CMMI with Agile

Industry Success Stories in Process Improvement

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Agenda

Study Context

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Improvements Indicators

Conclusion & Recommendations

Problem Context

Agile adopters usually have an impression that CMMI is all about

having a heavy weight system with a mass of documentation

aiming to satisfying the CMMI model requirements

Most of the CMMI believers are convinced that,

agile can not support organizations to have a solid, repeatable and coherent system

They both do not support embracing Agile and CMMI

About the Study

Objective

- To evaluate the CMMI deployment performance within Agile environment compared to companies achieved the same CMMI level without embracing agile practices

Scope

- Three software companies in Egypt adopted Agile and successfully achieved CMMI ML3

- Ten software companies achieved CMMI ML3 without applying agile practices

Approach

- Data are collected from SCAMPI A,B, and C reports

- Samples of improvement indicators collected by the companies

The Samples Details

All Companies

Organization unit size: from 20 to 35 employees

Projects team size: varies from small (3) to large (20)

Target CMMI Maturity level: CMMI -DEV ML3

Agile-CMMI Companies

Adopted SCRUM, Continuous Integration, Test Driven Development and Automated Unit Testing

Used process automation tools

Diverse business domains:(Two years product development, products enhancements and tailored projects)

Conducted SCAMPIs Profiles

SCAMPI C

- **Sample:** One pilot project

- **Reported Gaps:** ALL gaps impact goal achievement

SCAMPI B

- **Sample:** Projects representing the OU
- **Reported Gaps:** Only some gaps impact goal achievement

SCAMPI A

- **Sample**: Projects representing the OU
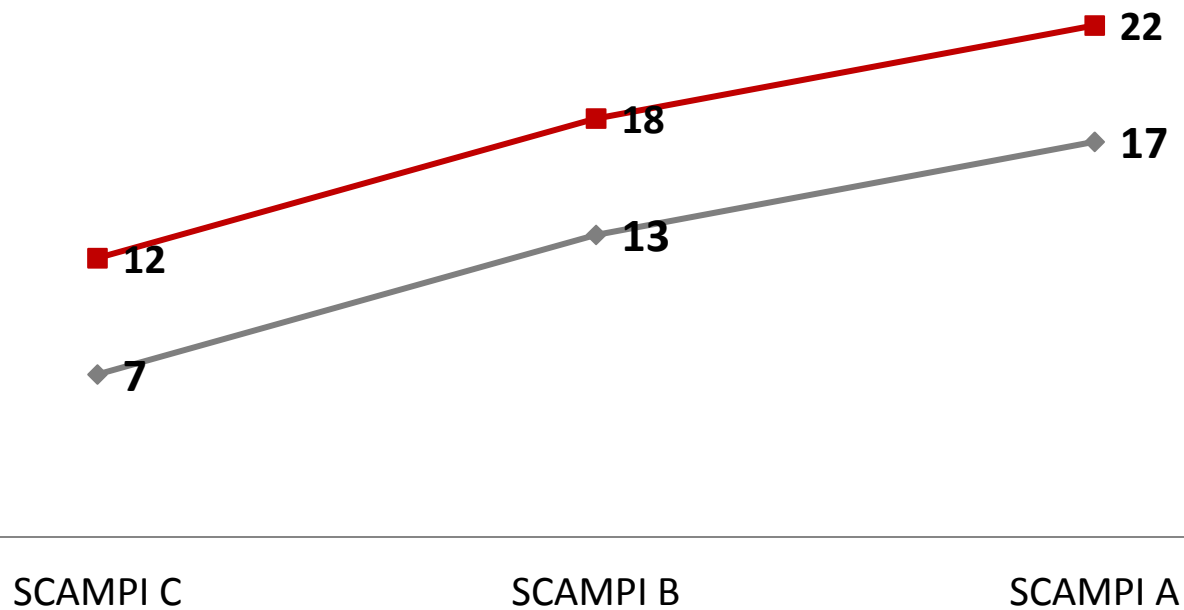- **Reported Gaps:** Gaps do not impact goal achievement
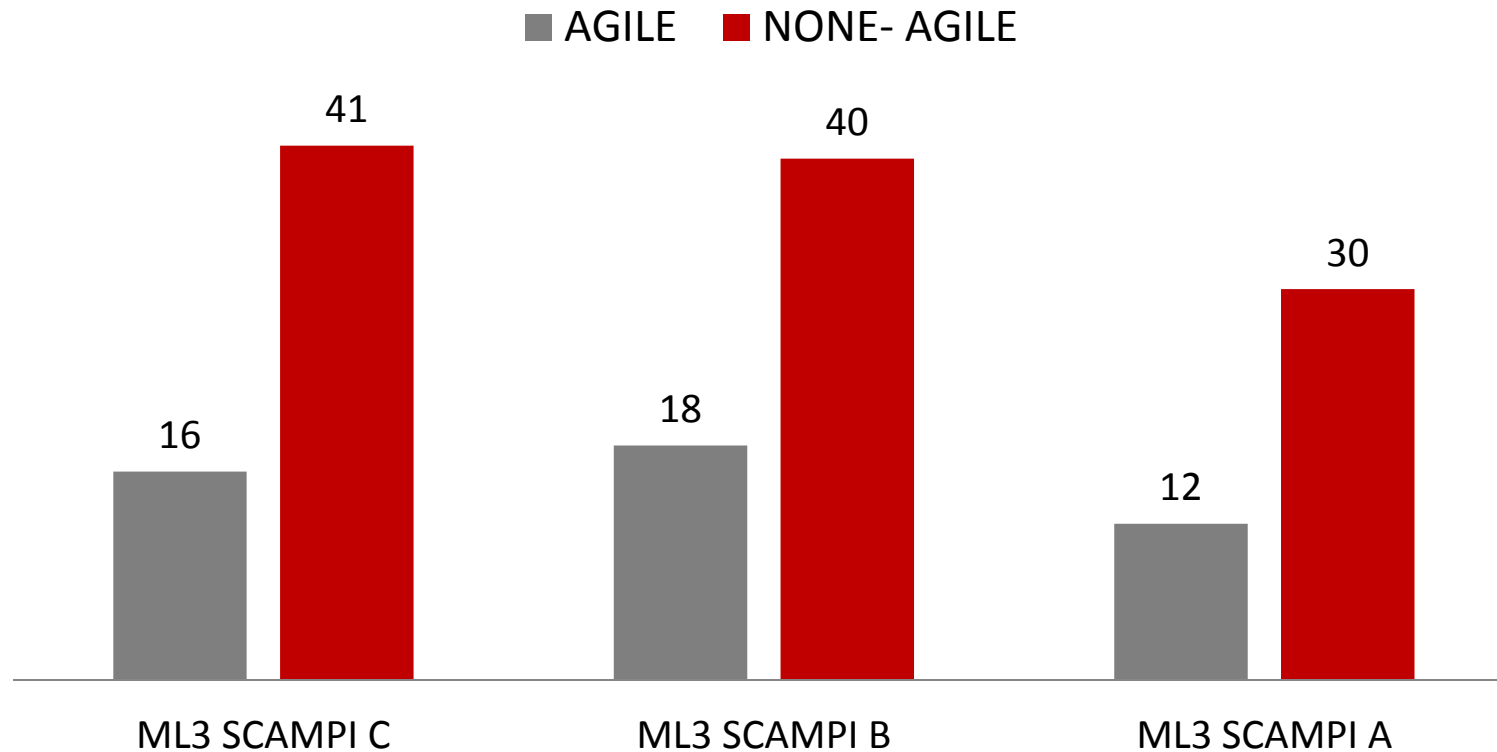
Study Outcomes

Implementation Duration

CMMI ML 3 Implementation Duration In Months

Legend: AGILE (grey), NONE- AGILE (red)

AGILE: SCAMPI C = 7, SCAMPI B = 13, SCAMPI A = 17
NONE- AGILE: SCAMPI C = 12, SCAMPI B = 18, SCAMPI A = 22

Average Gaps of SCAMPI C, B & A

The critical gaps in early stages of implementation are less in Agile environment

Findings

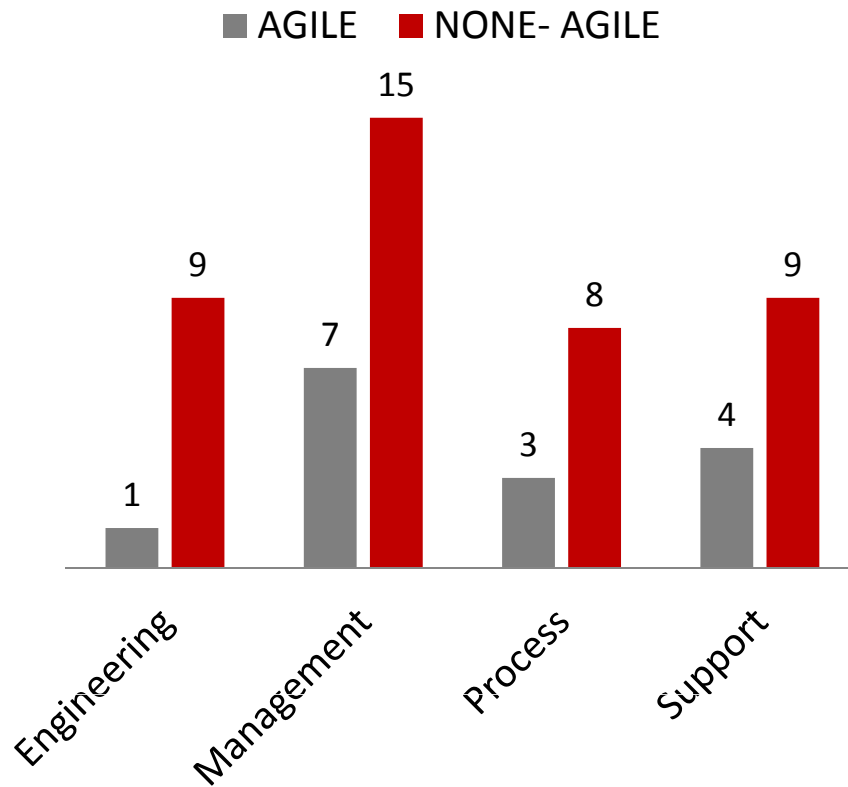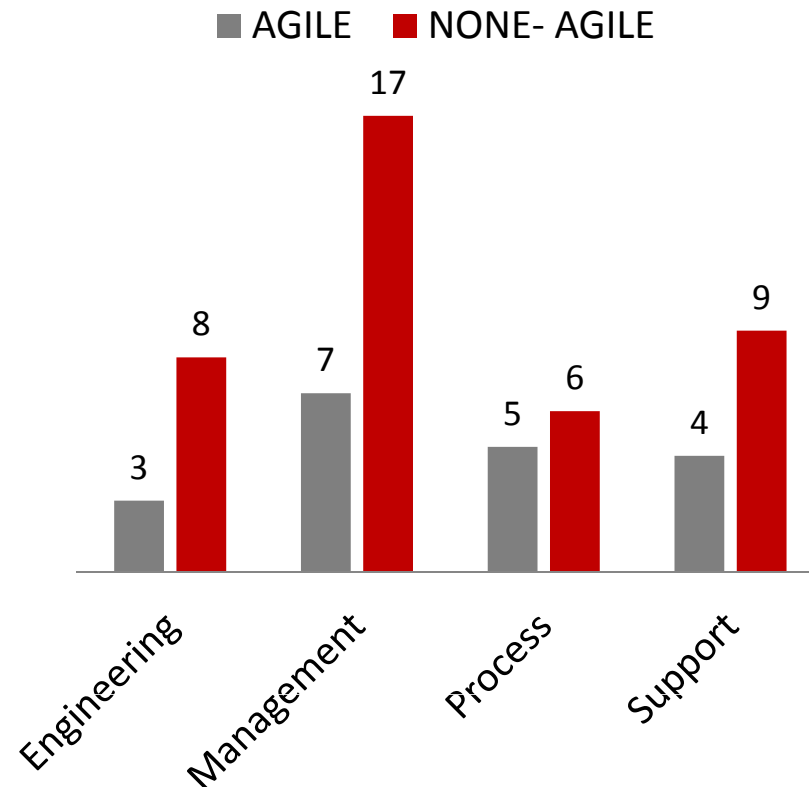Main 4 factors affects the organizations performance towards CMMI

Reason	AGILE	NONE AGILE
Process Improvement Focus	The projects targets	CMMI fulfillment
Filling CMMI Gaps	Actions suits context and maintains Agile values	Actions to show evidences
Process Improvement Effort	Incremental process improvement	Big Bang process improvement
Ownership	Process Improvement Owned by all	Process Improvement Owned by EPG team

Average Gaps per PAs Group

Average Gaps per PAs group for SCAMPI "C"

- AGILE
- NONE- AGILE

Group	AGILE	NONE- AGILE
Engineering	1	9
Management	7	15
Process	3	8
Support	4	9

Average Gaps per PAs Group for SCAMPI "B"

- AGILE
- NONE- AGILE

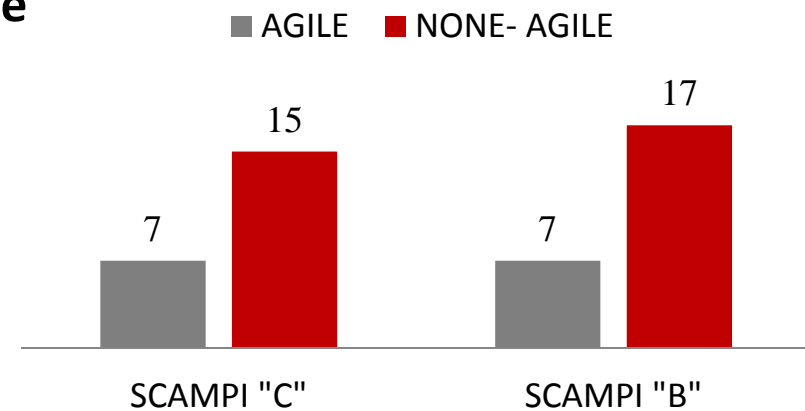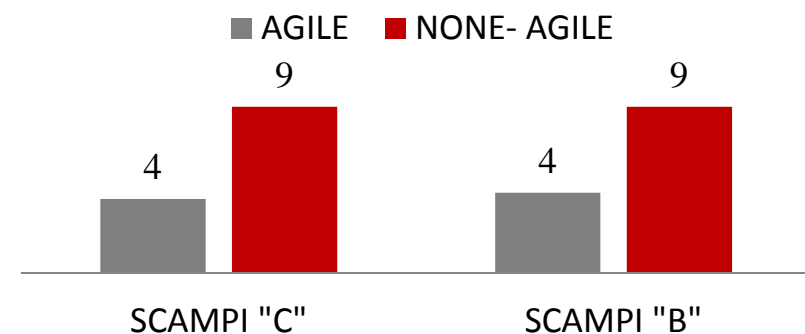| Group	AGILE	NONE- AGILE
Engineering	3	8
Management	7	17
Process	5	6
Support	4	9

Findings

Agile practices enable effective implementation of CMMI PAs, for example

- Release & iteration management is more controllable than building comprehensive plan at project start

- Product "Backlog management", "Done Definition" and commitment driven planning have good impact on requirement management, baselining and change management

Management PAs Group Gaps

■ AGILE ■ NONE- AGILE

17

15

7   7

SCAMPI "C"   SCAMPI "B"

Support PAs Group Gaps

■ AGILE ■ NONE- AGILE

9   9

4   4

SCAMPI "C"   SCAMPI "B"

Findings "cont."

Technical Excellence practices such as "Continuous Integration", "Automated Unit Testing" and "Test Driven Development" support the CMMI Engineering practices

Engineering PAs Group Gaps

■ AGILE ■ NONE- AGILE

	AGILE	NONE- AGILE
SCAMPI "C"	1	9
SCAMPI "B"	3	8
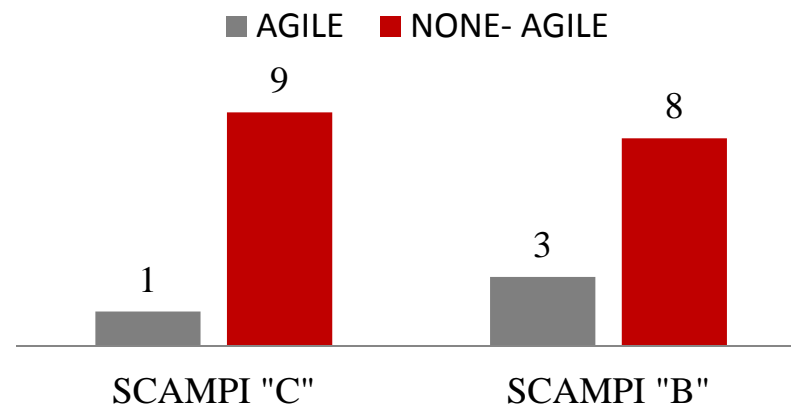
Practicing retrospectives by Agile teams enables organizations to build OPF & IPM faster

Process PAs Group Gaps

■ AGILE ■ NONE- AGILE

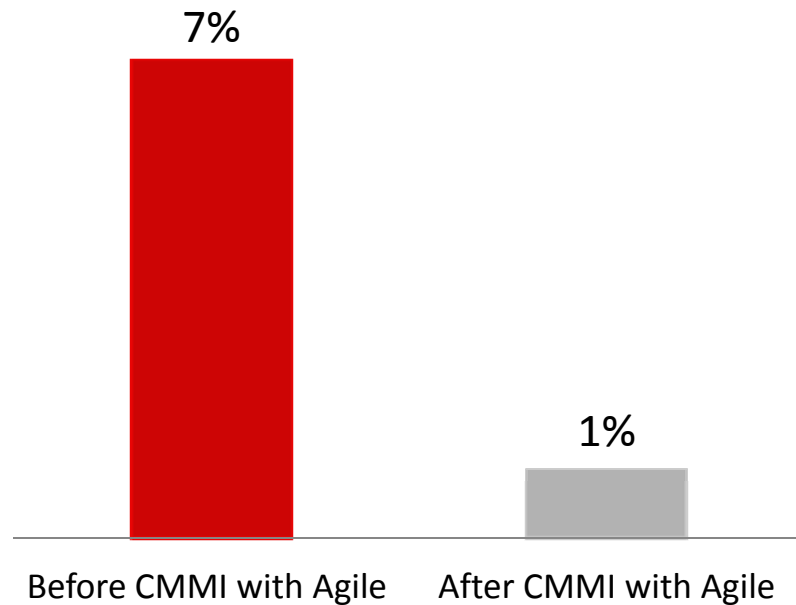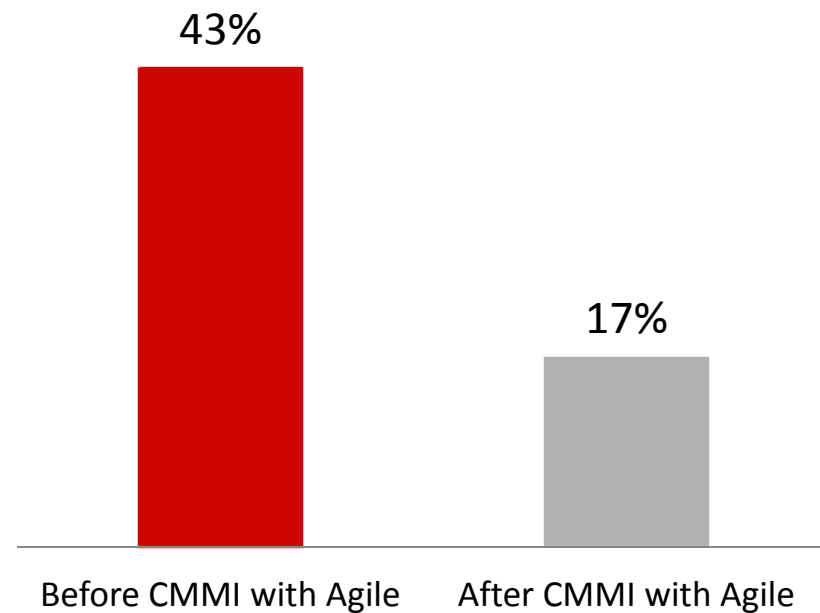|	AGILE	NONE- AGILE
SCAMPI "C"	15	41
SCAMPI "B"	18	40
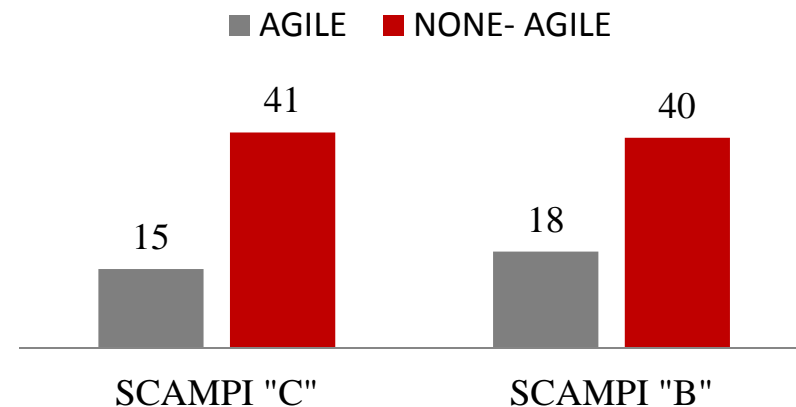
Improvements Indicators

Improvements Indicators for Agile CMMI Adoption

Ratio of estimating accuracy for product enhancements: *(delays)*

Ratio of time spent in fixing defects reported by the customer to the total bug fixing time:
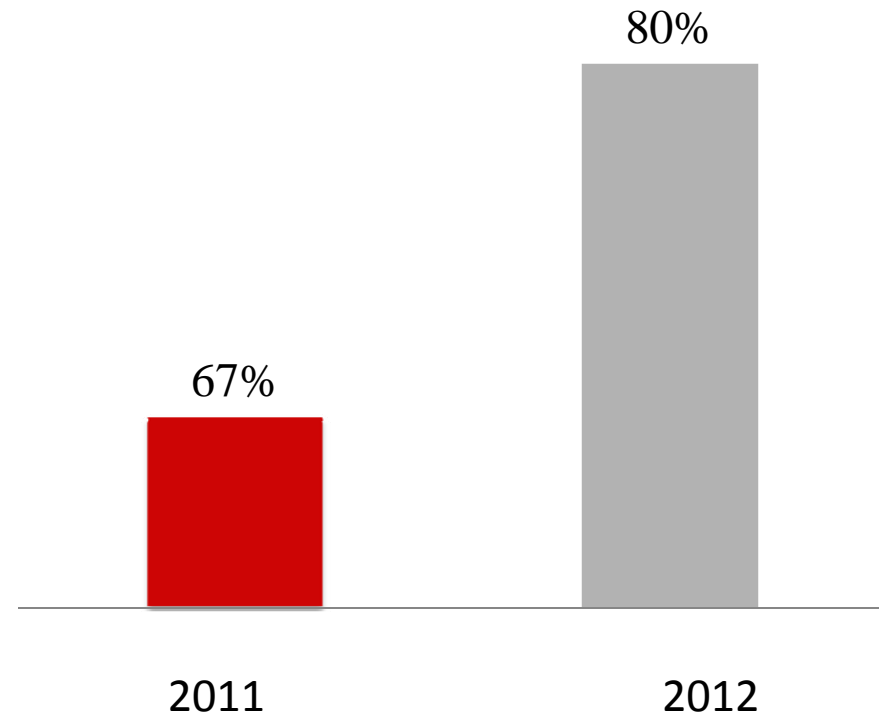
7%

1%

Before CMMI with Agile   After CMMI with Agile

43%

17%

Before CMMI with Agile   After CMMI with Agile

Improvements Indicators for Agile CMMI Adoption

After Release Defects Rate
Org. Mean
(% from all reported defects)

13%

7%

2011

2012
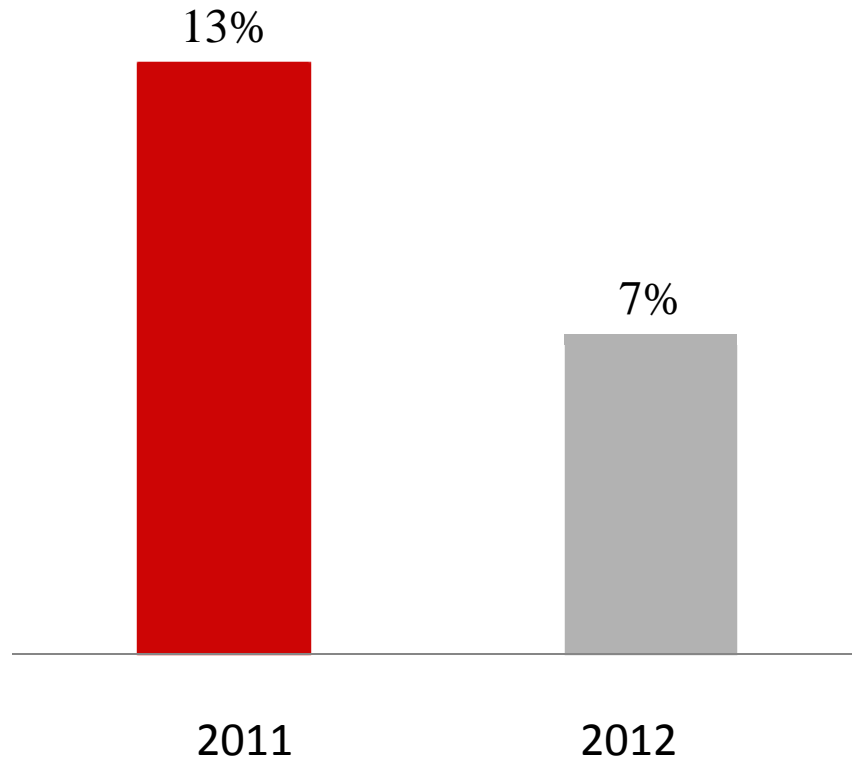
Process Compliance
Org. Mean

80%

67%

2011

2012

Conclusion & Recommendations

Conclusion

The accurate understanding of CMMI model at the deployment, is critical in gaining the value of its goals

CMMI describes "WHAT must be done" not "HOW is it done". Thus, any framework that adds values will not contradict with CMMI but shall support achieving its goals

Recommendations

The following should be considered to attain CMMI benefits:

❖ Build a system for the organization, not for the CMMI appraisal

❖ Understand the VALUE before asking for a road map

❖ Ensure that the CMMI model is not misused

- ▪ Goal is required, practice is expected
- ▪ Understand practice intent
- ▪ Interpret the model within the organization context
- ▪ If the practice is not applicable, provide alternatives
- ▪ Informative materials explain the practice and are not a measure for CMMI fulfillment

Thank You