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Creating winning teams.

Agile and SEMAT Perfect Partners

Ivar Jacobson
with
Ian Spence and Pan Wei Ng

www.ivarjacobson.com

Software Engineering Method And Theory

Founded in September 2009:

Ivar Jacobson – Bertrand Meyer – Richard Soley

40 individual signatories

2,000 supporters – 20 corporate signatories – 20 academic signatories

SEMAT
COMMUNITY
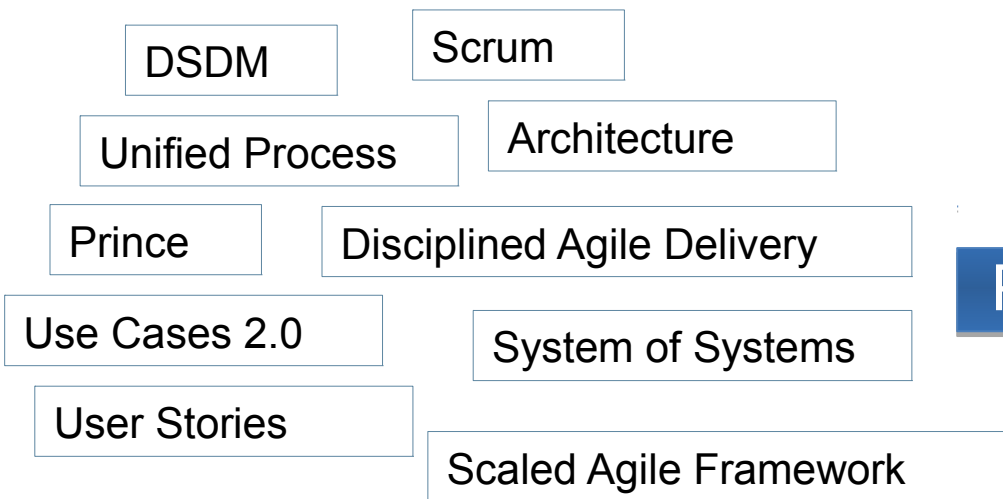www.semat.org

Let's wait a little by getting into what it is

Let's instead start by saying

- It doesn't compete with any method – agile or pre-agile
- Instead it powers other methods/practices – agile or pre-agile

DSDM

Scrum

Unified Process

Architecture

Prince

Disciplined Agile Delivery

Use Cases 2.0

System of Systems

User Stories

Scaled Agile Framework

Powered by **SEMAT**

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There are particularly three things that are new with SEMAT

1. SEMAT relies on a common ground or a kernel
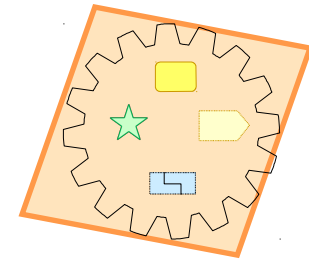
2. The kernel is actionable

3. It relies on an intuitive graphical syntax
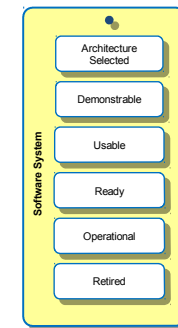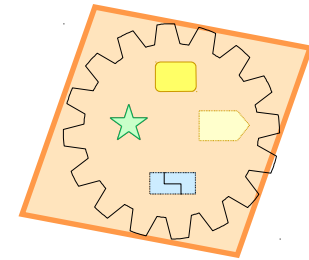
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Use Cases

Pair Programming

ATDD

CMMI

Scrum

User
Stories

Common Ground – The Kernel

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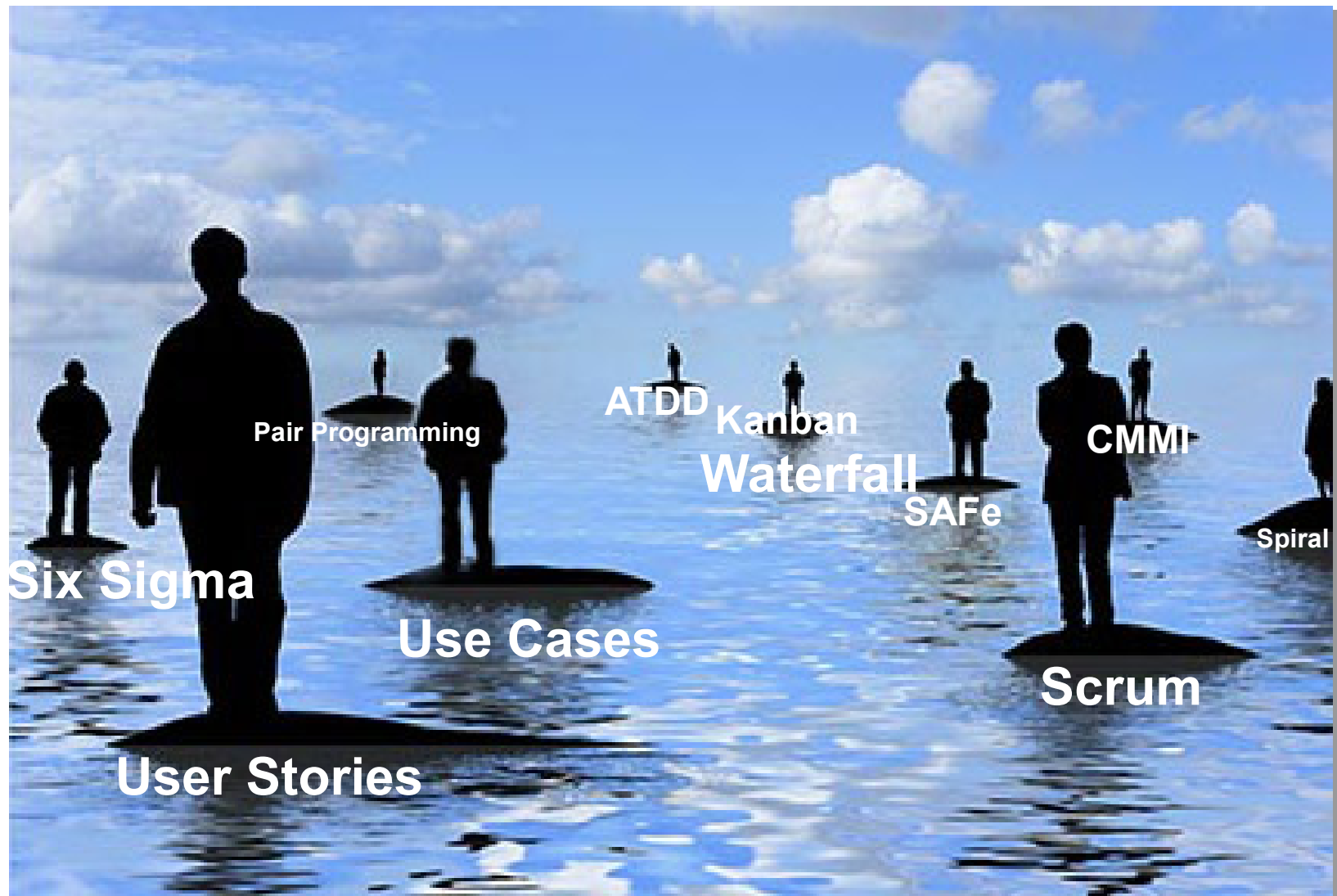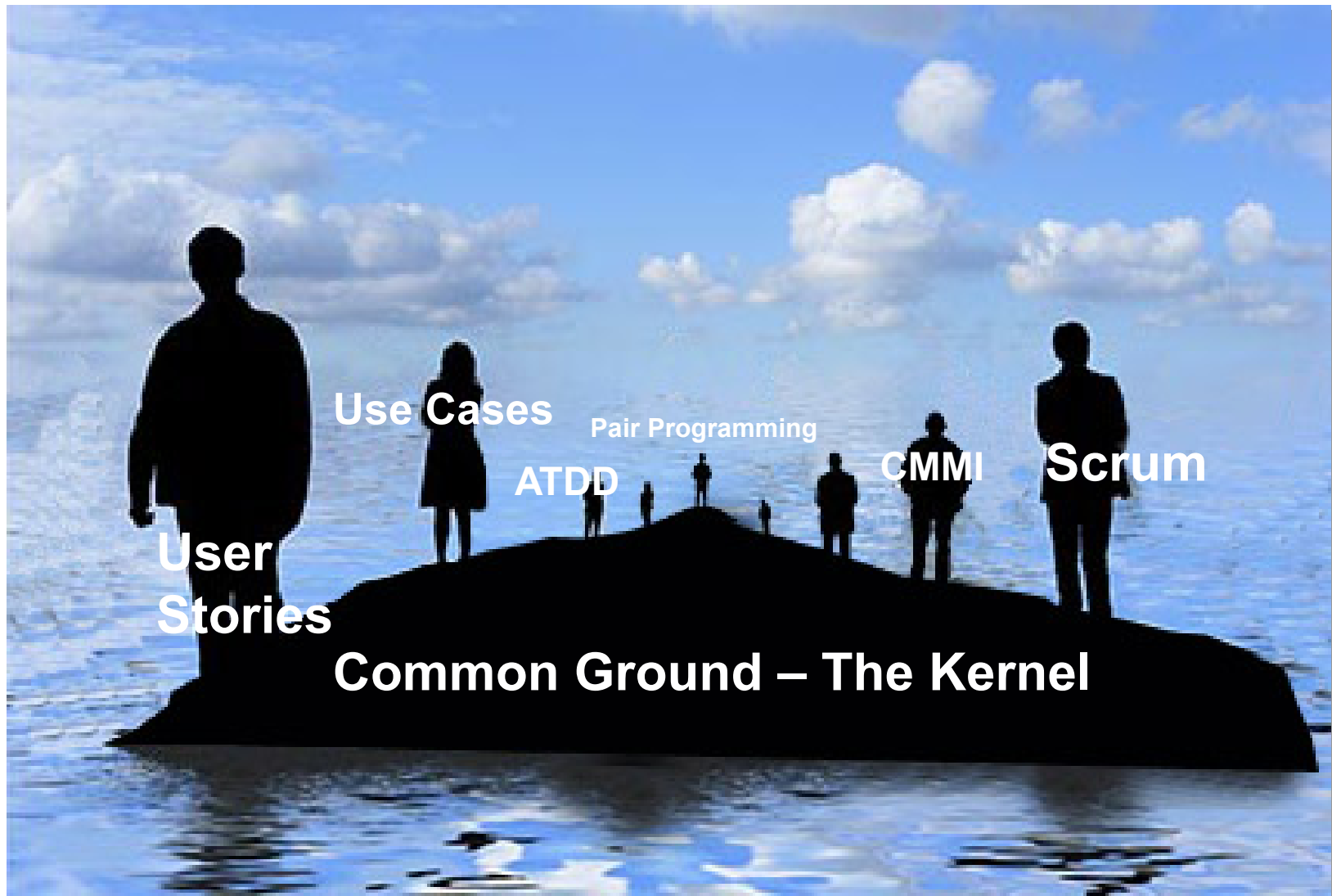
- Things that are **universal to all software development endeavors**.

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- Practices can be added to create your specific Way of Working.
- Practices such as Scrum, User Stories, Test-Driven Development, etc.
- But that is not the subject of today. ☹

Practices
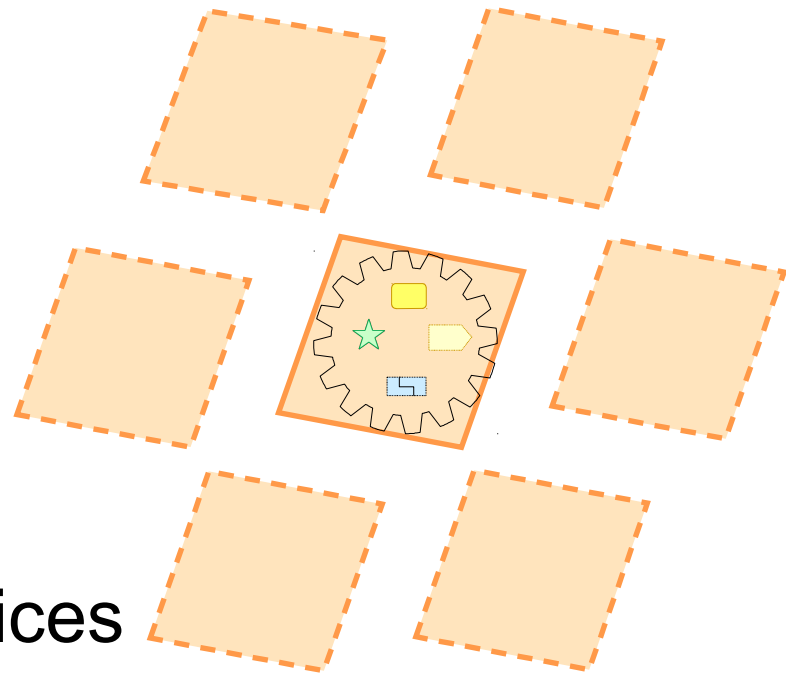
The Kernel and its Alphas
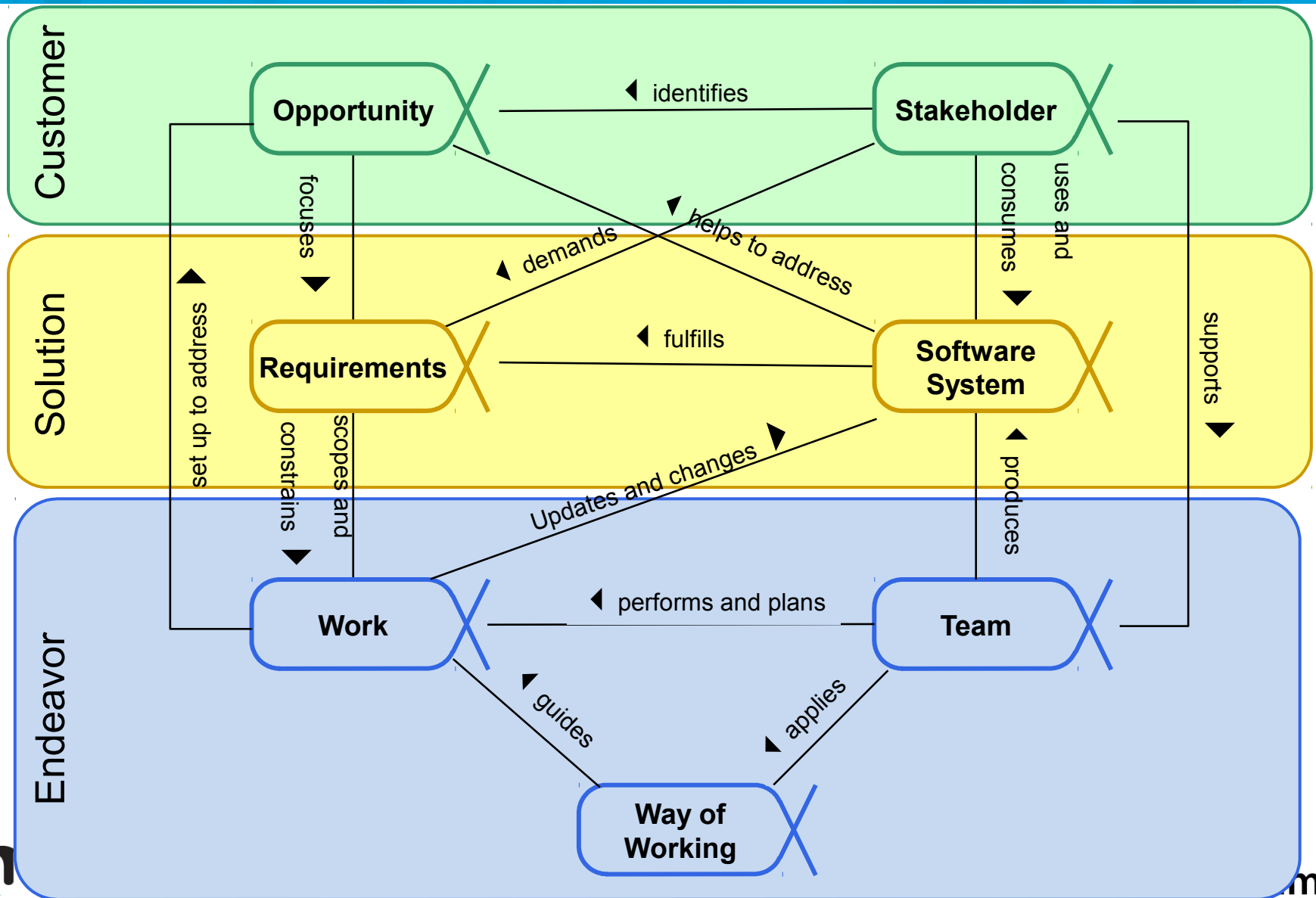
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Customer

- Opportunity — identifies → Stakeholder
- Opportunity — focuses
- Stakeholder — uses and consumes

Solution

- demands
- helps to address
- Requirements — fulfills — Software System
- set up to address
- constrains
- scopes and
- produces
- supports

Endeavor

- Updates and changes
- Work — performs and plans — Team
- Work — guides → Way of Working
- Team — applies → Way of Working

1. SEMAT relies on a common ground or a kernel
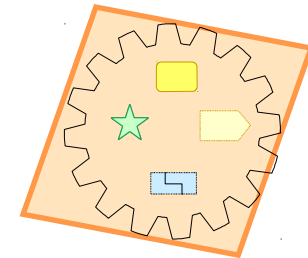
2. The kernel is actionable

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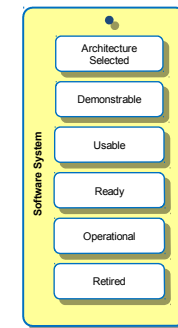The Kernel is more than a static model – it is actionable

Customer

Solution

Endeavor

identifies

set up to address

Software System

Architecture Selected — addresses the key technical risks and any constraints

Demonstrable — proves architecture, concept and supports testing

Usable — demonstrates quality characteristics required

Ready — accepted for operational deployment

Operational — in use in an operational environment

Retired — no longer supported
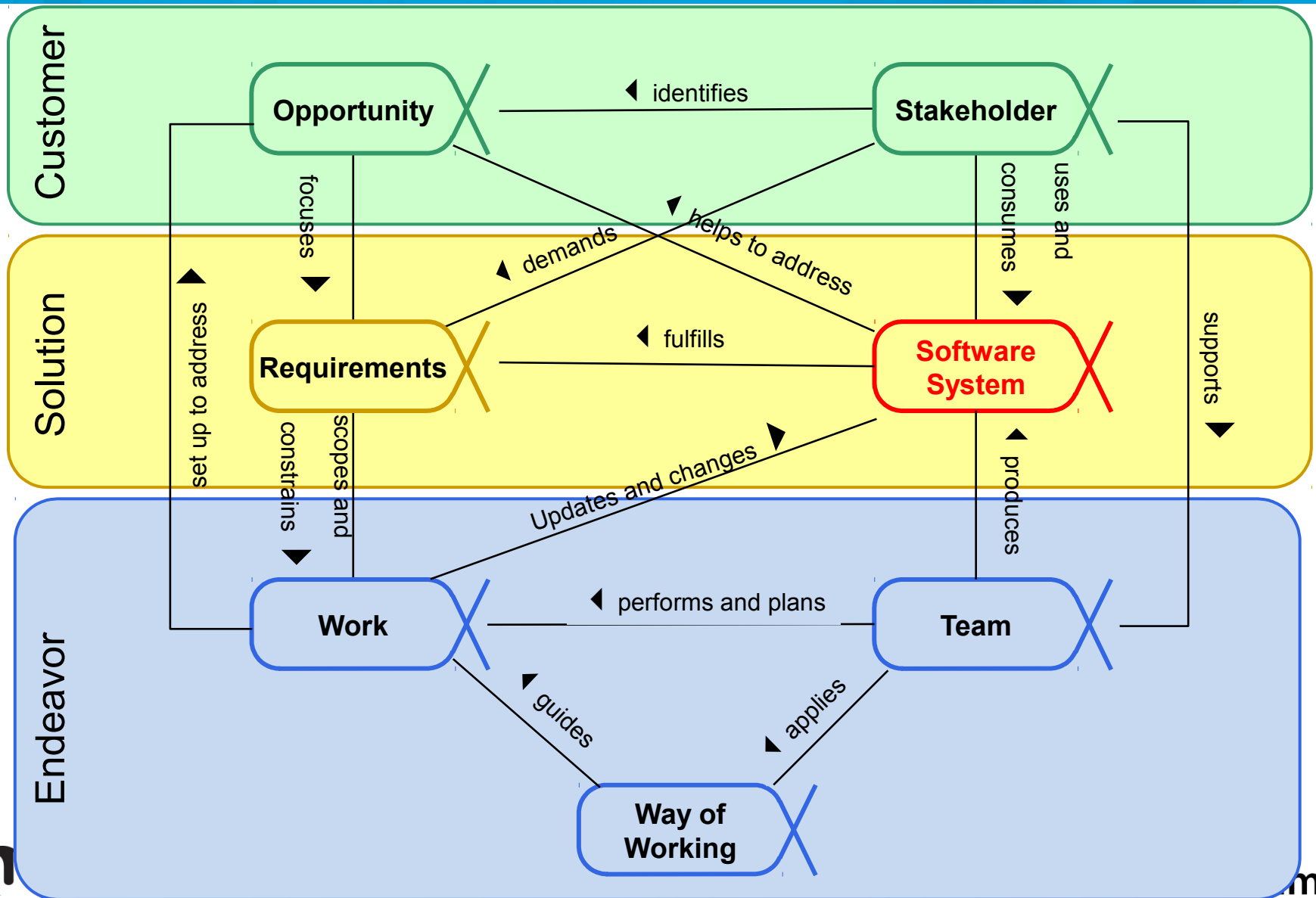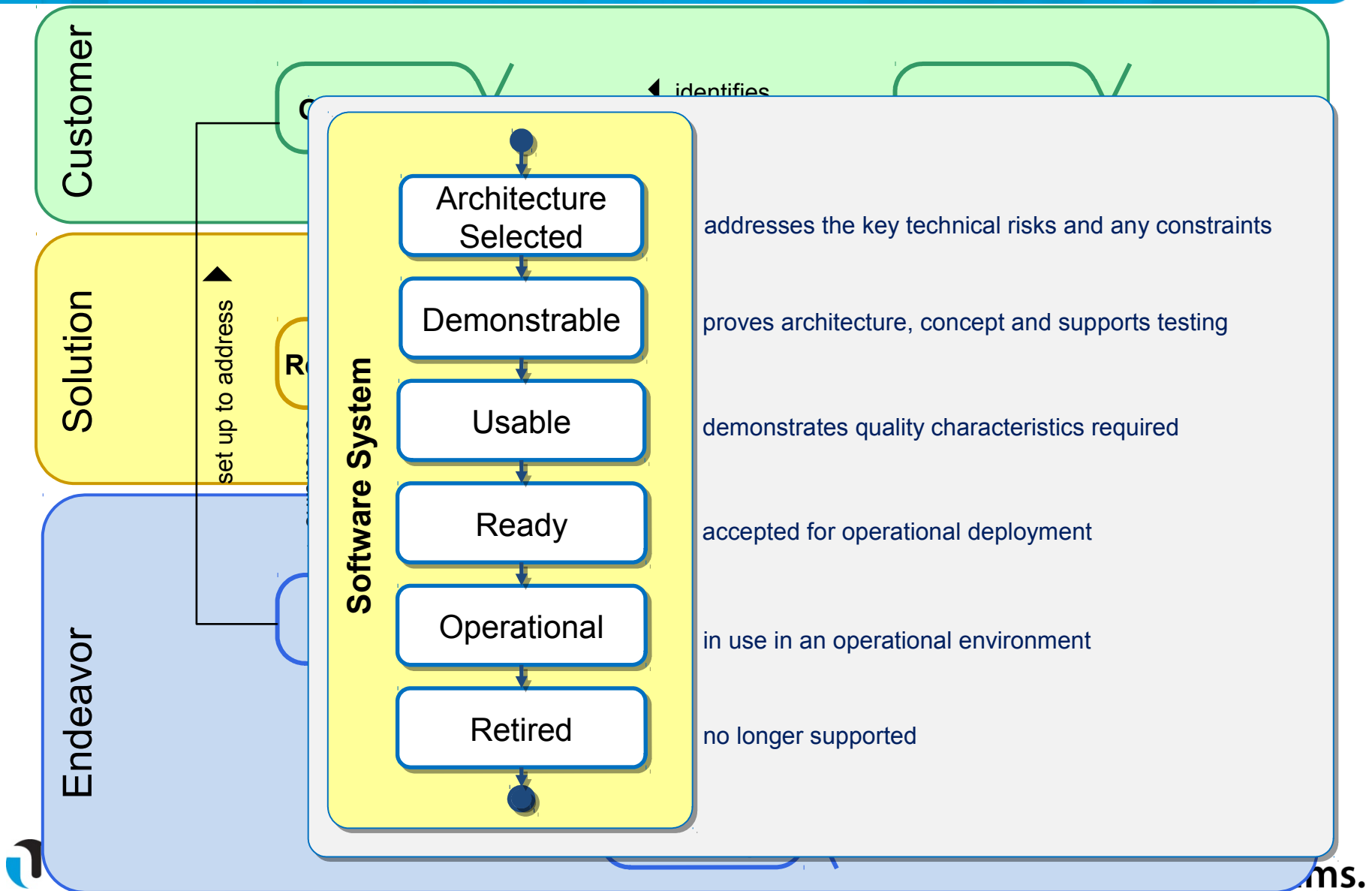
Every Alpha represents one dimension
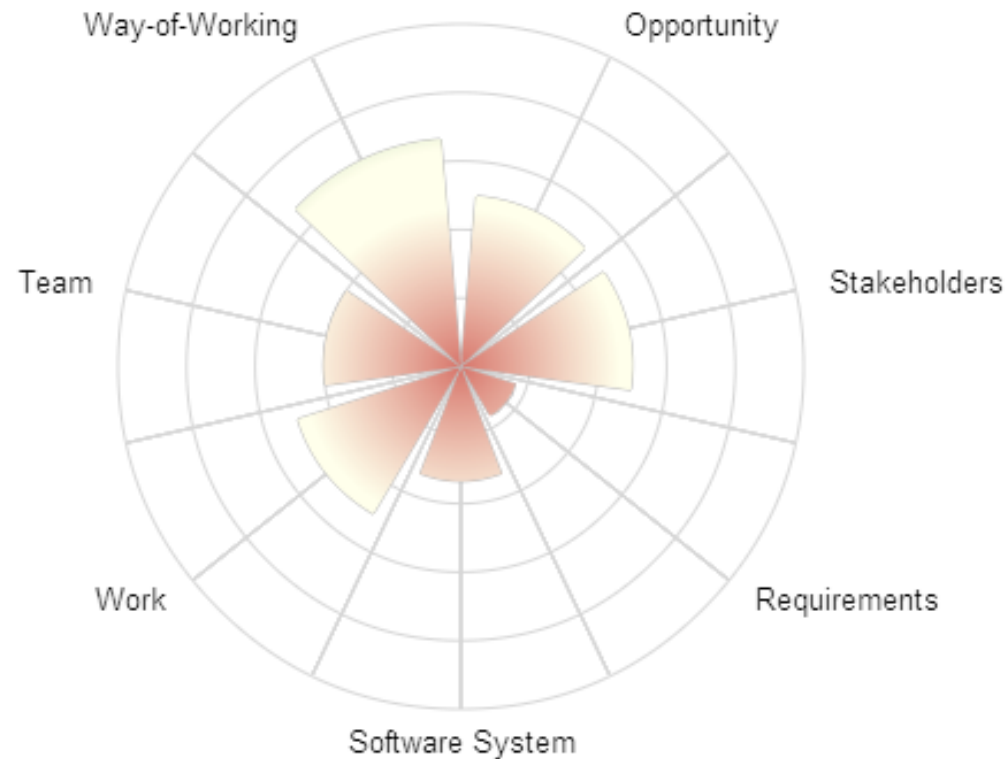
http://sematacc.meteor.com/

1. SEMAT relies on a common ground or a kernel

2. The kernel is actionable

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cards & checklists
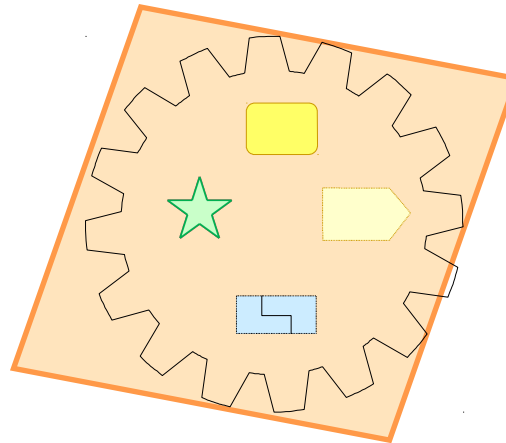
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SEM∧T
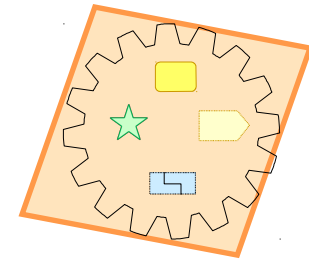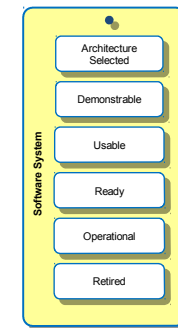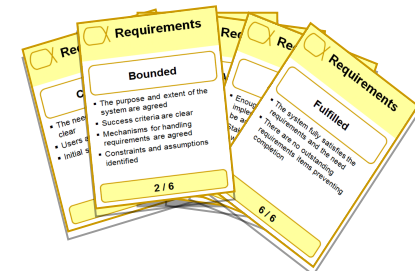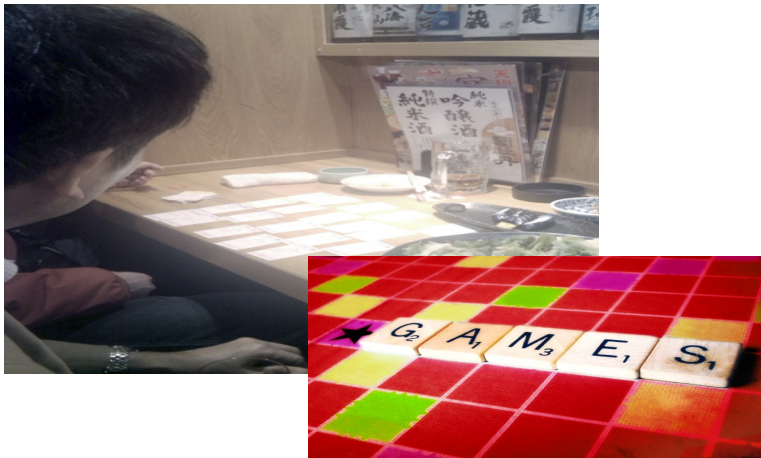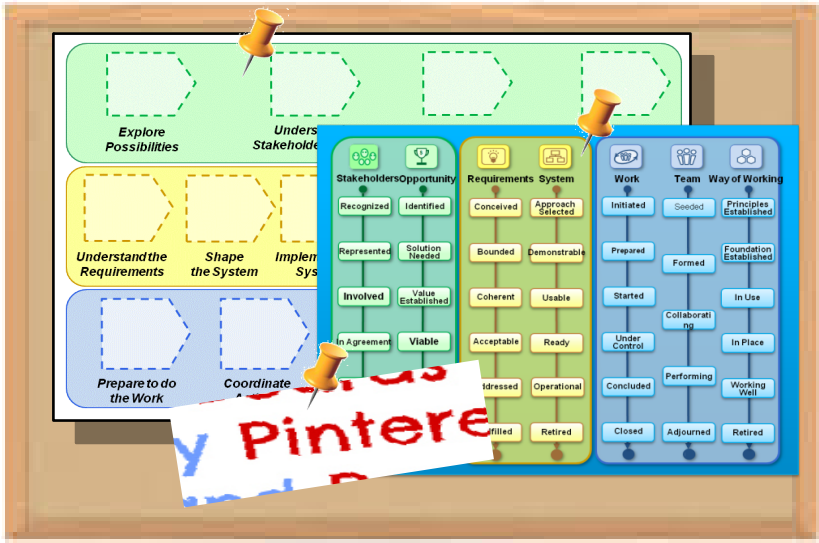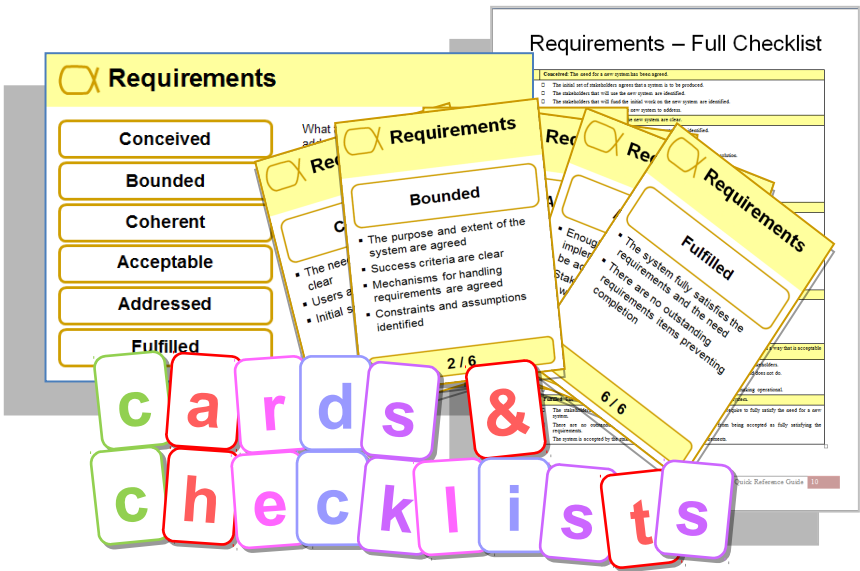
- You can play many games

Progress Poker	Lifecycle Layout
Chase the State	Milestone Mapping
Objective Go	Health Monitoring
Checkpoint Construction	And more……

- http://www.ivarjacobson.com/alphastatecards/

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All
Alpha
States
Lined

Stakeholders | Opportunity
Recognized | Identified
Represented | Solution Needed
Involved | Value Established
In Agr...

Requirements | Software System
Conceived | Architecture Selected
Bounded | Demonstrable
Coherent | Usable

Work | Team | Way of Working
Initiated | Seeded | Principles Established
Prepared | Formed | Foundation
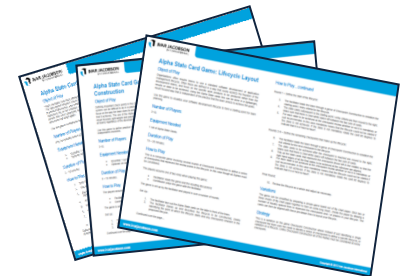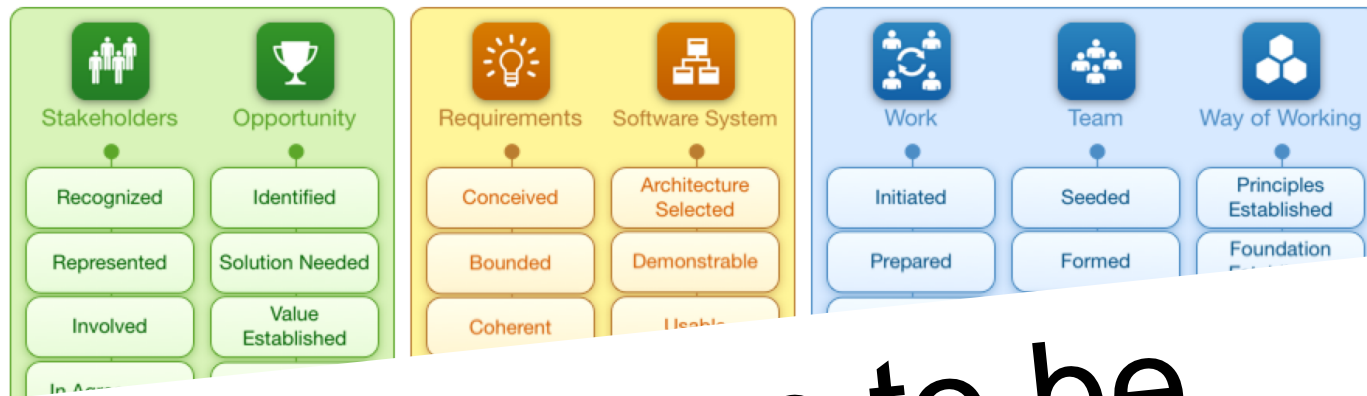
App soon to be available

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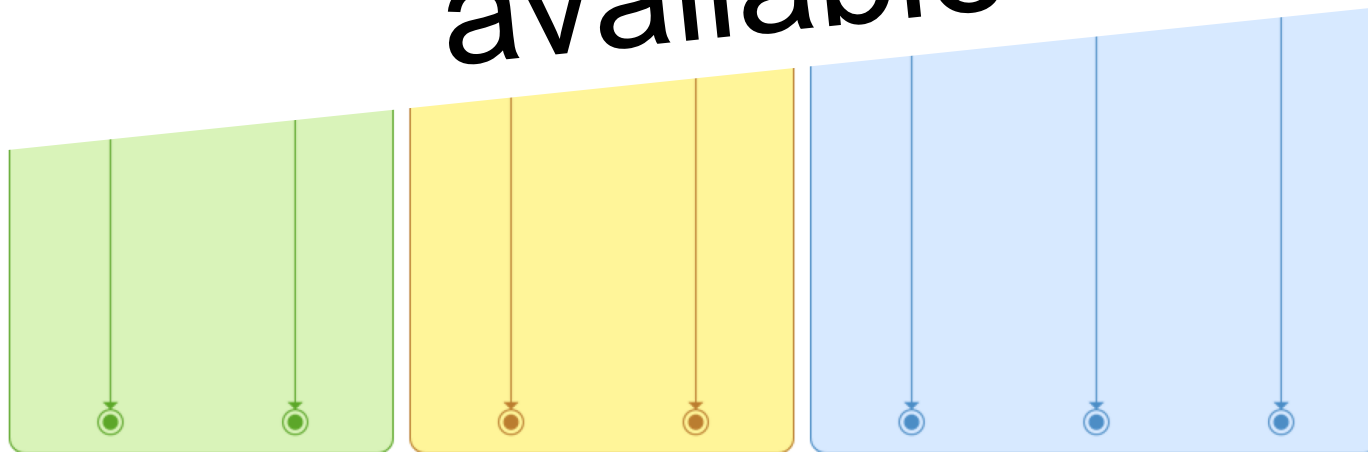
Checkpoints for an example state

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Stakeholders	Opportunity		Team	Way of Working
Recognized	Identified		Seeded	Principles Established
Represented	Solution Needed		Formed	Foundation Established
Involved	Value Established		Collaborating	In Use
In Agreement	Viable		Performing	In Place
Satisfied for Deployment	Addressed		Adjourned	Working well
Satisfied in Use	Benefit Accrued			Retired

Viable

It is agreed that a solution can be produced quickly and cheaply enough to successfully address the opportunity.

☐ A solution has been outlined.

☐ The indications are that the solution can be developed and deployed within constraints.

☐ The risks associated with the solution are acceptable and manageable.

☐ The indicative (ball-park) costs of the solution are less than the anticipated value of the opportunity.

☐ The reasons for the development of a software-based solution are understood by all members of the team.

☐ It is clear that the pursuit of the opportunity is viable.

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Plan: Determine Next State

Achieved States

Next States to Achieve

Pending States

Stakeholders	Opportunity	Requirements	Software System	Work	Team	Way of Working
Recognized	Identified	Conceived	Architecture Selected	Initiated	Seeded	Principles Established
Represented	Solution Needed	Bounded	Demonstrable	Prepared	Formed	Foundation Established
Involved	Value Established	Coherent		Started	Collaborating	In Use
In Agreement	Viable	Acceptable				In Place
Satisfied for Deployment	Addressed	Addressed	Usable	Under Control	Performing	Working well
			Ready			
			Operational	Concluded		
Satisfied in Use	Benefit Accrued	Fulfilled	Retired	Closed	Adjourned	Retired

Plan: Determine How to Achieve Next State

Next States to Achieve

Stakeholders — Recognized, Represented, Involved, In Agreement, Satisfied for Deployment, Satisfied in Use

Opportunity — Identified

Requirements — Conceived

Software System — Architecture Selected

Work — Initiated, Prepared, Started, Under Control, Concluded, Closed

Team — Seeded, Formed, Collaborating, Performing, Adjourned

Way of Working — Principles Established, Foundation Established, In Use, In Place, Working well, Retired

Satisfied for Deployment

The minimal expectations of the stakeholder representatives have been achieved.

☐ The stakeholder representatives provide feedback on the system from their stakeholder group perspective.

☐ The stakeholder representatives confirm that they agree that the system is ready for deployment.

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Plan: Determine How to Achieve Next State

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Next States to Achieve →

Stakeholders
- Recognized
- Represented
- Involved
- In Agreement
- Satisfied for Deployment
- Satisfied in Use

Opportunity
- Identified
- Solution Needed
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- Viable
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Requirements
- Conceived

Software System
- Architecture Selected

Work
- Initiated

Team
- Seeded
- Formed
- Collaborating
- Performing
- Adjourned

Way of Working
- Principles Established
- Foundation Established
- In Use
- In Place
- Working well
- Retired

Addressed

A solution has been produced that demonstrably addresses the opportunity.

☐ A usable system that demonstrably addresses the opportunity is available.

☐ The stakeholders agree that the available solution is worth deploying.

☐ The stakeholders are satisfied that the solution produced addresses the opportunity.

Plan: Determine How to Achieve Next State

Next States to Achieve →

Stakeholders
- Recognized
- Represented
- Involved
- In Agreement
- Satisfied for Deployment
- Satisfied in Use

Opportunity
- Identified
- Solution Needed
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Software System
- Architecture Selected

Work
- Initiated

Team
- Seeded
- Working well

Way of Working
- Principles Established
- Foundation Established
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- In Place
- Retired

Addressed

Enough of the requirements have been addressed to satisfy the need for a new system in a way that is acceptable to the stakeholders.

- ☑ Enough of the requirements are addressed for the resulting system to be acceptable to the stakeholders.
- ☑ The stakeholders accept the requirements as accurately reflecting what the system does and does not do.
- ☐ The set of requirement items implemented provide clear value to the stakeholders.
- ☐ The system implementing the requirements is accepted by the stakeholders as worth making operational.

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Plan: Determine How to Achieve Next State

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Next States to Achieve →

Stakeholders
- Recognized
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Helping Agile Teams

And Agile Organizations

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Project State at Week 6

Team	Distributed-1	Distributed-2	Distributed-3	Co-located-1	Co-located-2	Co-located-3	Co-located-4
Opportunity	4	4	4	3	4	4	4
Stakeholders	4	4	4	4	1	3	4
Requirements	3	2	4	4	4	4	4
Software System	1	0	2	2	3	2	3
Team	3	3	3	4	4	4	4
Way of Working	3	1	4	5	5	5	3
Work	3	1	3	4	3	4	4

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Carnegie Mellon®

All 7 CMU-SV practicum teams used different sets of s/w engineering practices

Progress & Health

- Measure progress & health of your teams regardless of practices selected.

Avoiding Problems

- Detect systemic problems early & take appropriate action
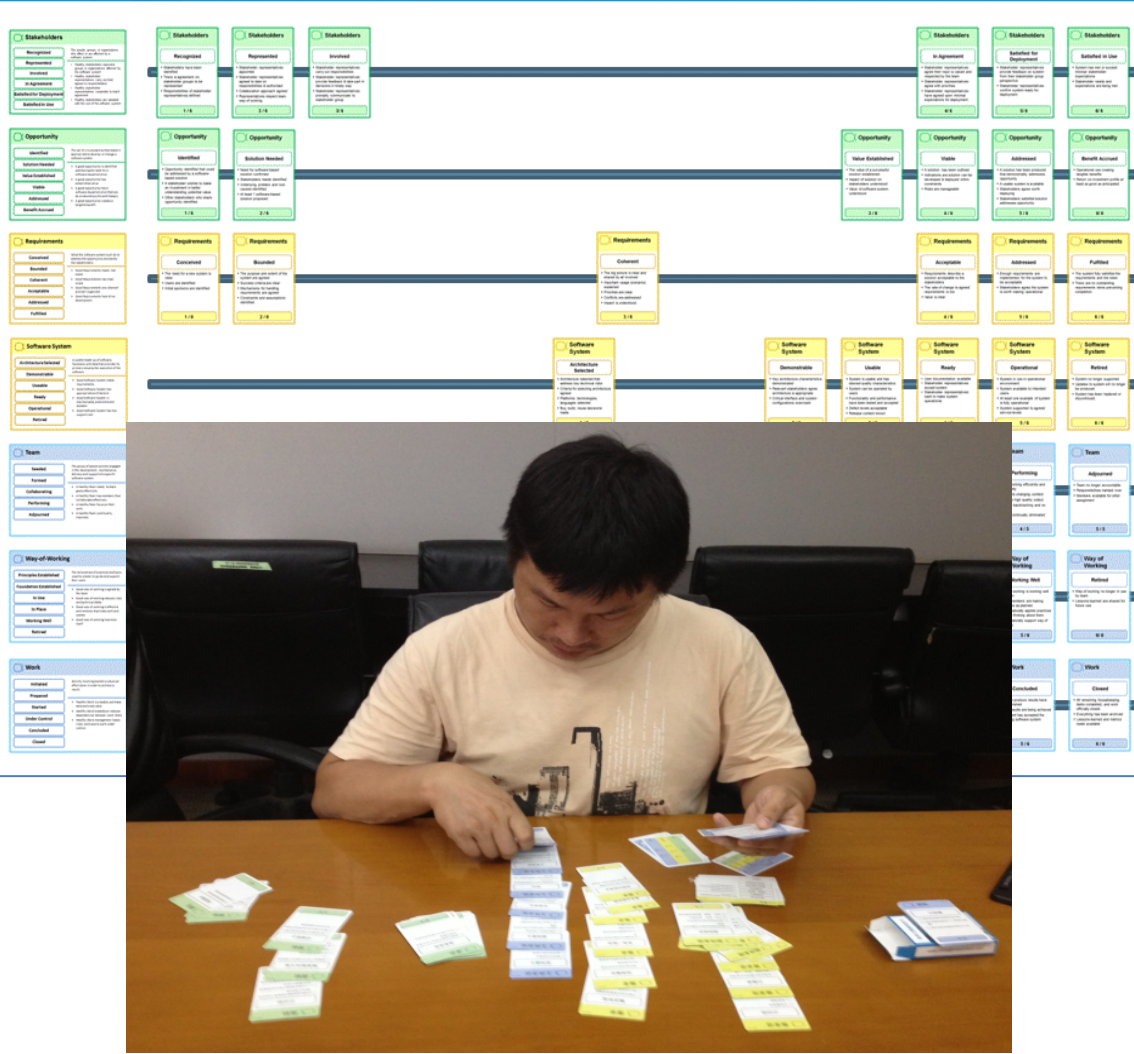
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Page 29

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Understanding where you are

- What's already been achieved?
- What are the risks?

In Action:

- An internal coach in a large telecom product company.

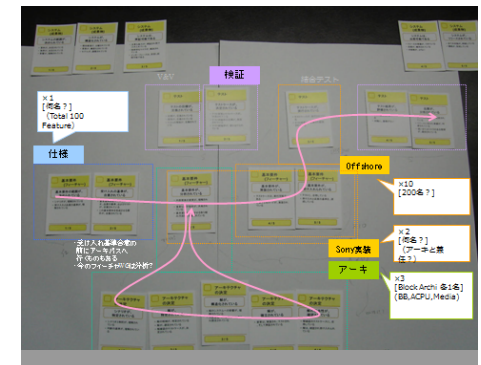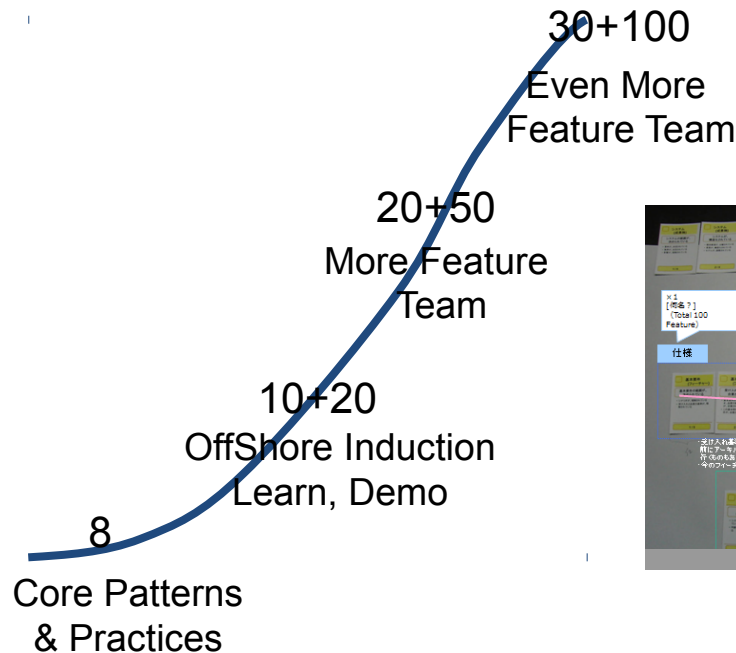## Benefits:

- Detected risks in working with stakeholders.

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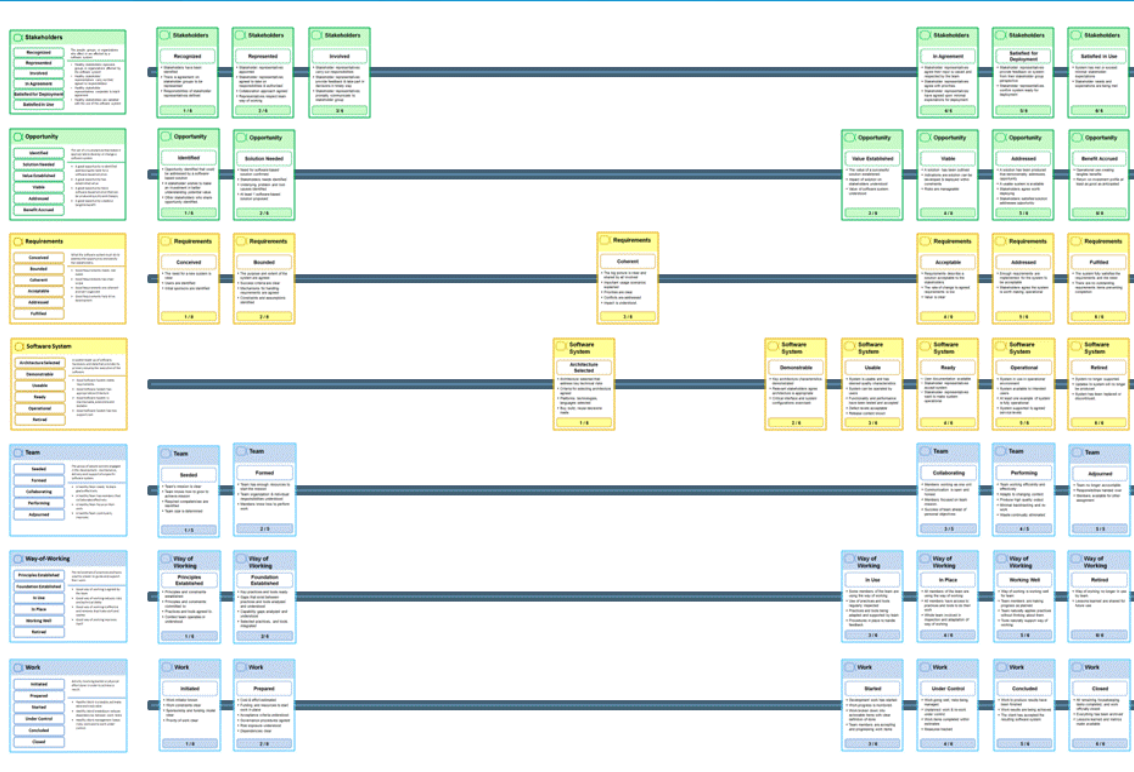
Understanding where you are
- What's already been achieved?
- What are the risks?

In Action:
- An internal coach in a large telecom product company.

Benefits:
- Detected risks in working with stakeholders.

Scaling Up

Scaling Up

- How to help large development team collaborate

In Action:

- Large development involving offshore members (50+200) developers

Benefits:

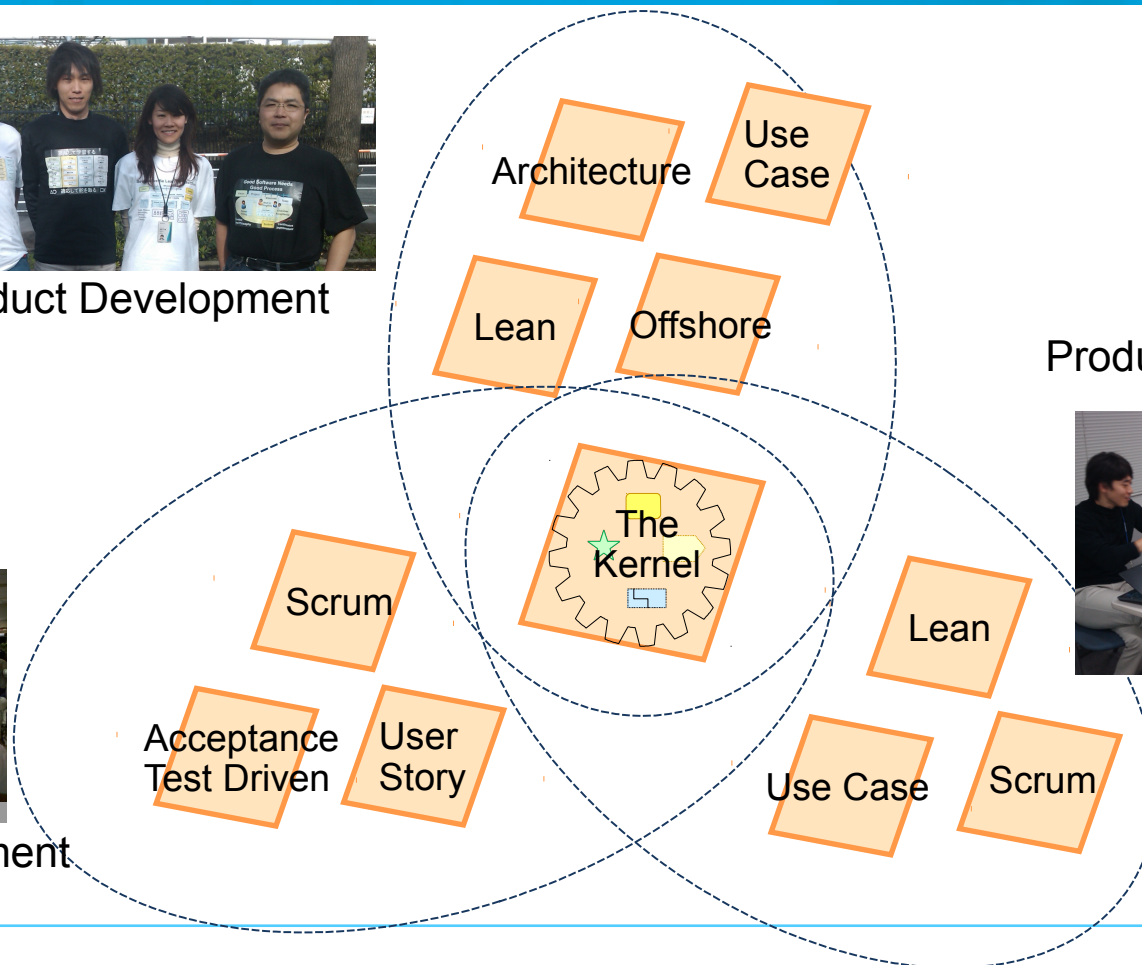- Cards facilitate describing new way of working
- Cards help new (feature) team leaders guide members

30+100
Even More
Feature Team

20+50
More Feature
Team

10+20
OffShore Induction
Learn, Demo

8
Core Patterns
& Practices

Offshore Product Development

Consumer Product Development

Internet Development

Architecture

Use Case

Lean

Offshore

The Kernel

Scrum

Lean

Acceptance Test Driven

User Story

Use Case

Scrum

Many **Ways of Working** on the same kernel.

- **Understand where you area and where you are going**
    - Understand what needs to be addressed
    - Holistically track progress and health
    - Keep projects in balance and avoid catastrophic failures
    - Form good sprint goals and other objectives
    - Bring people together
- **Learn and share your way of development**
    - Share and compare practices
    - Build effective ways of working
    - Define practice independent checkpoints, and lifecycles

The Value of Essence

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Helping Agile Teams

And Agile Organizations

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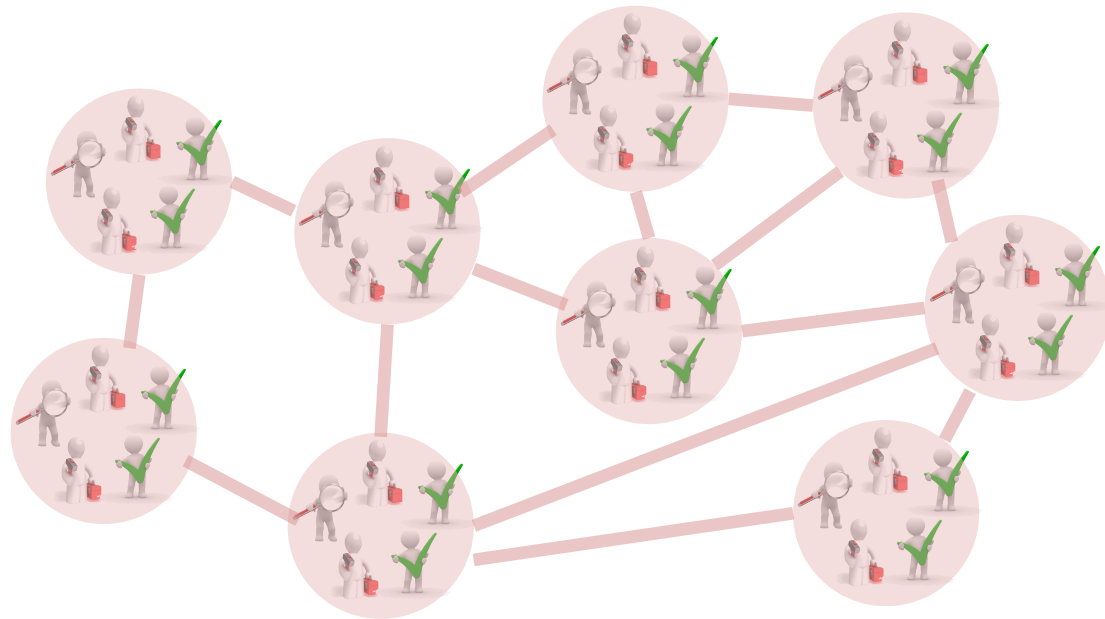
There are several case studies

- KPN, a large telecom operator relying on outsourcing
- Fujitsu UK
- Munich Re, a large insurance company working all around the world
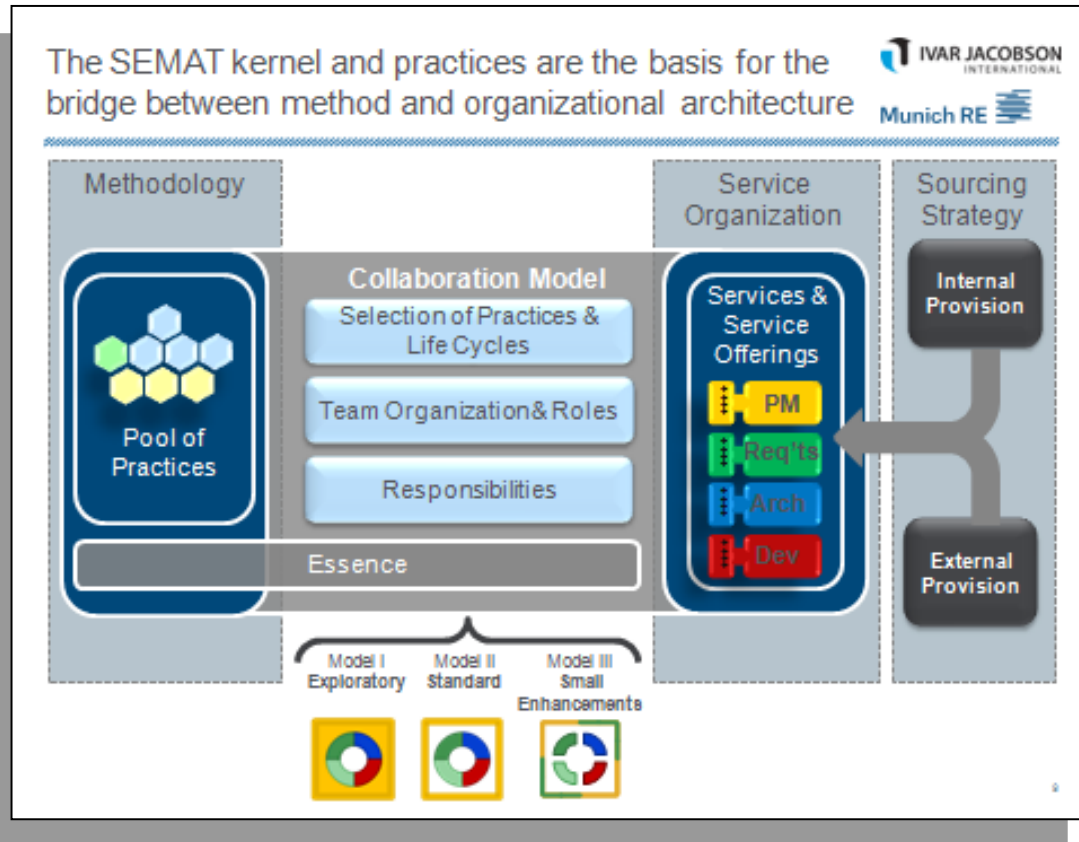
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The SEMAT kernel and practices are the basis for the bridge between method and organizational architecture

The challenge

- Globally distributed Application Dev't

- High-levels of out-sourcing & off-shoring

- Service organization

The solution

- Agile starter packs

- Practice Exchange

- Governance as a first class citizen

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The challenge

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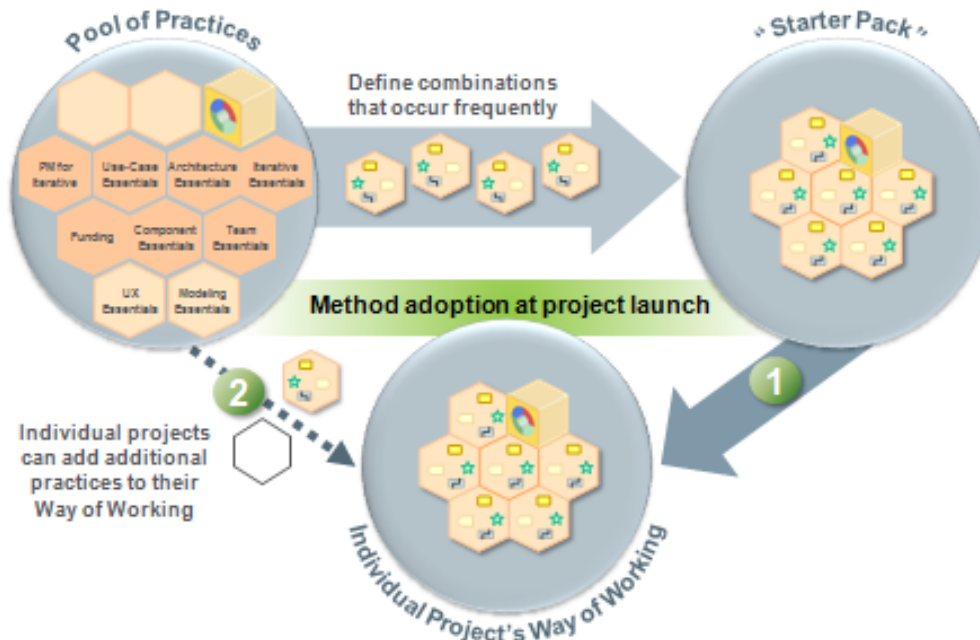
- Define practice independent governance procedures and quality gates.
- More readily and easily form teams and mobilize teams of teams.
- Scale agile approaches across teams of teams and systems of systems.
- Select enterprise level tooling.

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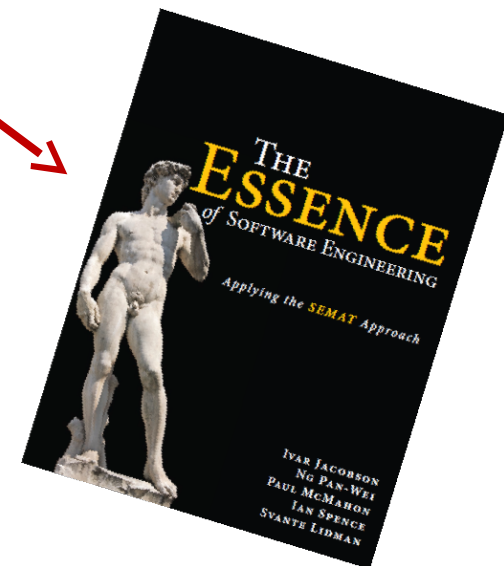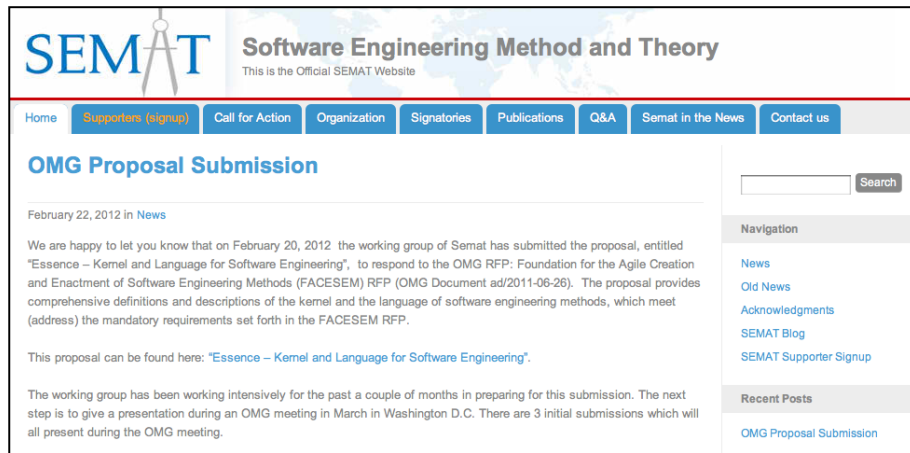
Get the cards and play the games

http://www.ivarjacobson.com/alphastatecards/

- Join the community and get involved
- Become a supporter.
  Go to www.semat.org
- Or read the book

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Thank You for Your Time!

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  - www.omg.org
- SEMAT website
  - www.semat.org

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