



Creating **winning teams.**

What you need for IoT: Smarter Methods

Ivar Jacobson

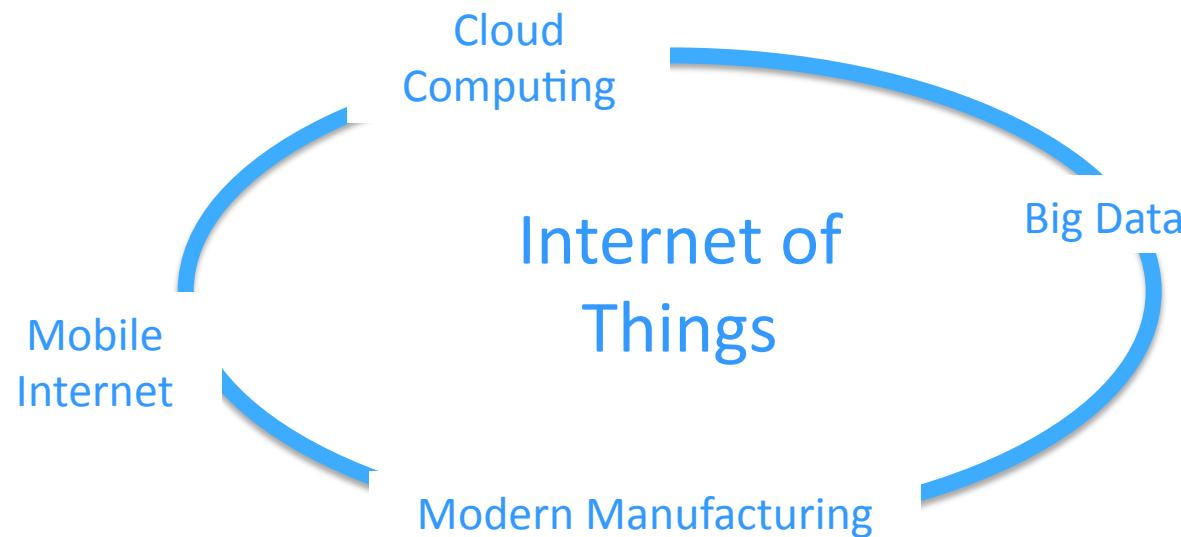
www.ivarjacobson.com

Agenda

- 1. IoT and Methods**
2. Existing Methods puts you in Method Prisons
3. How to get out of your Method Prison?
4. Essentialization of Existing Methods
5. Essentialization of Ignite
6. What is the Value Proposition?
7. Next: It is Futurized
8. The Expectation Today

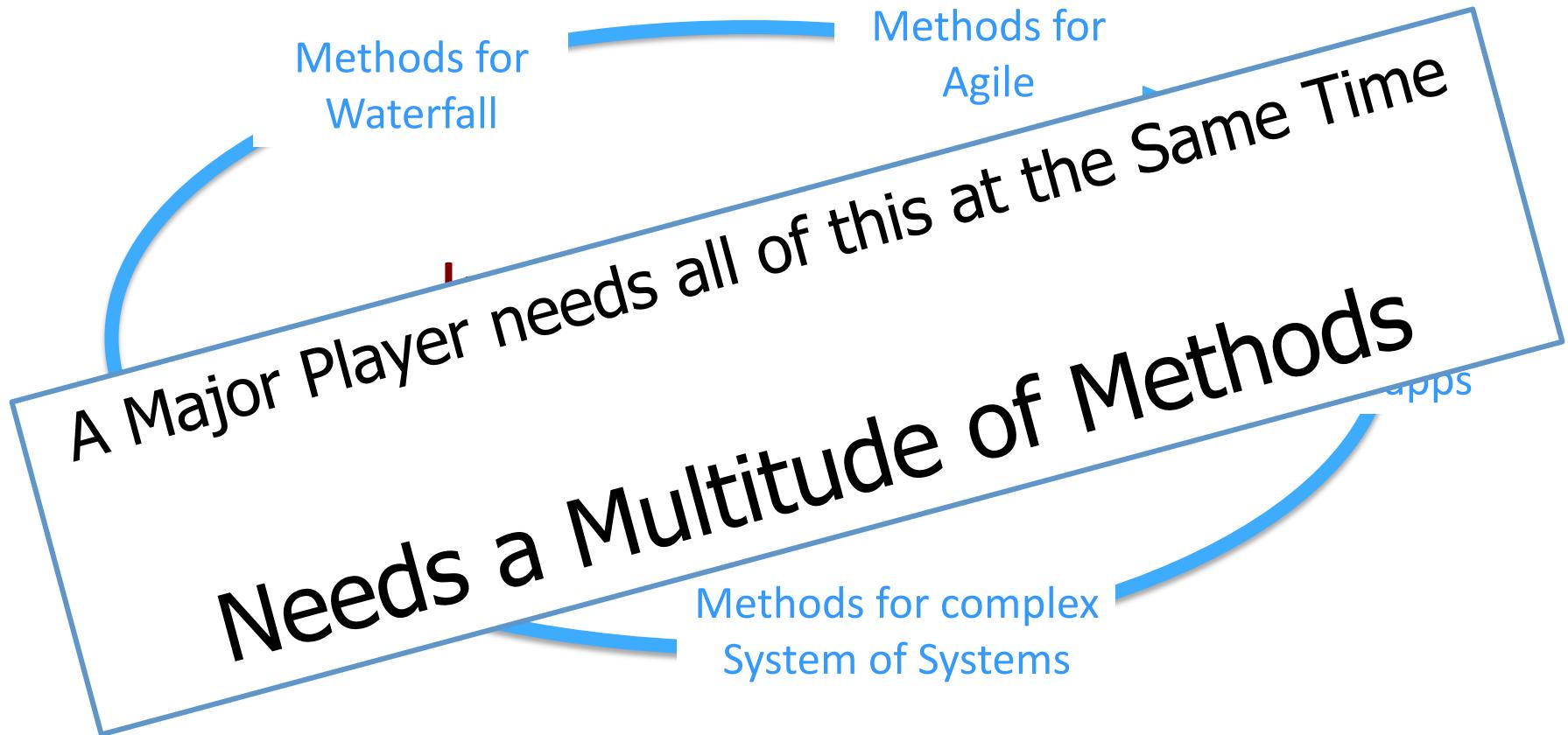
What's so special about the Internet of Things?

- Internet of Things touches all kinds of products, services, functionality
- All levels of complexity
 - from very simple software running on basic sensors and other simple devices through to
 - the high-performance, highly reliable, highly governed, secure, resilient, scalable systems needed to process, analyze and respond to the vast amounts of data they produce and
 - everything else in between.

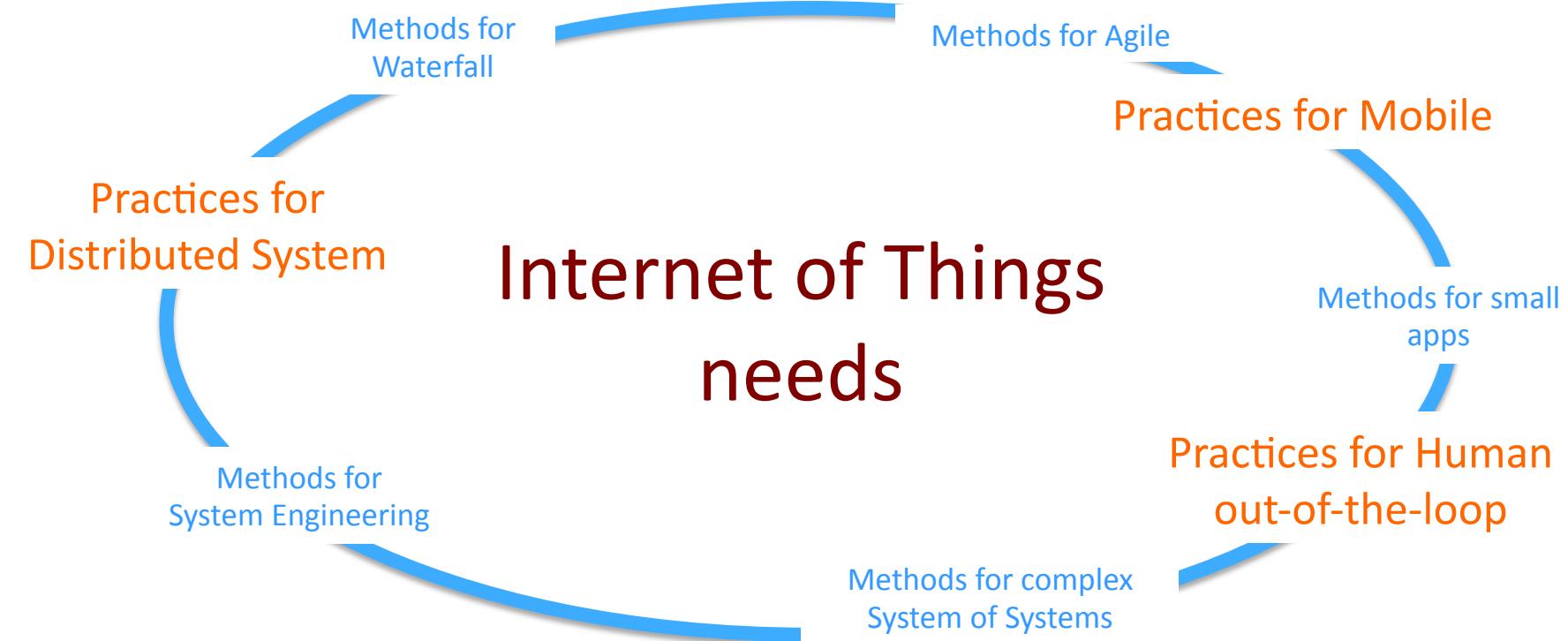


The Internet of Things needs everything

- The Internet of Things doesn't lack methods.



And New Domain-Specific Practices are needed



What aren't needed are new management practices.

Summary of IoT needs

A single vendor needs a multitude of methods

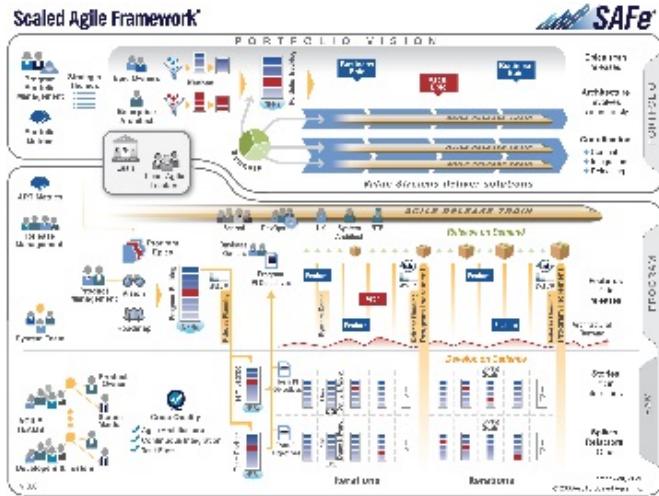
- Teams need to be able to select their own method from a **library of practices**
- Methods need a **new user-experience** – developers don't read books
- Methods need to focus on the **essence** – 5% of what an expert knows
- Methods need to guide in **every day usage**, not guide by reading a book
 - The method needs to help you monitor progress & health of the project

Agenda

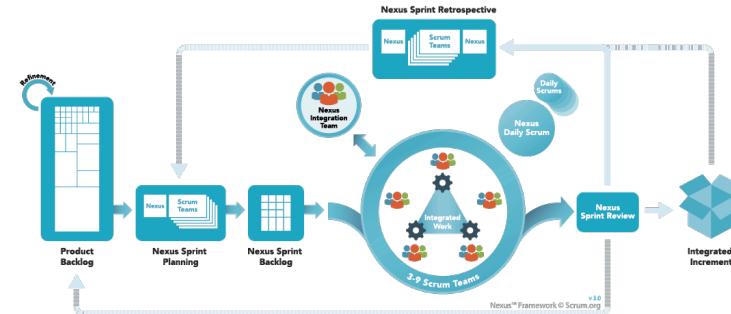
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Let's look at Methods for Agile at Scale

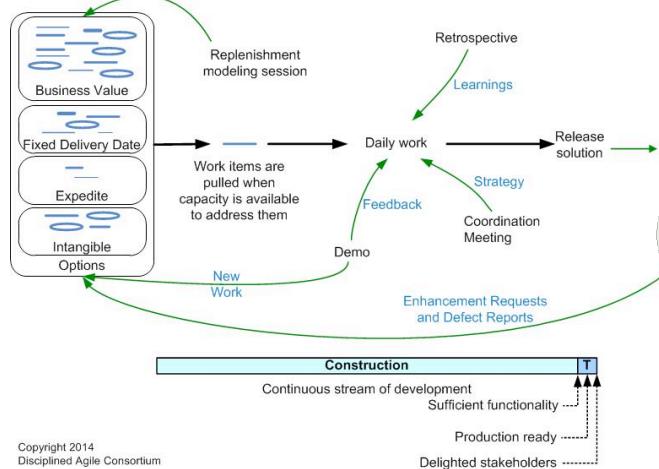
SAFe



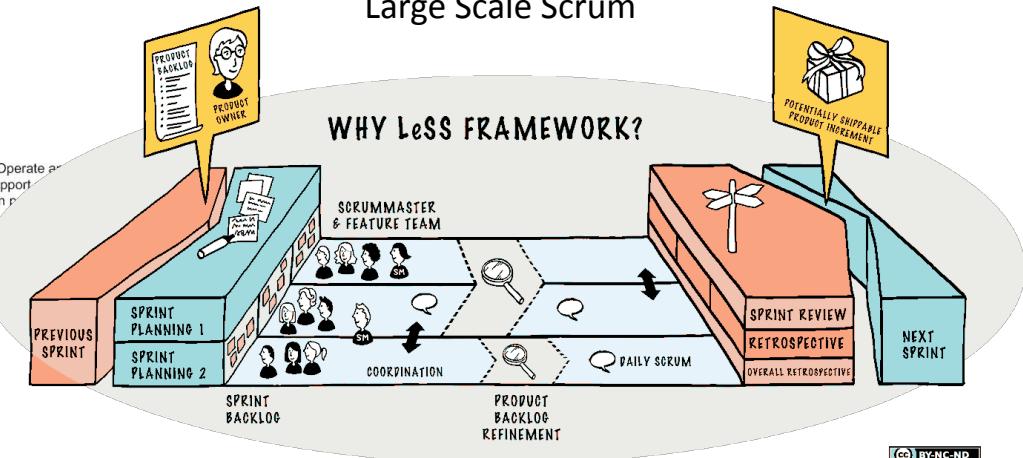
Scaled Professional Scrum



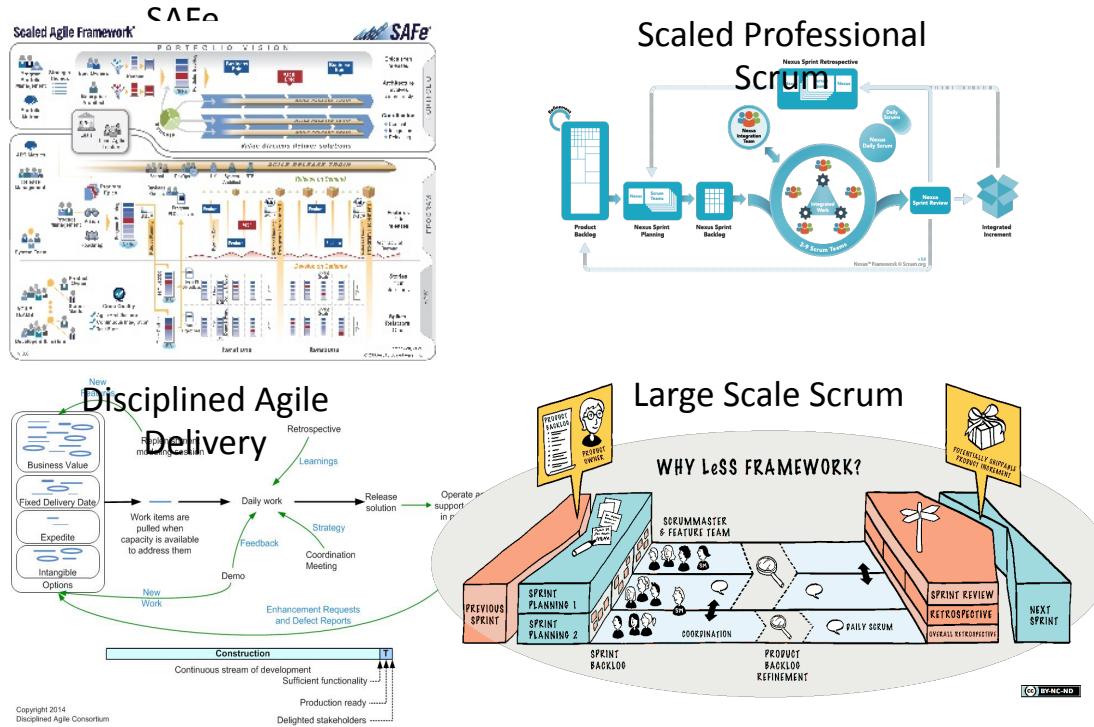
Disciplined Agile Delivery



Large Scale Scrum

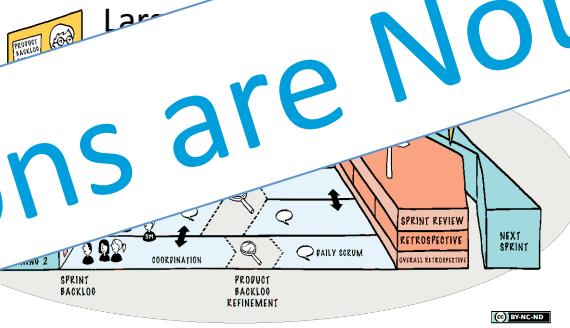
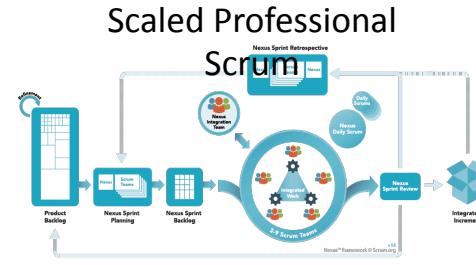
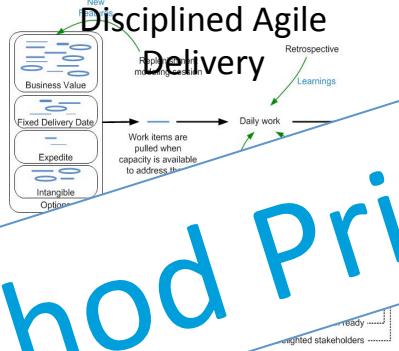
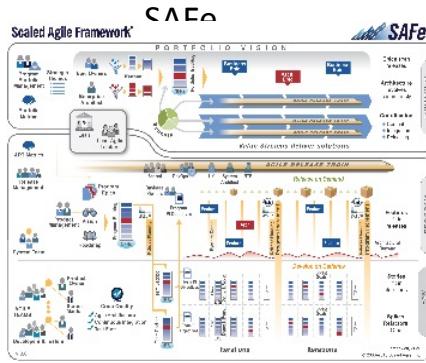


Let's look at Methods for Agile at Scale



- They are all monolithic – non modular
- They have a lot in common (but you can't easily see it)
- They all have unique own practices, but you cannot mix and match practices from them
- If you select one, you are in a “Method Prison” controlled by the guru of that Method
- And, there are many more other methods that also are monolithic

Let's look at Methods for Agile at Scale



Method Prisons are Not Smart

- monolithic – non modular
- they have a lot in common (but you can't easily see it)
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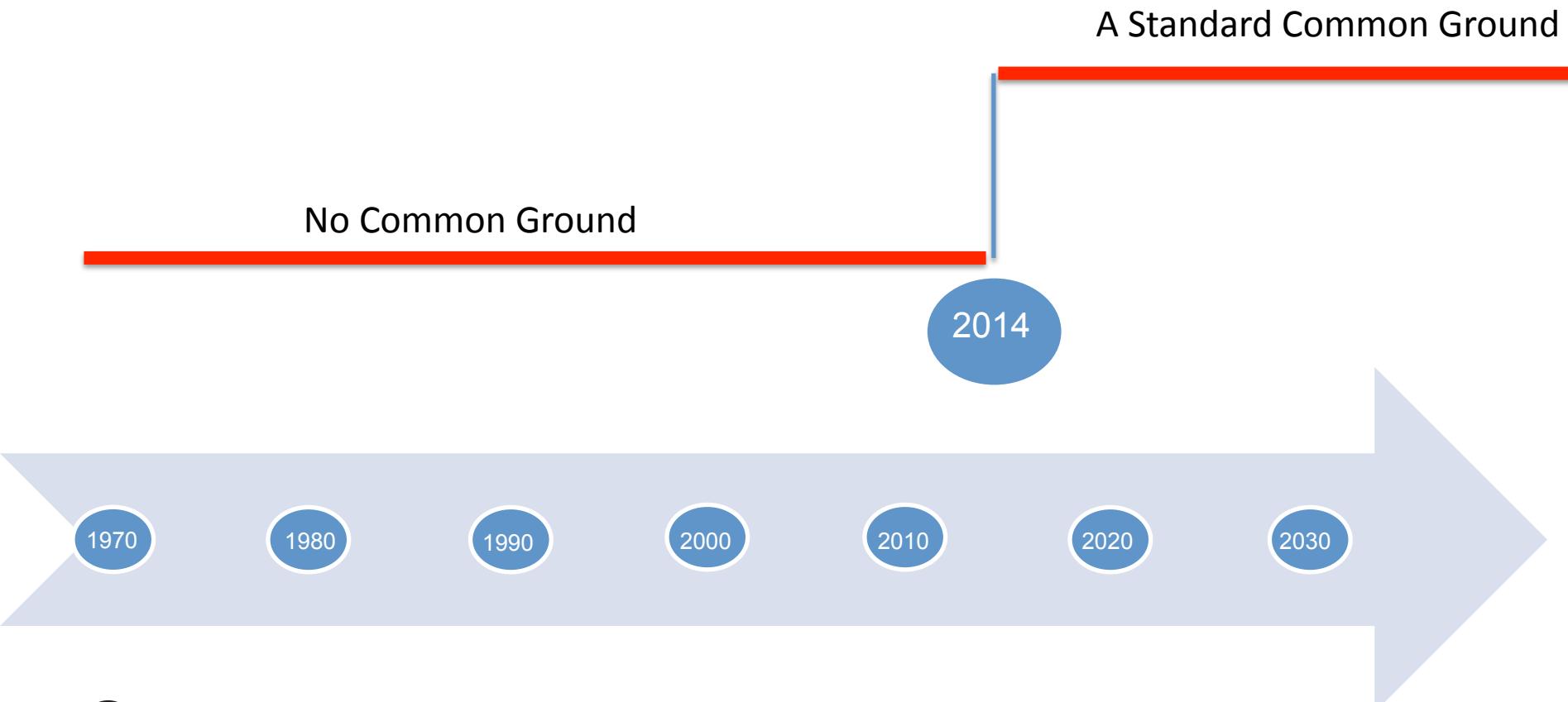
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Start getting a Common Ground

What is a Common Ground?

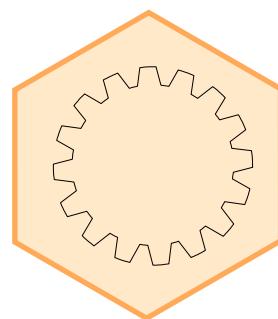
- It includes elements that every method has, what every method produces, what you do always, etc.
- It is a starting point to understand software engineering



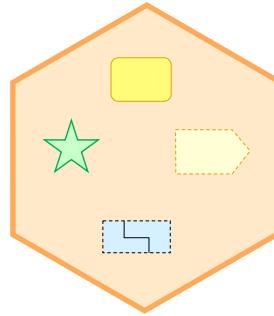
There is a standard Common Ground: Essence

For the first time in the 60+ year history of software engineering, we have got a Common Ground

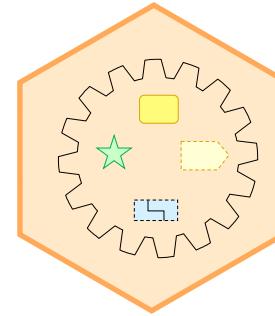
Kernel Language Essence



+



=



- Essential Things to Work with
- Essential Things to Do
- The Essential Competencies you need

- Visual language
- Simple
- Intuitive

THE COMMON GROUND

Essence is the common ground to build Practices and Methods upon

A practice is a repeatable approach to doing something with a specific purpose in mind. A practice provides a systematic and verifiable way of addressing a particular aspect of the work at hand.

Methods

Practices

The Kernel



Is defined in terms of

The Language



A method is a composition of Practices. Methods are enactable.

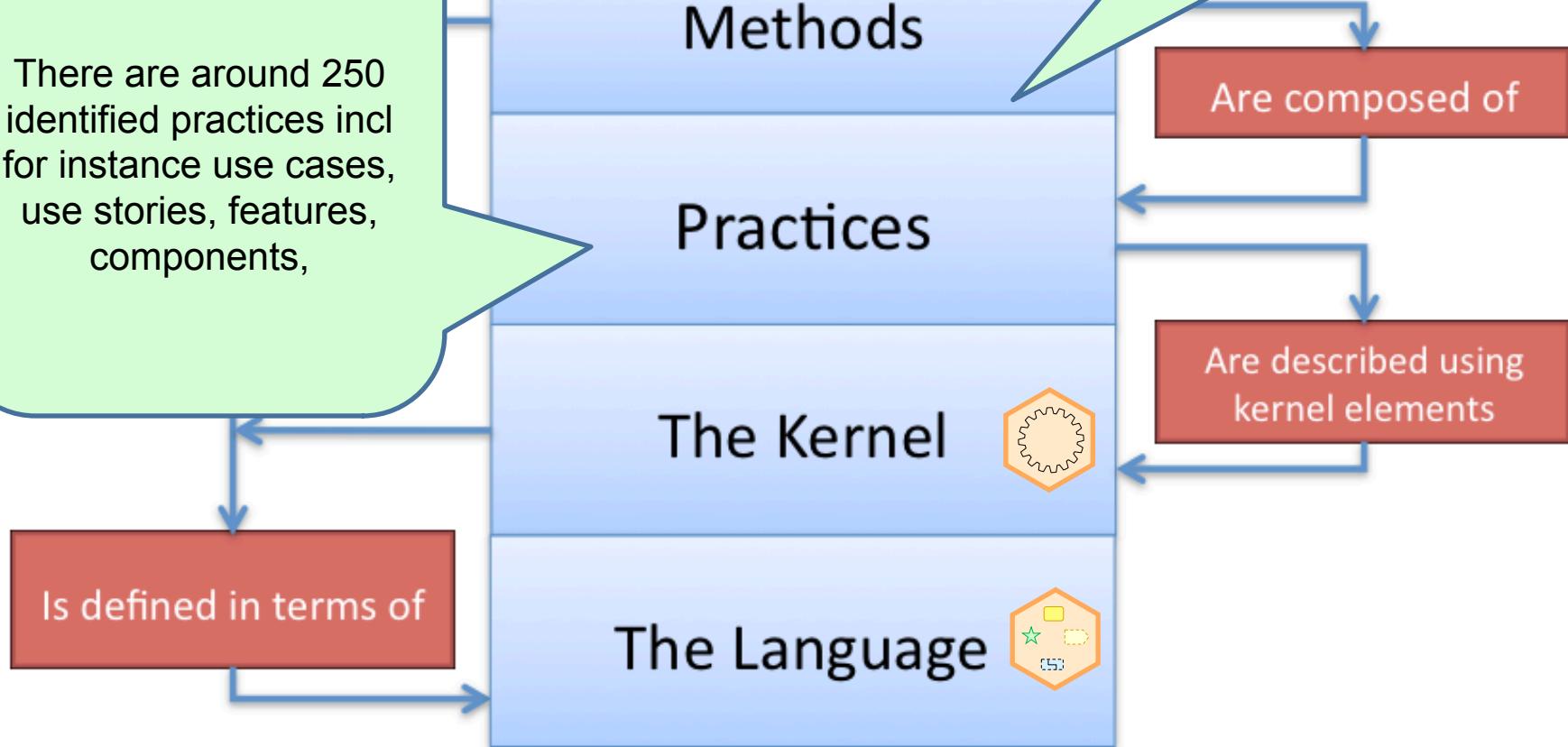
Are composed of

Are described using kernel elements

The Method Architecture

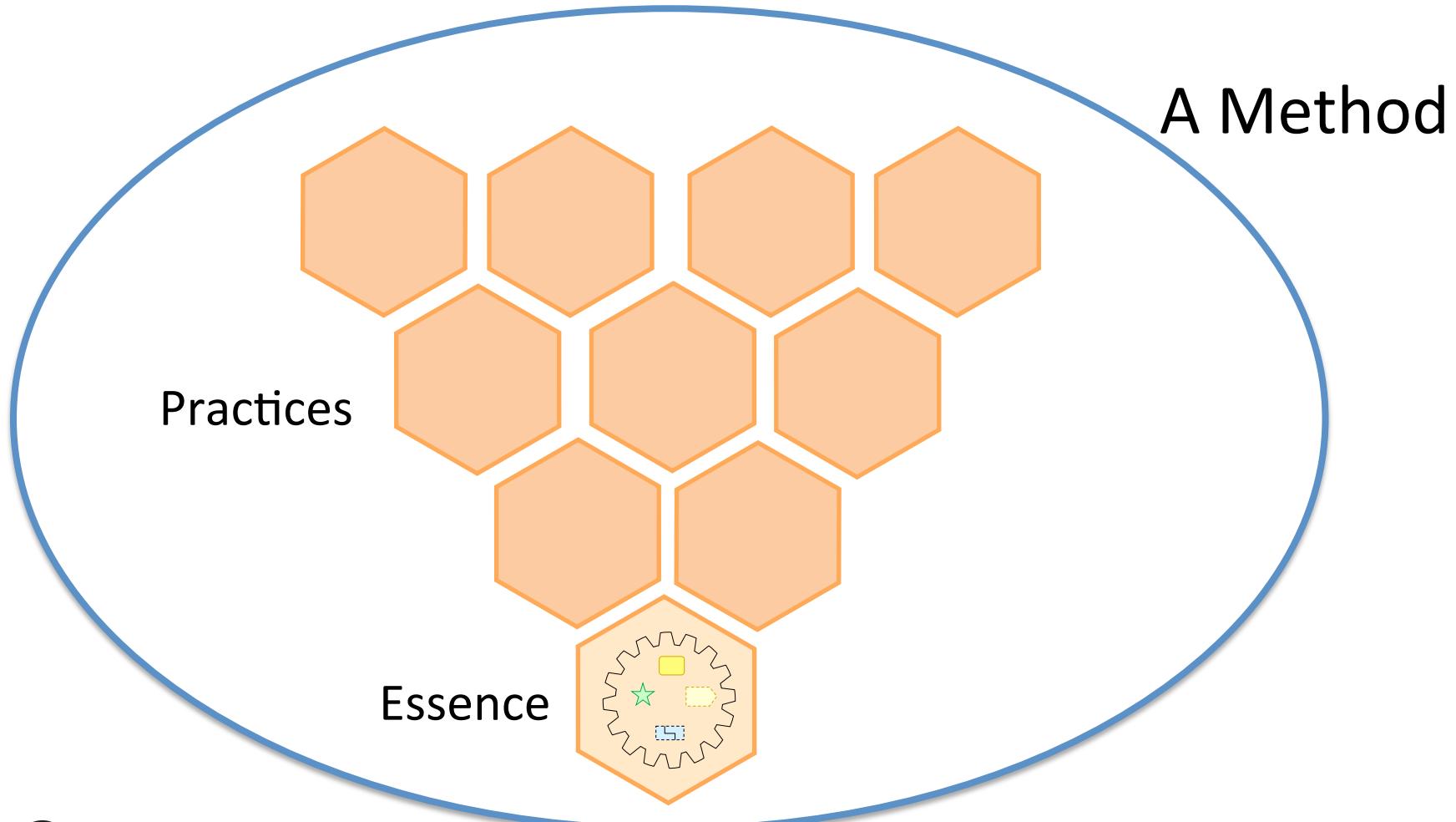
There are around 250 identified practices incl for instance use cases, use stories, features, components,

There are probably more than 100,000 methods incl. for instance SADT, Booch, OMT, RUP, CMMI, XP, Scrum, Lean, Kanban

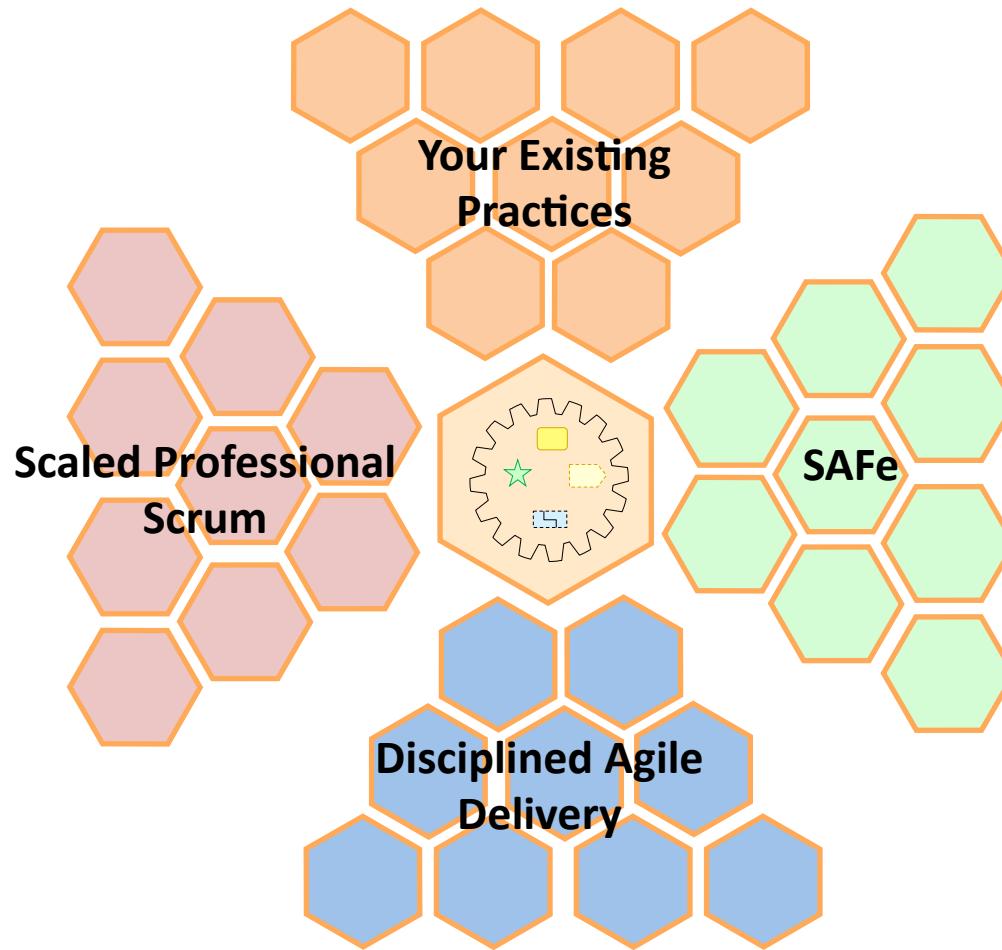


Then Add Practices on Top of Essence

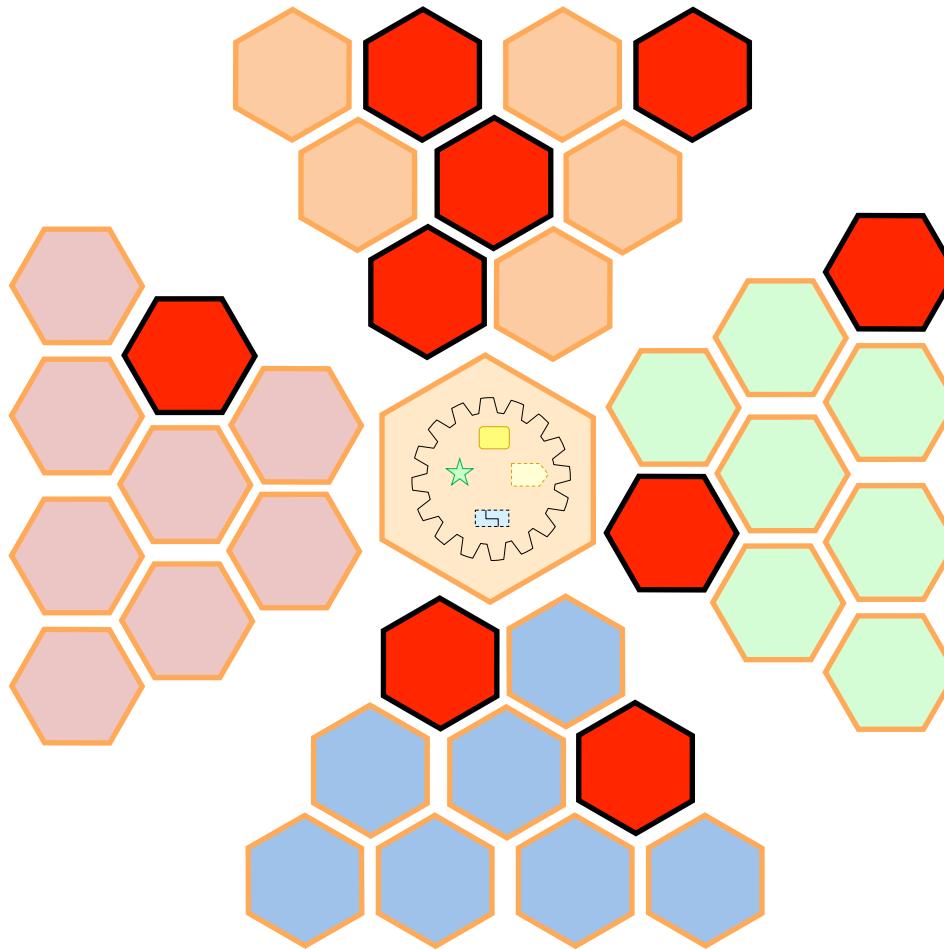
- Essence makes Methods Modular – not Monolithic



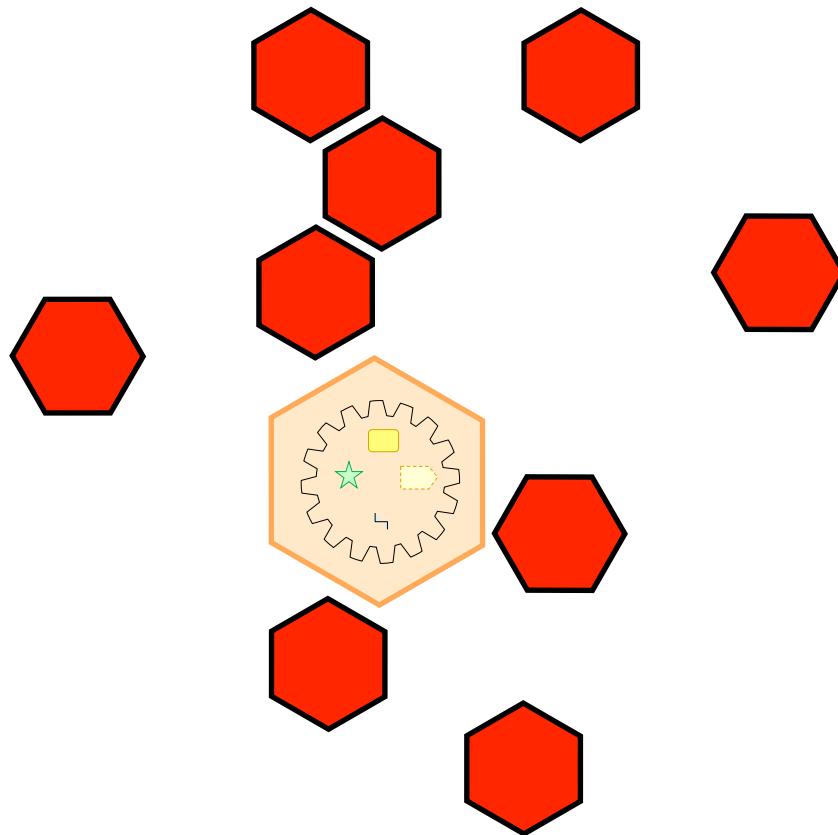
Imagine a Practice Library



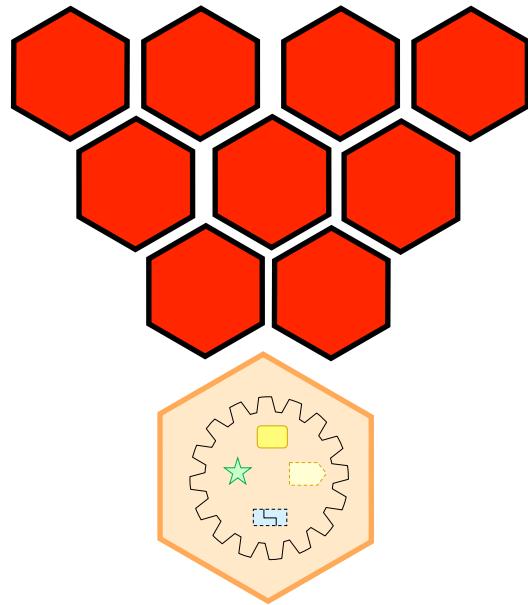
And you select the practices you like



And ignore the ones you don't need



To create your own method

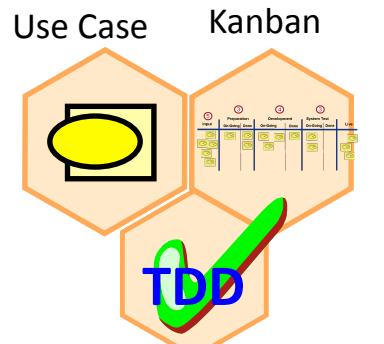


...to get flexibility

Mix and Match Practices to Empower your Teams



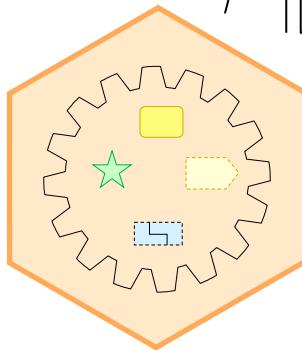
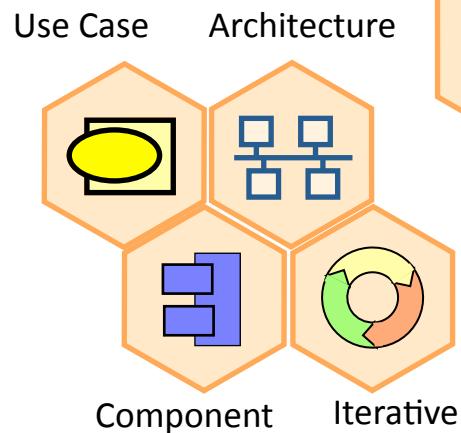
Team B



Team's build their way-of-working on top of pre-defined common ground and in-line with organizational principles and policies.



Team A



Team C

Practices enable teams to work the way that works for them

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Agile Essentials

Agile Essentials

pex.ivarjacobson.com/sites/default/files/practice/52/367/preview/index.htm

Agile Essentials

The Agile Essentials practices provide a basic starter kit toolbox that covers all the common and critical aspects of team-based development.

Agile Essentials – Big Picture (Click to navigate)

Agile Essentials – Overview of Practices (Click to navigate)

Browsable Web-Site

javascript:void(0)

Agile at Scale

Agile at Scale Essentials

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Search

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Agile at Scale Essentials

The Agile at Scale Essentials practices provide a basic starter kit toolbox that covers all the common and critical aspects of scaled agile development.

Agile at Scale Essentials – Big Picture (Click to navigate)

Agile at Scale Essentials – Overview of Practices (Click to navigate)

Browsable Web-Site

Product Management Essentials

Manage the progress of product ideas value, given limited development capacity.

Evolve Architecture Roadmap, Architecture Roadmap, Skinny System, Evolve Architecture, Drive an Architecture Spike, Prepare Architecture, Architecture Enhancement, Just-In-Time Architecture, Architecture Ownership.

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Architecture Ownership

Who takes responsibility for the success of the technical solution?

There are two possible answers:

1. Everyone collectively or
2. A specific, dedicated individual or architect or architecture team

For big, leading-edge or otherwise high-risk technical endeavors, dedicated Architecture Owners will be needed to guide the development of the right technical solution. They should work collaboratively with teams to reinforce collective responsibility and learning.

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Evolve Architecture

The team and the stakeholders continuously think about, question and evolve the architecture approach.

An independently buildable and testable extension to the architecture to support foreseeable needs / requirements.

- Software System: A
- Implement the System
- Stakeholder Representation
- Software System (contributor)

Goals Articulated, Viable Approach Sketched Out, Design Approach Firmed Up, Design Guidelines Documented, Describes: Software System, Stakeholder Representation, Software System (contributor).

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Poker Cards

Creating winning teams.

Add-Ins and Swap-Ins

The image shows a screenshot of the Agile Essentials web site, specifically the 'Agile Essentials with User Stories' and 'Agile Essentials with Continuous Flow' sections. Both sections are highlighted with red circles.

User Story Essentials: This section is described as a basic starter kit toolbox covering common and critical aspects of team-based development. It includes links to 'Product Ownership Essentials', 'Product Backlog Essentials', 'Agile Teaming Essentials', 'Agile Retrospective Essentials', 'Daily Stand-Up Essentials', and 'User Story Essentials'. A red starburst points to the 'User Story Essentials' card, which is also circled in red.

Continuous Flow Essentials: This section describes progress as a continuous flow of work items pulled from a queue and controlled with Work In Process (WIP) Limits. It includes links to 'Define Work Policies', 'Work Policies', 'Kanban Board', 'Class of Service', 'WIP Limit', 'Lead Time / Cycle Time', 'One Piece Flow', 'Queue a Work Item', 'Process a Work Item', 'Measure & Manage Flow', and 'Continuous Flow Diagram'. A red starburst points to the 'Continuous Flow Essentials' card, which is also circled in red.

Browsable Web-Site: A large red starburst points to the overall structure of the web site, indicating it is browsable.

Poker Cards: A red starburst points to the 'Poker Cards' section, which is also circled in red.

Creating winning teams.

Agile Essentials with User Stories

The Agile Essentials practices provide a basic starter kit toolbox that covers all the common and critical aspects of team-based development. In addition, user stories are used to capture what the users of a software system want it to do in an informal way as part of an agile way of working.

Product Ownership Essentials, Product Backlog Essentials, Agile Teaming Essentials, Agile Retrospective Essentials, Daily Stand-Up Essentials, User Story Essentials, Agile Timeboxing Essentials, Agile Development Essentials.

Agile Essentials with Continuous Flow

The Agile Essentials practices provide a basic starter kit toolbox that covers all the common and critical aspects of team-based development. In addition, Continuous Flow has been swapped with Work In Progress (WIP) Limits where work flow of work items, pulled from a queue and controlled with WIP Limits.

Product Ownership Essentials, Product Backlog Essentials, Continuous Flow Essentials, Agile Timeboxing Essentials.

WIP Limit

A Work In Process (aka Work In Progress) Limit restricts the number of items that can be worked on concurrently at any one time. The limit is set by the team and is based on the capacity of the team members and the complexity of the work.

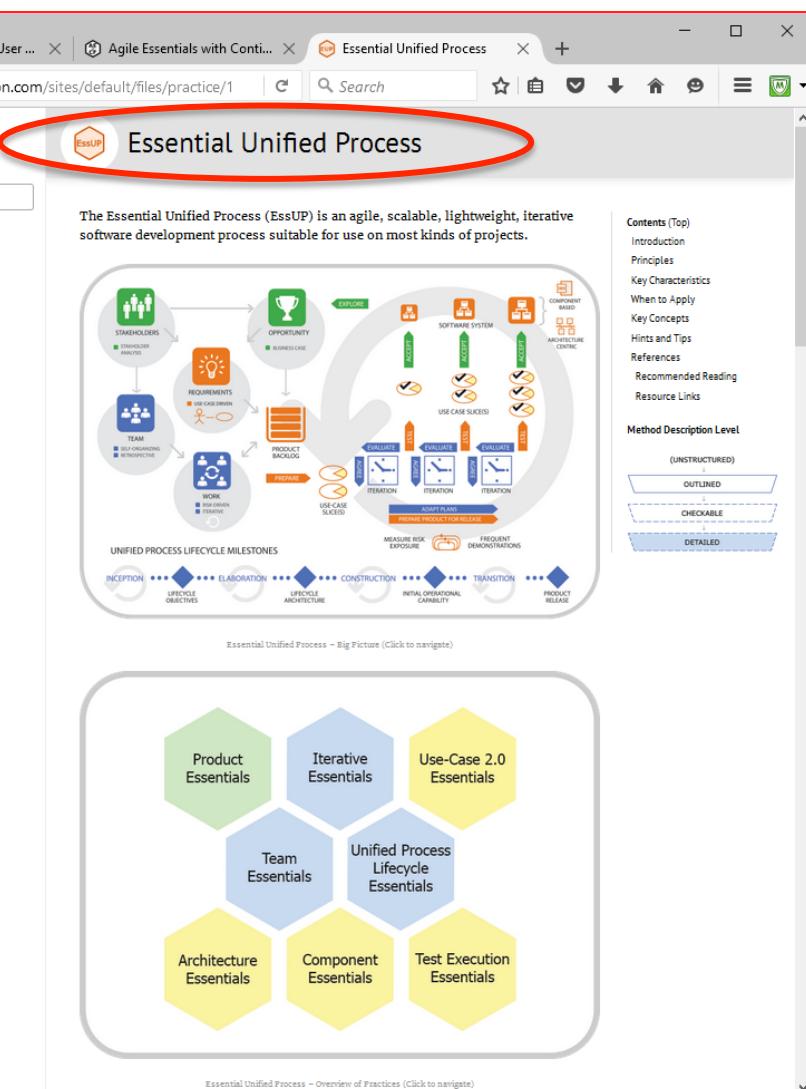
Kanban Board

Shows the queues and work stations that work items progress through, the quality criteria for each progression and the Work In Process (WIP) Limit for each station.

Columns Named, Progression Criteria Defined, WIP Limits Set, Classes of Service Visible, Describes: Work.

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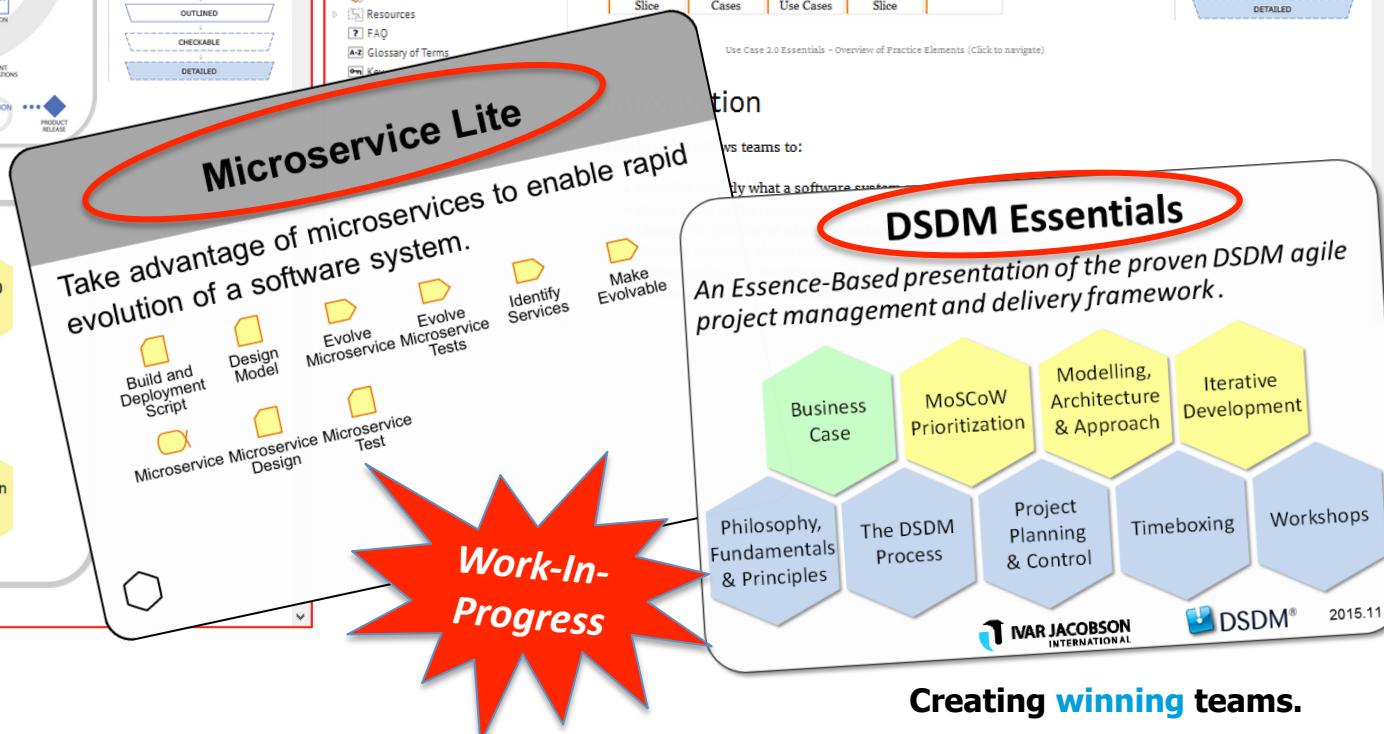
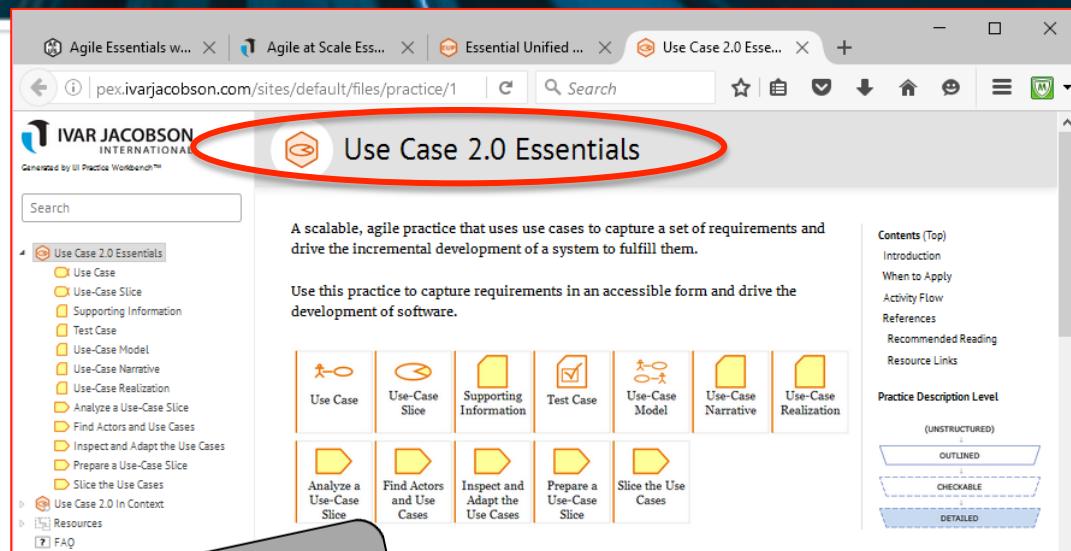
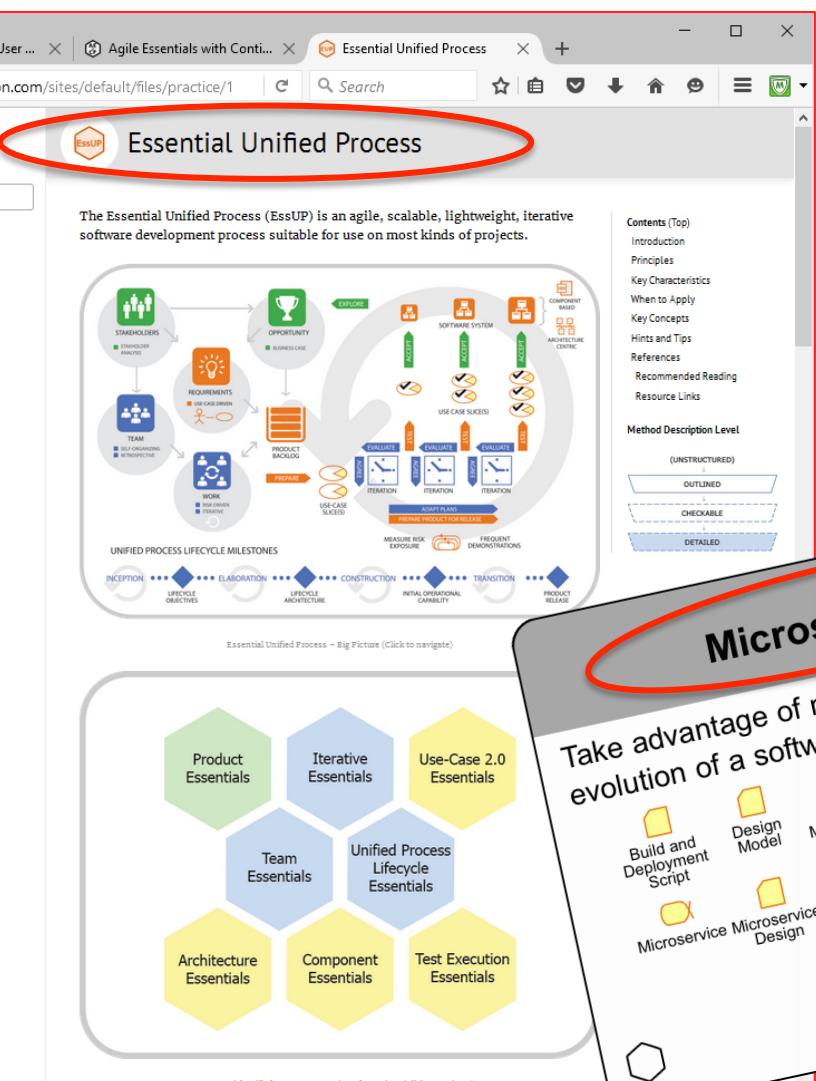
Essentialized Practices/Methods (more coming ...)



The screenshot shows the "Use Case 2.0 Essentials" page on the Ivar Jacobson website:

- Title:** Use Case 2.0 Essentials
- Description:** A scalable, agile practice that uses use cases to capture a set of requirements and drive the incremental development of a system to fulfill them.
- Content:** A tree view of practice elements:
 - Use Case 2.0 Essentials
 - Use Case
 - Use-Case Slice
 - Supporting Information
 - Test Case
 - Use-Case Model
 - Use-Case Narrative
 - Use-Case Realization
 - Analyze a Use-Case Slice
 - Find Actors and Use Cases
 - Inspect and Adapt the Use Cases
 - Prepare a Use-Case Slice
 - Slice the Use Cases
 - Use Case 2.0 in Context
 - Resources
 - FAQ
 - Glossary of Terms
 - Key
 - Description Levels
 - Notices
- Practice Description Level:** A chart showing levels from Unstructured to Detailed.
- Introduction:** This practice allows teams to:
 - Describe exactly what a software system must do
 - Group parts of the requirements together
 - Change the priority of what the customer wants at any time
 - Produce a simple visual model and meaningful requirements that are understandable to developers and customers alike
 - Take advantage of the benefits of iterative development.

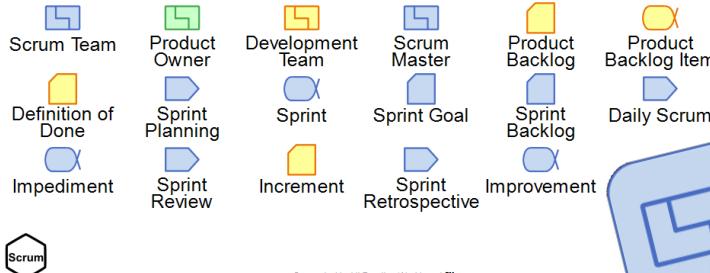
Essentialized Practices/Methods (more coming ...)



Essentializing Scrum

Scrum Essentials

A framework within which people can address complex adaptive problems, while productively and creatively delivering products of the highest possible value.



Scrum Team

The Scrum Team consists of a Product Owner, the Development Team, and a Scrum Master. Scrum Teams deliver products iteratively and incrementally, maximizing opportunities for feedback.

- Scrum Teams are:
- Self organizing
 - Cross-functional
 - Creative
 - Productive.

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Sprint

A time-box of one month or less during which a "Done", useable and potentially shippable Product Increment is created. A new Sprint starts immediately after the conclusion of the previous Sprint.

Proof-of-Concept

Sched
Plan
Rev
Rate
Gen



Product Owner

The Product Owner is the sole person responsible for managing the Product Backlog.

The Product Owner is accountable for ensuring:

- The Product Backlog items are clearly expressed
- The Product Backlog is ordered, transparent and visible to all
- The development team understand the Product Backlog items
- The value generated by the development team is optimized.

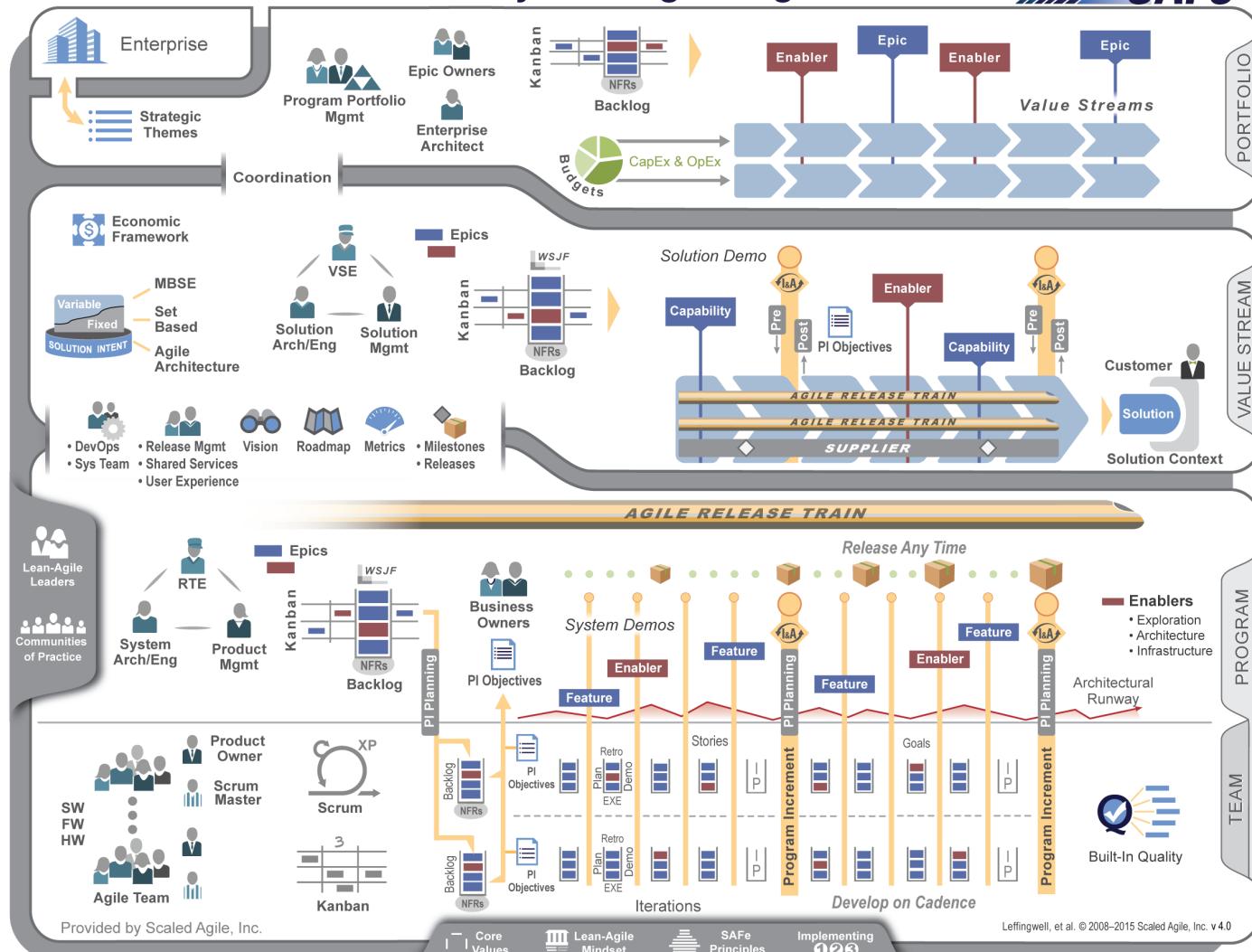


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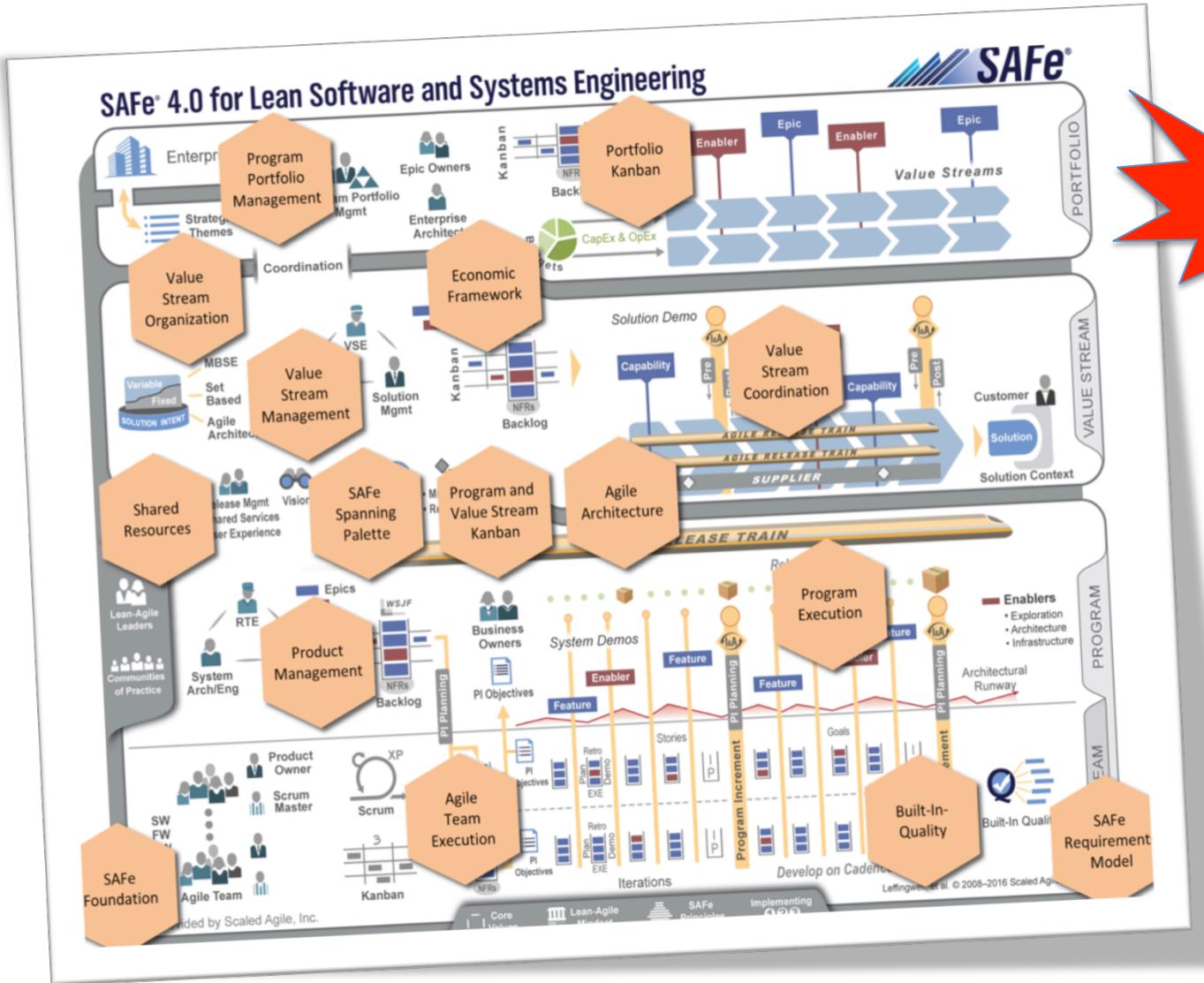
03.2015

SAFe 4.0

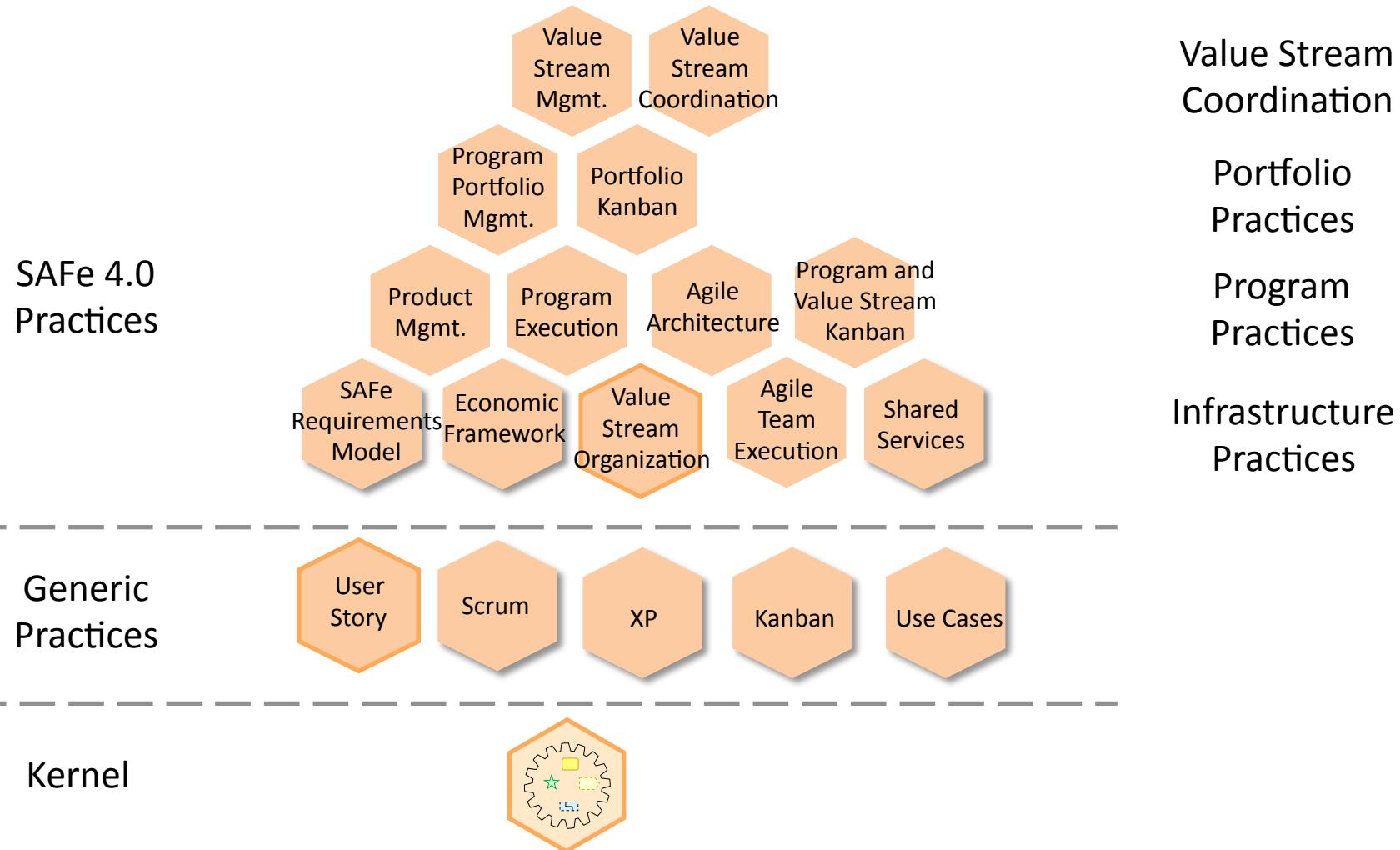
SAFe® 4.0 for Lean Software and Systems Engineering



Essentializing SAFe 4.0



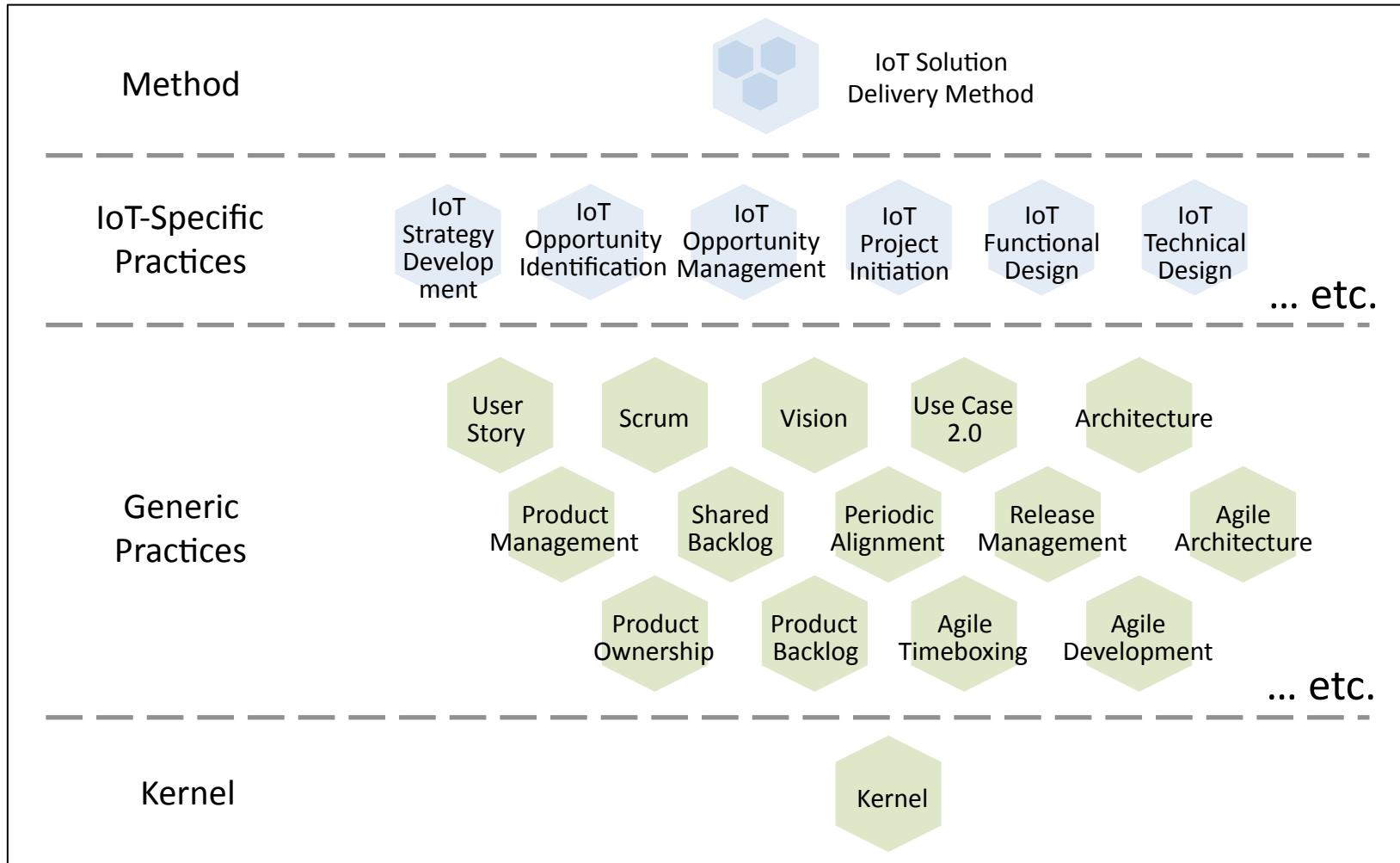
The Method SAFe4.0 Essentialized



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Ignite expressed as a set of Essence Practices



IoT Strategy: Sample Practice Cards



Ignite | IoT Strategy Execution

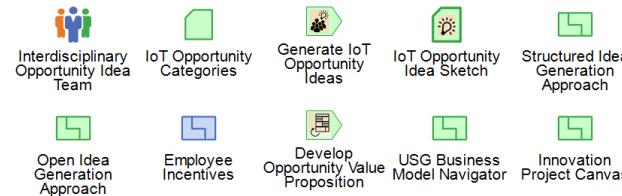


IoT Center of Excellence

IoT Platform

IoT Opportunity Identification

Generate ideas for concrete IoT Opportunities within an overall strategic framework.

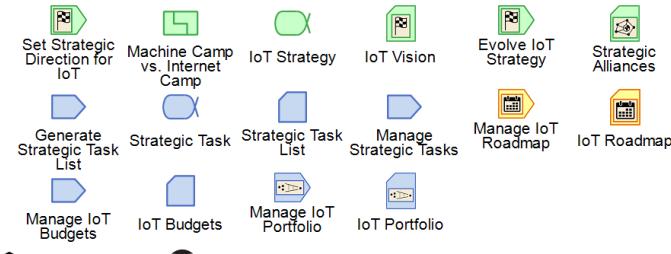


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ENTERPRISE IoT

IoT Strategy Development

Establish and execute IoT Strategy, including Vision, Goals, Roadmap, Portfolio and Budgets.



0.01

IoT Opportunity Management

Develop and manage an IoT Opportunity by building the Business Model and calculating the Business Case.

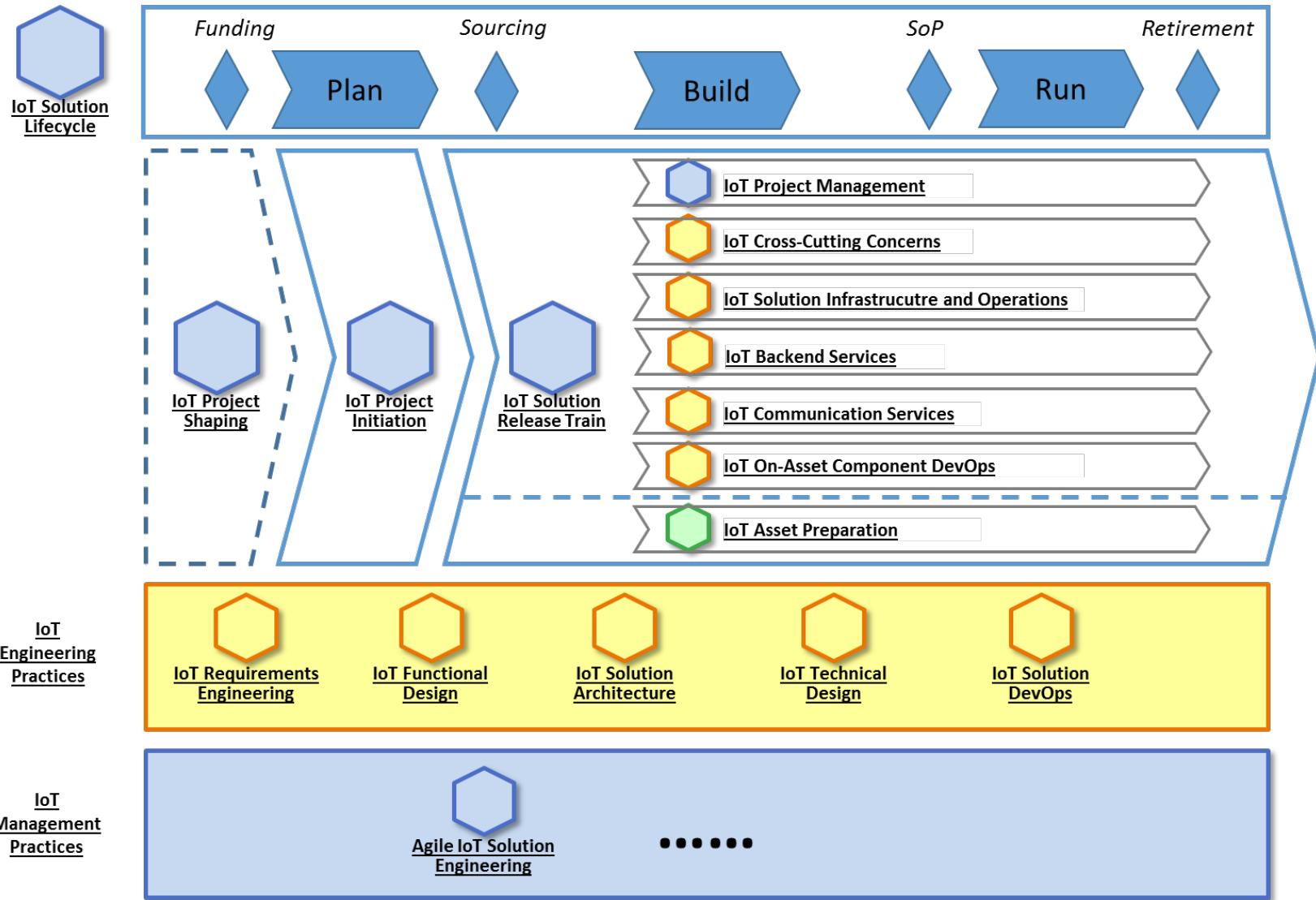


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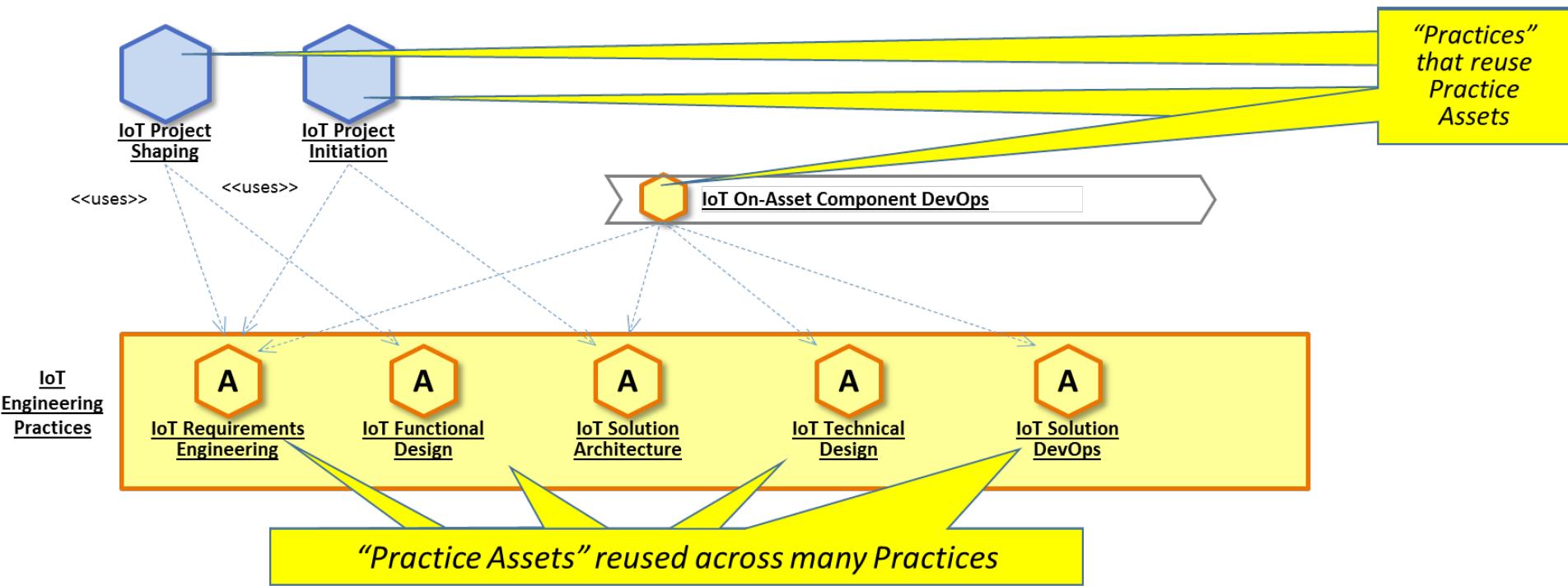
ENTERPRISE IoT

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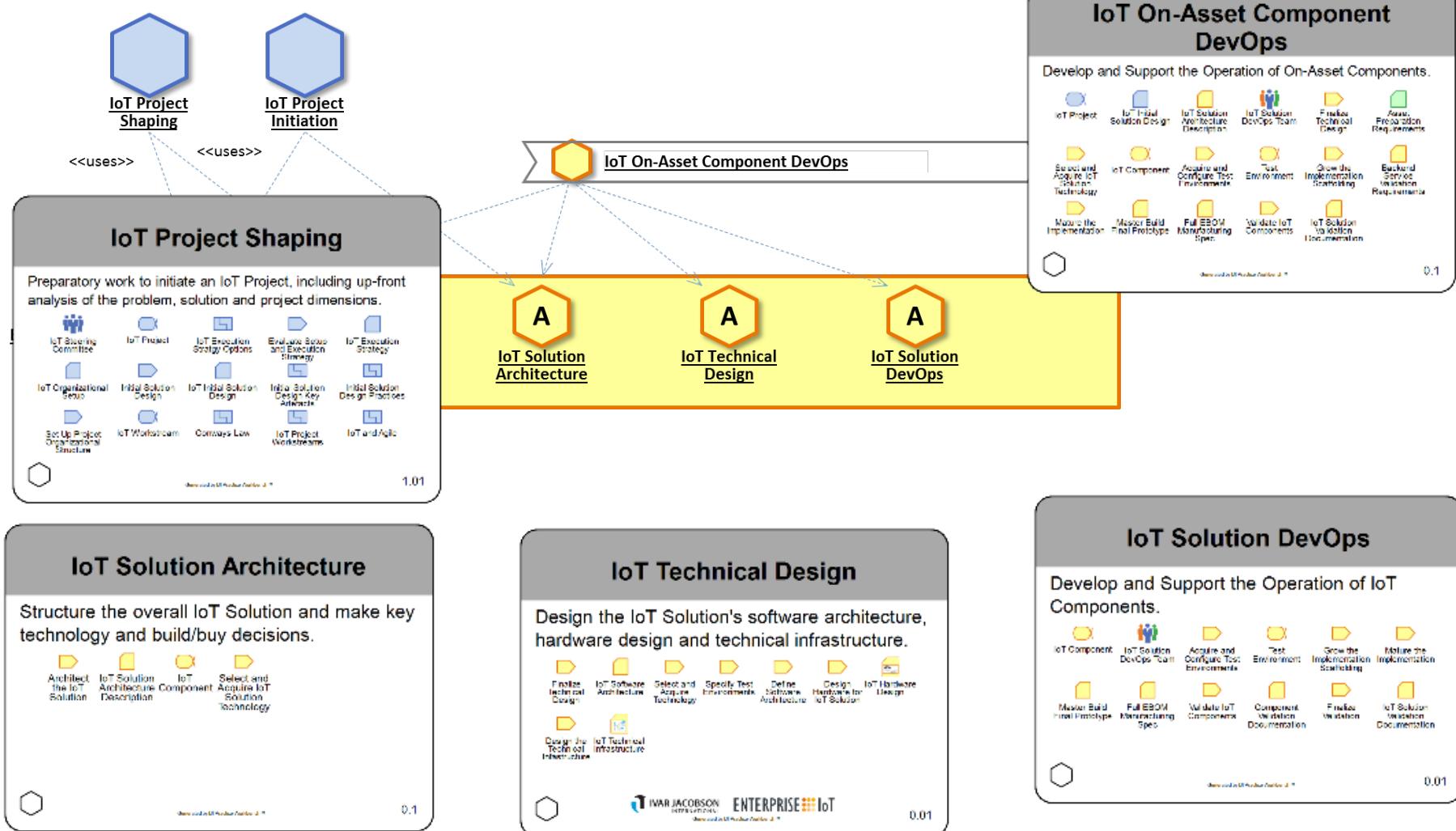
IoT Solution Development “Big Picture”



Approach to Reuse Across Practices



IoT Solution: Sample Practice Cards

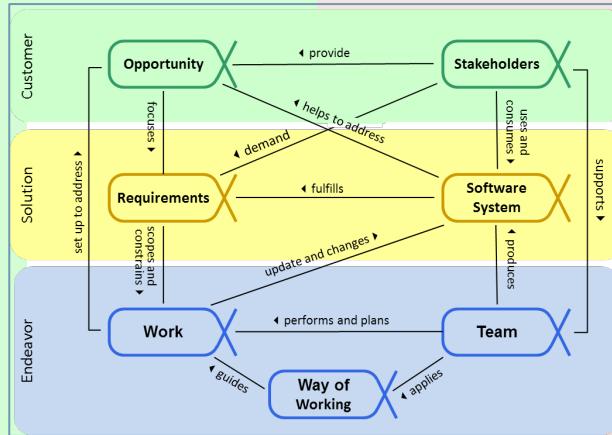


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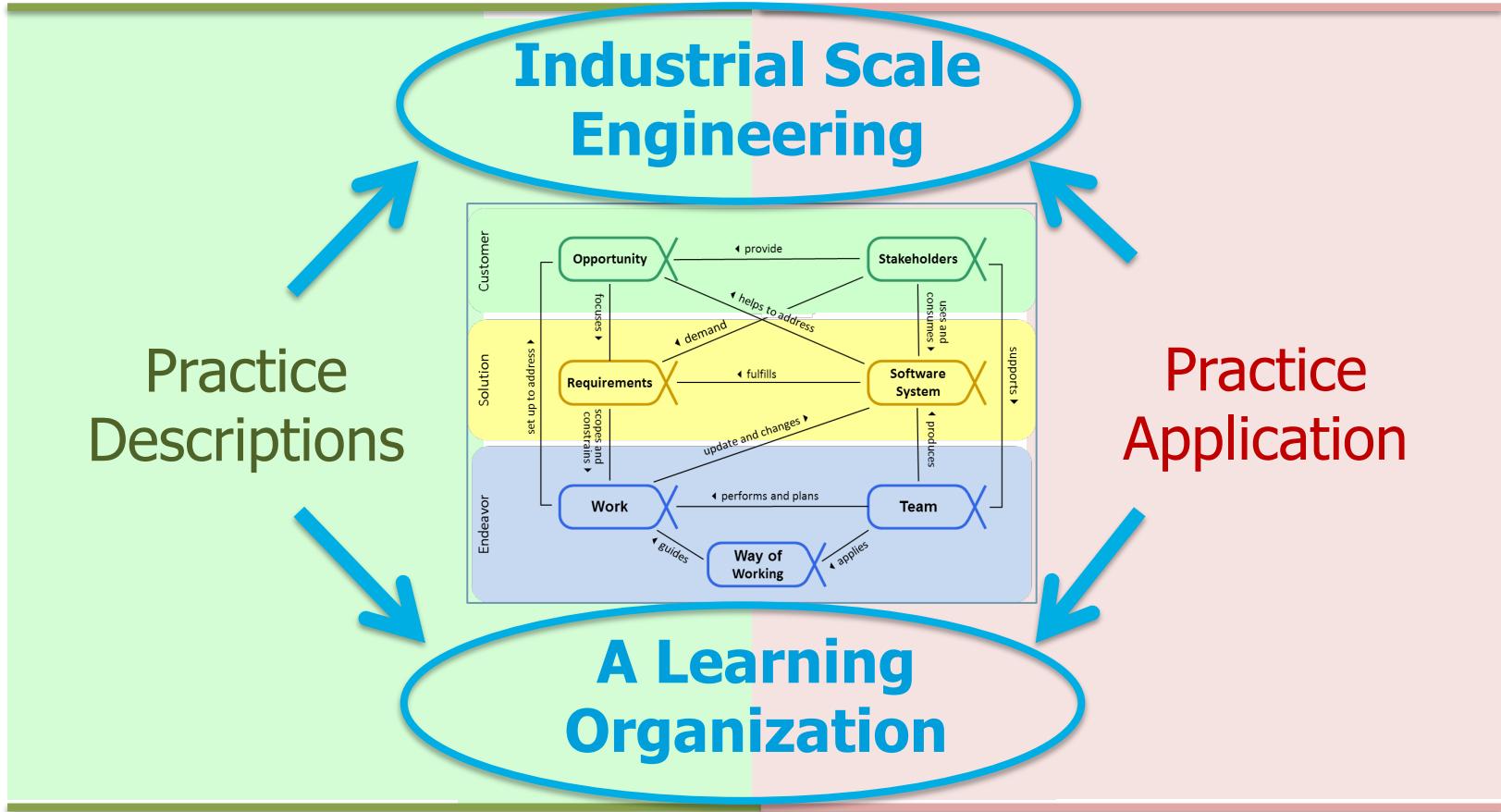
Essence has Two Major Usages

Practice
Descriptions



Practice
Application

The Major Impact of Essence



Essence Value Proposition

While preparing

- We have a Common Ground
- All methods can be modularized
- Build Practice Libraries with practices from many providers
- Safely Mix and Match practices best for you
- Easy to compose team's own ways-of-working
- Harvest and share the latest practices
- Just what you need – the Essence
- Easy to present and train, learn and apply
- Easy to compare and contrast
- Easy to get team's started
- Easy to continuously improve and keep up to date

While working

- Active guidance and gamification
- Monitor progress and health avoiding catastrophic failures
- Understand where you are and where you're going
- Practice independent governance practices
- Grow your way-of-working as you grow your team

Essentialization moves us to....

Industrial Scale Engineering

- Systematically address the methods to allow for dramatic efficiency and quality improvements through tooling and techniques
- Right size the applied methods to fit the problems at hand with minimum overhead, which shortens time to market
- Application of many engineering practices for
 - requirements such as use cases, features, user stories
 - design and architecture patterns, for developing components and services
 - testing complex, distributed systems
 - encouraging systematic reuse
 - helping engineers code with confidence
 - architectural concerns such as concurrency, security, user experience, micro-services, and data protection
- Application of practices with broader architectural concerns such as enterprise architecture, product-line architecture, service-oriented architecture and the architecture of systems of systems
- Working systematically instead of relying on heroics

A Learning Organization

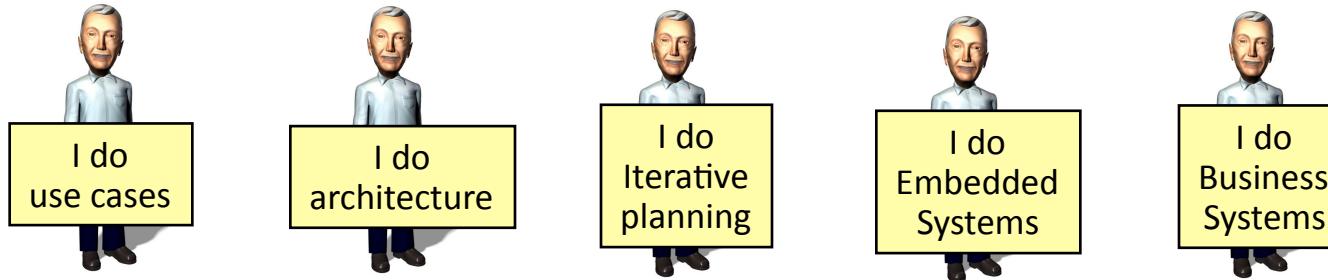
- Common language / common culture
 - Create your own kernel – if needed
 - Establish shared common ground for all teams
 - Exchange and share practices and experiences
- Increase the competency of every individual
 - Building practice libraries accessible to everyone
 - Continuously improve
 - Nurture communities of practices
 - Share practice
 - Directed coaching
 - Practice-based accreditation
- Create winning teams
 - Plug and play methods and practices
 - Track progress and health
 - Lightweight, practical governance
- More competent people will
 - develop better software faster and cheaper with happier customers
 - innovate more effectively

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The Future is around the corner

- Less than 20% of software development work is really creative
- 80% is “no-brain” work following well-known patterns
- It is expected that at least 50% of the “no-brain” work can be taken over by intelligent agents (expert systems)
- Developers can be liberated from some “no-brain” work to really innovate instead of solving the similar problem over and over again
- Practices are perfect candidates for intelligent agents
- We have extensive experience in designing intelligent agents through Waypointer



Virtual Pair

- Programmers
- Analysts
- Designer
- Tester
- Project Managers

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8. The Expectation Today

Early Adopters' Expectations

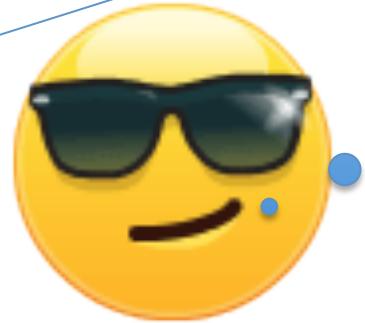
- you can do **twice as good** a job...
- you can do the job **twice as fast...**
- you can do the job with **half the people...**
- you can do all that and still make your customer **happier...**



Early Adopters' Expectations

- you can do twice as good a job...
- you can do the job twice as fast
- you can do the job with
- you can do

Welcome to the Future!



What
choice do
we have?