



CMS Emerging Edge Forum (CEEFF) June 2017

Presented by:



Select Computing
I N C O R P O R A T E D

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CMMI and Agile

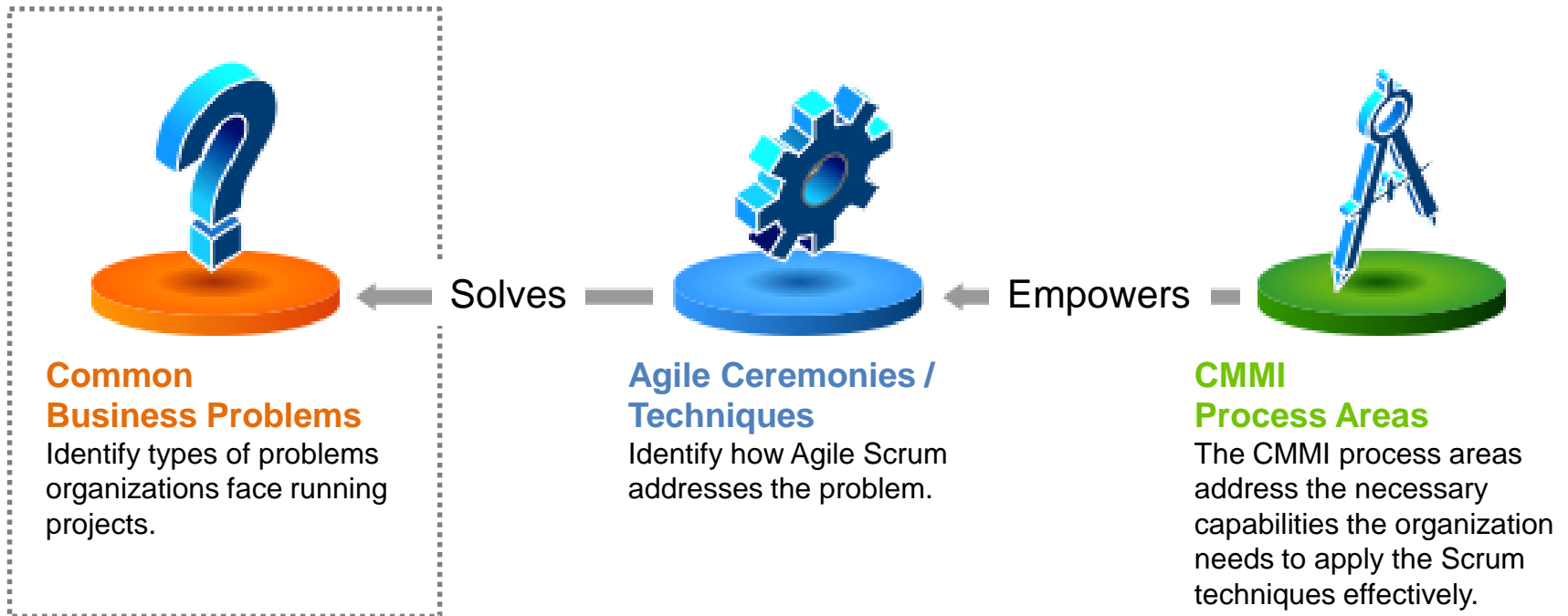
Combined for Project Success!!
KENNETH M'BALE

Agenda

- Agile Frameworks
- CMMI
- Agile and CMMI
- Conclusion
- Q&A

CMMI Empowers Agile

Working Together to Solve Common Business Problems



Agile Frameworks

Agile Myths

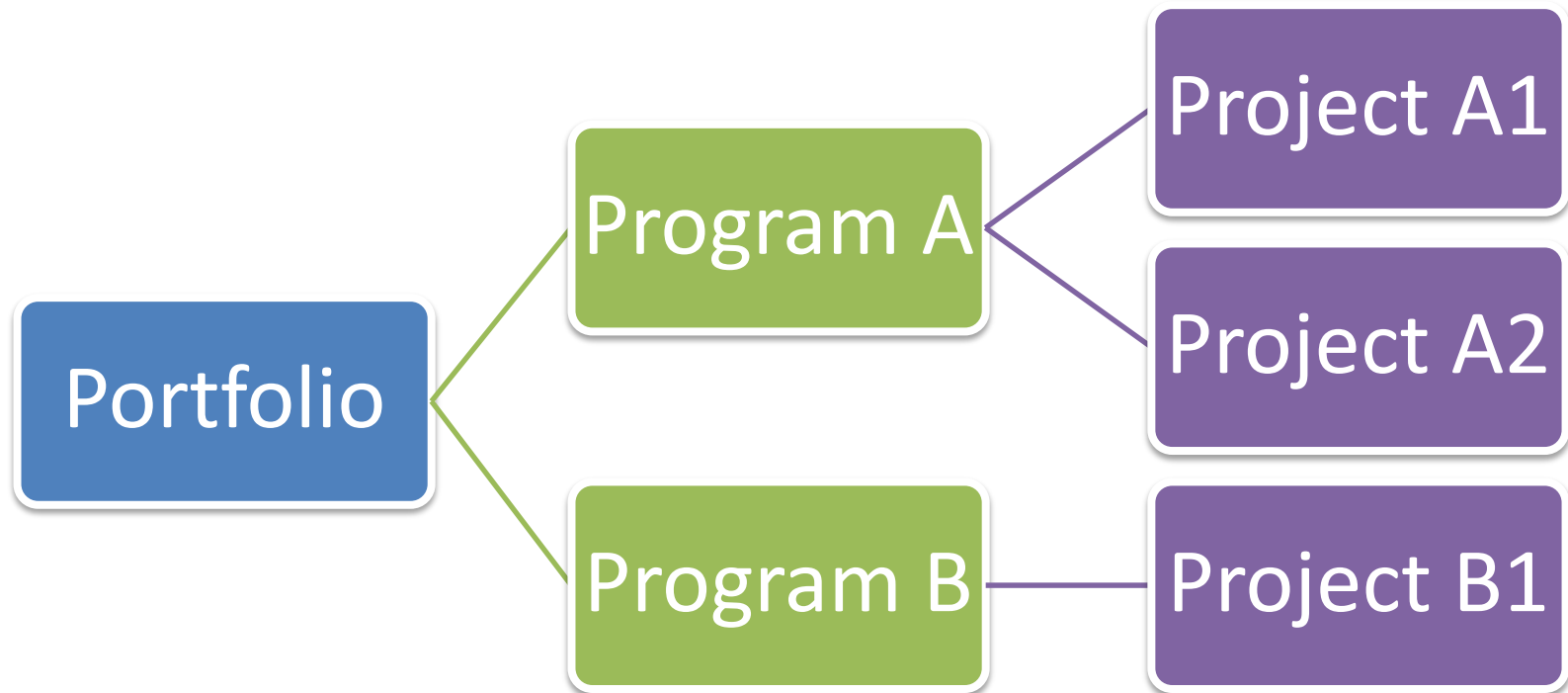
1. Agile methods are undisciplined and not measurable.
2. Agile methods have no project management.
3. Agile methods apply only to software development.
4. Agile methods have no documentation.
5. Agile methods have no requirements.
6. Agile methods only work with small co-located teams.
7. Agile methods do not include planning.
8. Agile only works for small project teams.
9. Agile development is not predictable.
10. Agile development does not scale.

Agile Frameworks

Agile development does not scale at the enterprise level.

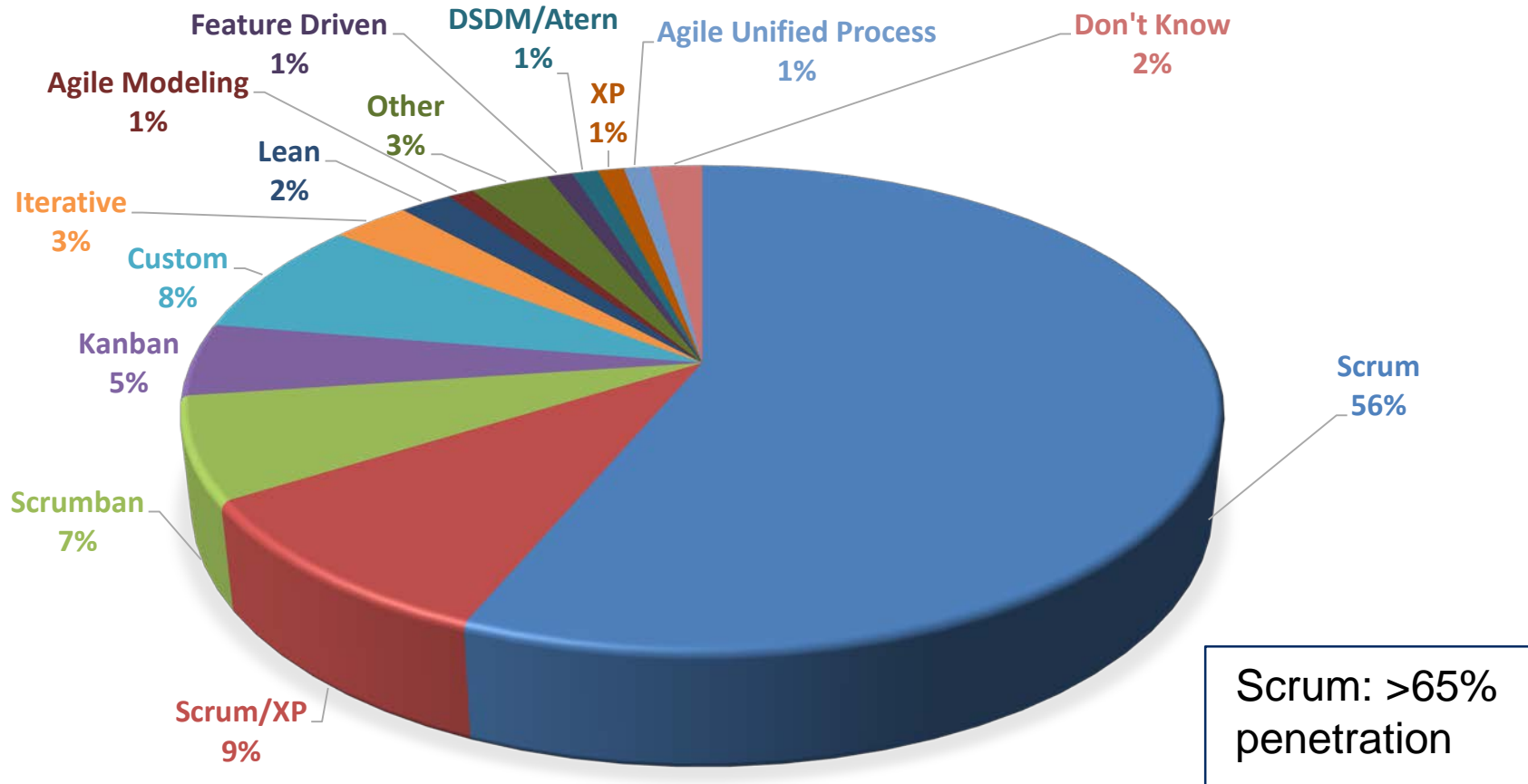
- Agile Frameworks address scaling up from small team to enterprise.
- CMMI enables effective project execution, including Agile.

Agile Frameworks



Agile Frameworks

The frameworks scale Scrum up to enable it for programs.



PROJECT LEVEL METHODOLOGIES

Agile Frameworks

3 Frameworks:

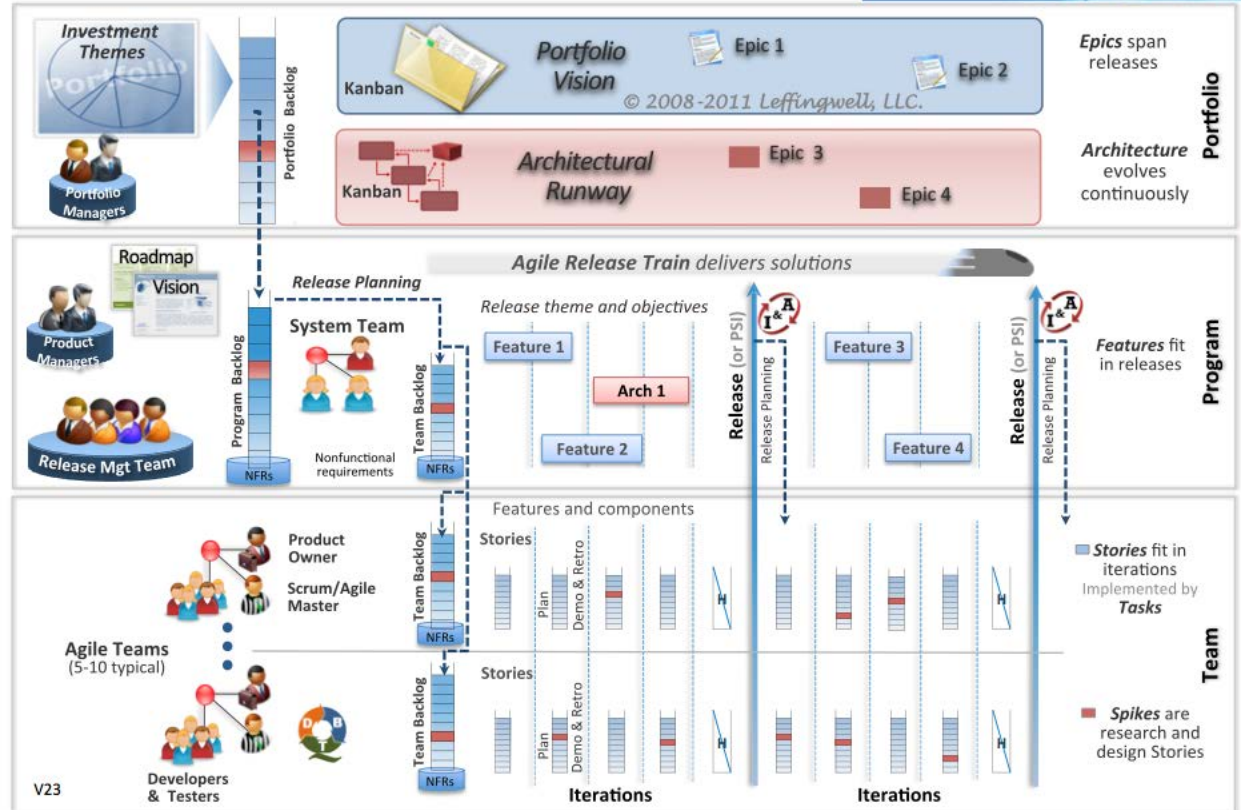
- Scaled Agile Framework (**SAFe**)
<http://scaledagileframework.com/>
by Dean Leffingwell
- Disciplined Agile framework (**DAD**)
<http://www.disciplinedagiledelivery.com/start-here/>
by Scott Ambler
- Large Scale Scrum framework (**LeSS**)
<http://static1.1.sqspcdn.com/static/f/702523/22609354/1367558447003/201305-Larman.pdf>
by Craig Larman and Bas Vodde

Agile Frameworks

SAFe utilizes Scrum at the team level and scales Agile and Lean across teams at the program and portfolio management level. Portfolio management helps drive Epics from enterprise investment strategies. Program management coordinates team activities to enact shared business direction and architectural vision, determine related groups of work items for cross team dependencies and coordinate with external team representatives.

Scaled Agile Framework™ Big Picture

Leffingwell, LLC.

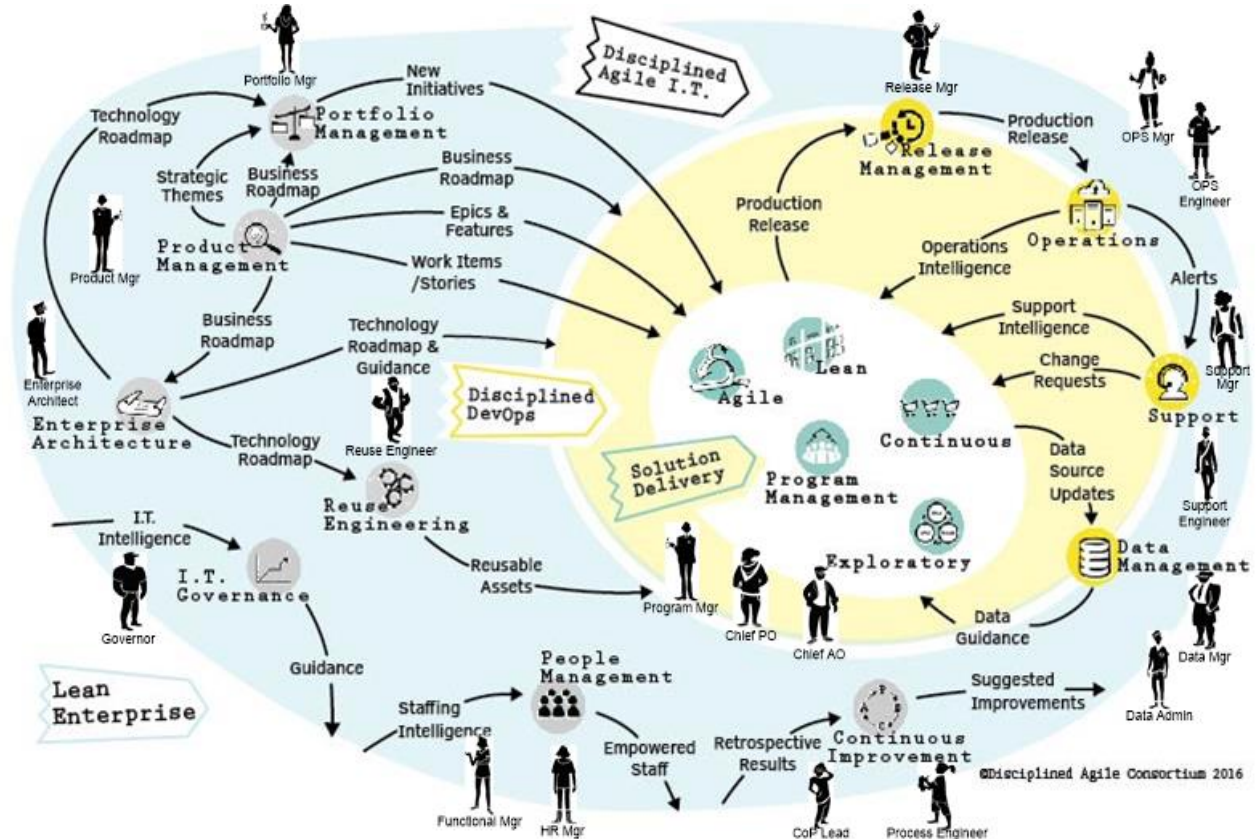


See also www.scalingsoftwareagility.wordpress.com and Leffingwell, D. *Agile Software Requirements: Lean Requirements Practices for Teams, Programs, and the Enterprise*, Addison-Wesley (Pub. 2011)

Agile Frameworks

The top four priorities in DAD are: (1) People first, (2) Learning-oriented, (3) Agile, and (4) Hybrid. Hybrid means that DAD also draws on other, more traditional sources, especially the versions of Unified Process for governance and life-cycle management. Projects are divided into three phases: Inception, Construction, and Transition.

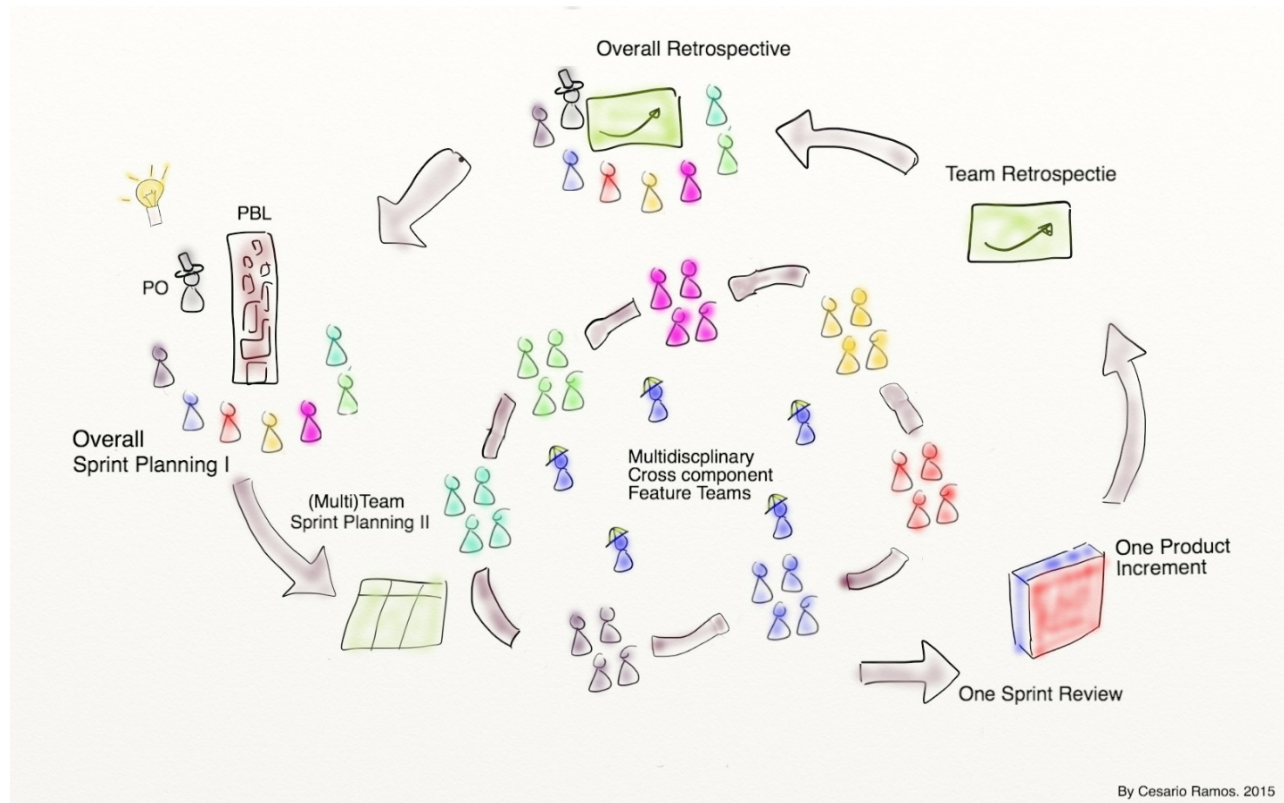
Disciplined Agile Delivery



Agile Frameworks

LeSS adopts Scrum while maintaining the same ceremonies and roles. For example, in the small team Framework, the Sprint Planning ceremony involves a representative from each team instead of all team members. In the large team Framework, a new role, the Area Product Owner, allows for several product owners to perform this role.

Large Scale Scrum



CMMI

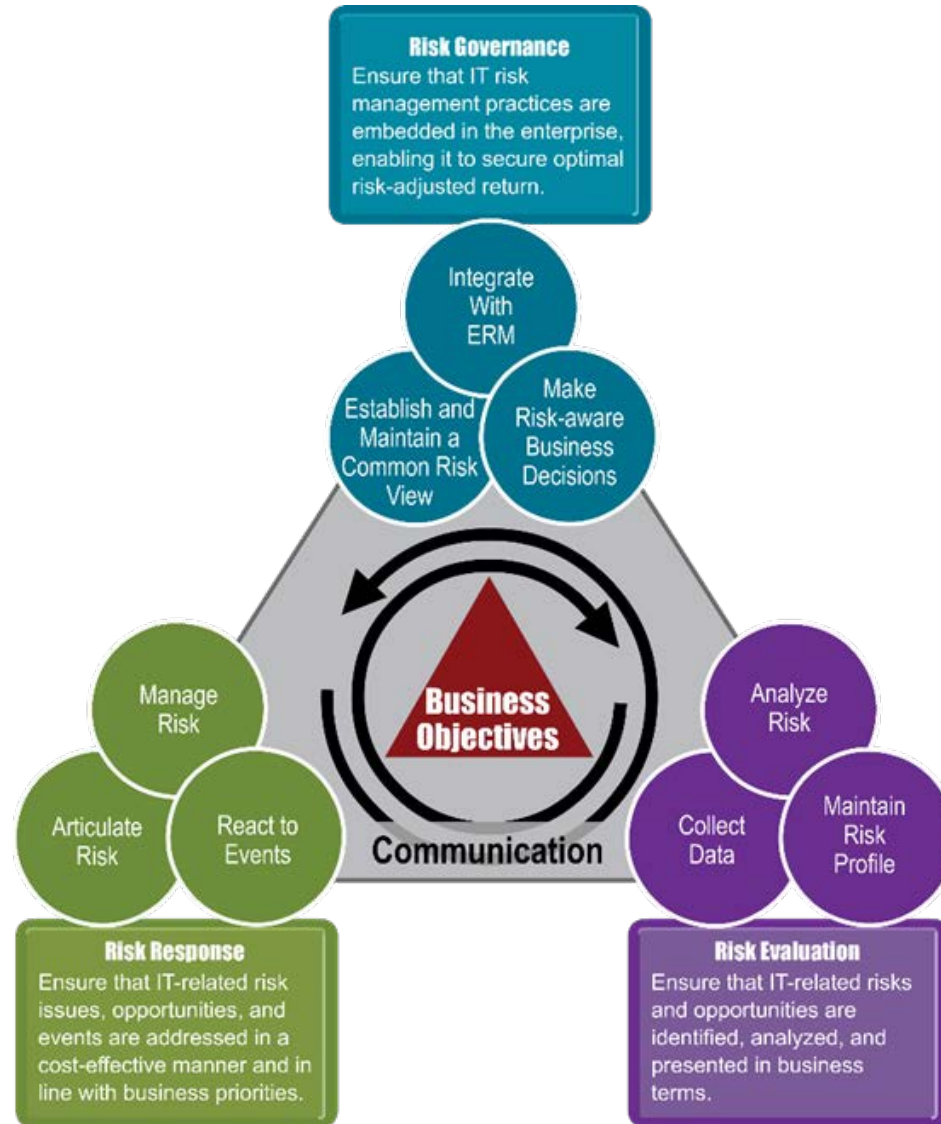


CMMI

Management's responsibility to manage Risk remains unchanged.

Delivery	Program	Technical
Commercial Financial Political Environmental Cultural Acquisition (Procurement) Business Continuity Growth	Acquisition (Procurement) Funding Organizational Security Safety Business Continuity Projects Customer Relations	People Technical Aspects Cost Schedule Resources Operational Support Provider Failure Quality Security Infrastructure Failure

CMMI



CMMI

Agile frameworks rely on Product Owners to enact Risk Governance within the project or program. Therefore, it is critical that Product Owners follow a common Risk Governance approach that pervades throughout projects and programs to enable portfolio risk management. By applying CMMI, the organization can manage risk.

Maturity Level 4: Risk Governance Capability

Quantitative Project Management

Organizational Process Performance

Maturity Level 3: Risk Evaluation Capability

Risk Management

Decision Analysis and Resolution

Maturity Level 2: Risk Response Capability

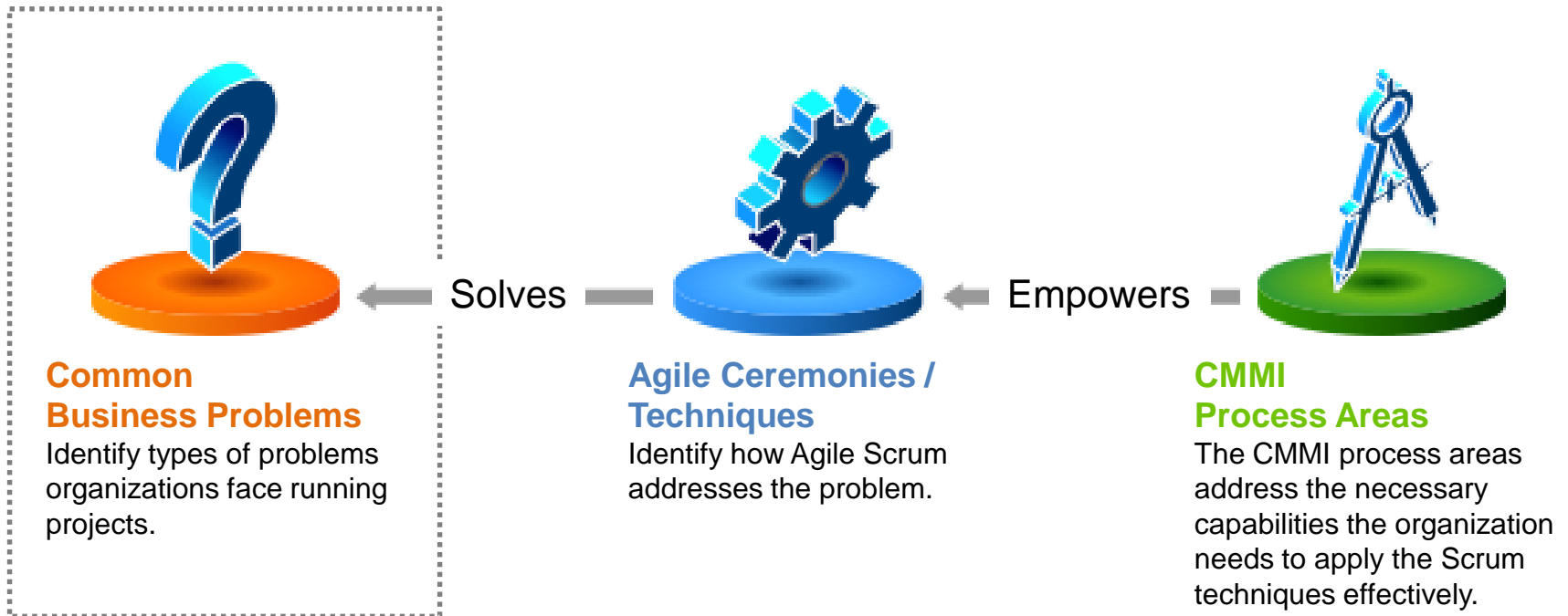
Measurement and Analysis

Process and Product Quality Assurance

Project Monitoring and Control

CMMI Empowers Agile

Working Together to Solve Common Business Problems



CMMI Empowers Agile

01

Project estimates are unrealistic or unknown.

Agile Ceremonies / Techniques:

- Team Estimating Game
- Planning Poker
- Sprint Planning
- Backlog Grooming
- Requirements Development
- Task Estimation
- Release Planning
- Sprint Backlog

CMMI Process Areas: (Maturity Level):

- Project Planning (ML 2)
- Integrated Project Management (ML 3)
- Requirements Management & Development (ML 2 and ML 3)
- Measurement and Analysis (ML 2)
- Quantitative Project Management (ML 4)

02

Projects do not get delivered on schedule.

Agile Ceremonies / Techniques:

- Daily Standup/ Daily Scrum
- Release Burndown
- Sprint Burndown
- Task Estimation
- Release on Demand
- Incremental Release

CMMI Process Areas (Maturity Level):

- Project Monitoring and Control (ML 2)
- Measurement and Analysis (ML 2)
- Quantitative Project Management (ML 4)

03

Requirements are always changing.

Agile Ceremonies / Techniques:

- Backlog Grooming
- Sprint Planning
- Product Backlog
- User Stories/ Epics
- Definition of Done (for User Stories)
- Top "10" Features
- Release Planning

CMMI Process Areas (Maturity Level):

- Requirements Management (ML 2)
- Project Management & Control (ML 2)
- Requirements Development (ML 3)
- Measurement and Analysis (ML 2)
- Verification (ML 3)

CMMI Empowers Agile

04

Customer won't commit to project.

Agile Ceremonies / Techniques:

- Release Planning
- Sprint Planning

CMMI Process Areas (Maturity Level):

- Requirements Management (ML 2)
- Project Planning (ML 2)

05

Customers are frustrated with progress.

Agile Ceremonies / Techniques:

- Release Planning
- Sprint Planning
- Sprint Demo
- Sprint Retrospective

CMMI Process Areas (Maturity Level):

- Integrated Project Management (ML 3)
- Validation (ML 3)
- Project Planning (ML 2)
- Project Monitoring and Control (ML 2)
- Measurement and Analysis (ML 2)

06

Customers are not satisfied with the end product.

Agile Ceremonies / Techniques:

- Definition of Done
- User Stories/ Epics
- Test Driven Development
- Sprint Demo

CMMI Process Areas (Maturity Level):

- Validation (ML 3)
- Verification (ML 3)
- Requirements Development (ML 3)
- Requirements Management (ML 2)

CMMI Empowers Agile

07

There are too many bugs during a project or post project.

Agile Ceremonies / Techniques:

- Test Driver Development
- Continuous Build/ Continuous Integration
- Refactoring

CMMI Process Areas (Maturity Level):

- Validation (ML 3)
- Verification (ML 3)
- Product Integration (ML 3)
- Technical Solution (ML 3)

08

Unable to secure or retain project resources.

Agile Ceremonies / Techniques:

- Team Agreements
- Release Planning
- Daily Standup
- Vision

CMMI Process Areas (Maturity Level):

- Integrated Project Management (ML 3)
- Project Planning (ML 2)
- Risk Management (ML 3)
- Project Monitoring and Control (ML 2)
- Organizational Training (ML 3)

09

Lack of internal and external support for project.

Agile Ceremonies / Techniques:

- Team Agreements
- Release Planning
- Sprint Planning
- Daily Standup
- Product Owner Meeting with Customer

CMMI Process Areas (Maturity Level):

- Integrated Project Management (ML 3)
- Risk Management (ML 3)
- Project Planning (ML 2)
- Project Monitoring and Control (ML 2)

CMMI Empowers Agile

10

Poor project communication.

Agile Ceremonies / Techniques:

- Daily Standup
- Release Planning
- Sprint Planning
- Sprint Demo
- Sprint Retrospective
- Product Owner Meeting with Customer

CMMI Process Areas (Maturity Level):

- Project Monitoring and Control (ML 2)
- Project Planning (ML 2)
- Integrated Project Management (ML 3)

11

Requirements are vague or open-ended.

Agile Ceremonies / Techniques:

- User Story/ Epic
- Definition of Done
- Backlog Grooming

CMMI Process Areas (Maturity Level):

- Requirements Management (ML 2)
- Requirements Development (ML 3)

12

Project team responsibilities are not clear.

Agile Ceremonies / Techniques:

- Team Agreements
- Sprint Planning
- Release Planning
- Incremental Release

CMMI Process Areas (Maturity Level):

- Integrated Project Planning (ML 2)
- Project Planning (ML 2)

CMMI Empowers Agile

13

Project team member training is inadequate for the task.

Agile Ceremonies / Techniques:

- Release Planning

CMMI Process Areas (Maturity Level):

- Organizational Training (ML 3)
- Project Planning (ML 2)

14

Failure to successfully plan the project.

Agile Ceremonies / Techniques:

- Release Planning
- Sprint Planning
- Backlog Grooming

CMMI Process Areas (Maturity Level):

- Project Planning (ML 2)
- Integrated Project Planning (ML 2)
- Requirements Management (ML 2)

15

Failure to foresee potential problems.

Agile Ceremonies / Techniques:

- Daily Standup
- Release Planning
- Sprint Retrospectives

CMMI Process Areas (Maturity Level):

- Project Monitoring and Control (ML 2)
- Risk Management (ML 3)
- Integrated Project Management (ML 3)
- Quantitative Project Management (ML 4)

CMMI Empowers Agile

16

Project information isn't available when needed.

Agile Ceremonies / Techniques:

- User Stories/ Epics
- Sprint Planning
- Release Planning
- Daily Standup
- Release Burndown
- Sprint Burndown
- Sprint Demo
- Vision

CMMI Process Areas (Maturity Level):

- Project Monitoring (ML 2)
- Integrated Project Management (ML 3)
- Risk Management (ML 3)
- Measurement and Analysis (ML 2)
- Verification (ML 3)

17

Code quality is poor.

Agile Ceremonies / Techniques:

- Pair Programming
- Test Driven Development
- Continuous Build/ Integration
- Retrospectives
- Definition of Done

CMMI Process Areas (Maturity Level):

- Technical Solution (ML 3)
- Verification (ML 3)
- Validation (ML 3)
- Integrated Project Management (ML 3)
- Process & Product Quality Assurance (ML 2)

18

Organizational performance isn't improving.

Agile Ceremonies / Techniques:

- Retrospectives

CMMI Process Areas (Maturity Level):

- Integrated Project Management (ML 3)
- Organizational Process Focus (ML 3)
- Organizational Process Definition (ML 3)
- Organizational Training (ML 3)
- Process & Product Quality Assurance (ML 2)
- Organizational Process Performance (ML 4)
- Quantitative Project Management (ML 4)
- Causal Analysis and Resolution (ML 5)

Summary

Within Industry, there are **2** well established camps

1.

Agile Camp:

- Agile methods provide instructions on how to do software development, purposely absent from CMMI, which works well on co-located projects.
- Critics of Agile state that it doesn't have enough control and results in undocumented changes and chaos (see Agile Myths).

2.

CMMI Camp:

- CMMI provides the systems engineering practices often required on larger, high-risk projects. CMMI also provides the process management and support practices organization regardless of organization or project size.
- However, to Agile practitioners, CMMI often seems bloated and unimaginative. They complain that it is overly bureaucratic and promotes process of over substance, thus impeding the time-to-market requirements needed today.

Summary

CMMI and **Agile** can coexist and benefit software development. There is a symbiotic relationship between the two.

1.

Agile:

- Agile methodologies specify HOW things should be done.
- Agile methods clearly focus on people and allows people to determine technology and processes.

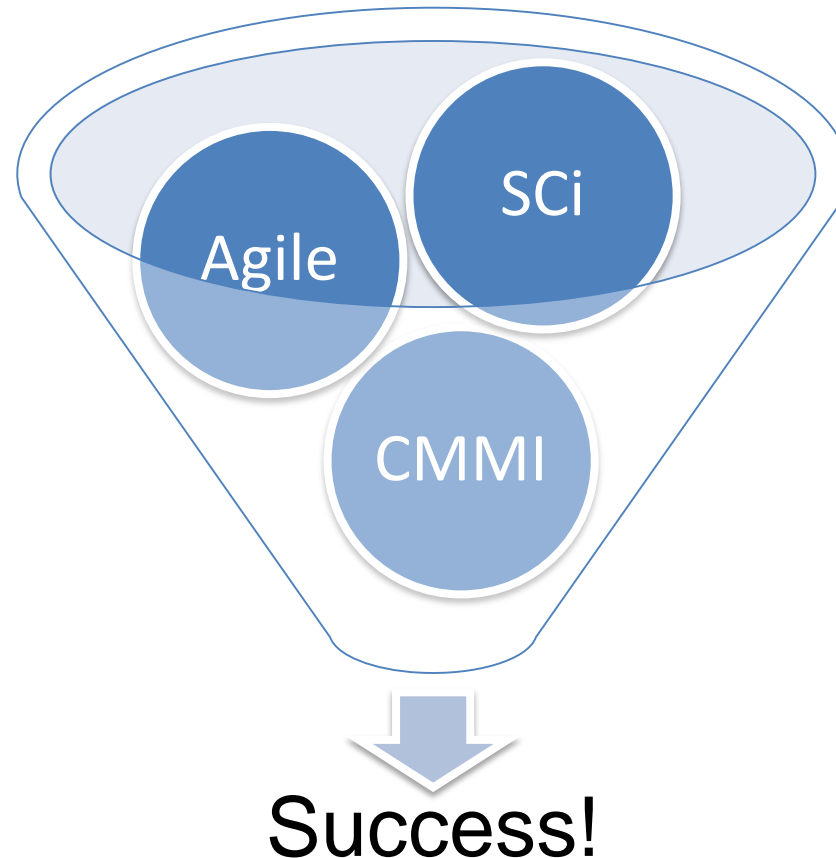
2.

CMMI:

- CMMI specifies WHAT should be done.
- The CMMI model describes three aspects of development projects as (1) processes, (2) technology, and (3) people. It is well known that CMMI focuses on processes.

An Agile implementation should be tailored to match an organization's actual maturity level.

Conclusion



Produce Best Outcomes by Combining a
CMMI Level 4 appraised Partner, Agile, and CMMI

Thank You

Q & A

White Paper:

<http://www.selectcomputing.com/docs/AgilePaper.pdf>



Select Computing
I N C O R P O R A T E D

Select Computing, Inc. (SCi) is an innovative CMMI level 4 appraised company, for both the development and services models. SCi specializes in blending CMMI level 4 process maturity and Agile methodology to produce successful outcomes. SCi can help an organization make the transition to Agile. Implementing Agile, using a contractor that is at CMMI level 4, can result in less rework and provide significant benefits. Implementing a CMMI compliant software development process that is also Agile will bring the repeatability and predictability offered by CMMI.

Arnold Huff

Sr. Capture/Business Development
Manager

Mobile: 301-509-6969

Office: 410-381-0082 x127

ahuff@selectcomputing.com

Select Computing, Inc.

9841 Broken Land Pkwy, Suite 209

Columbia, MD. 21046

www.selectcomputing.com