Lessoned Learned

- Perception (right and wrong) and evaluation of level 4 – 5 in the different constellations (DEV, ACQ and SVC)
- The main lessons that led to formulating the documents
- Principles of the content structure of documents and the intent use vs. the actual use
- The training and individuals / team development process
- Appraisals (internal) preparations
- Conclusions from the pilot


K.V.P Consulting
CMMI – Suite
DEV
ACQ
SVC
Multi Disciplines Surrounding (MDS)

Questions ?

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