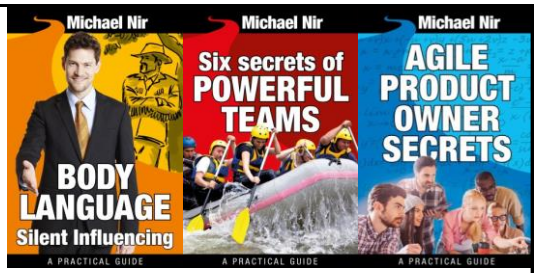

Agile and Scrum 101 from the Trenches - Lessons Learned

PMI Pittsburgh Professional Development Day
November 2016

Michael Nir
President Sapir Consulting
www.sapir-cs.com

www.sapir-cs.com , Boston MA
sapir@sapir-cs.com

Michael Nir

SAPIR Consulting US L.L.C

- **Transformation Inspiration Expert, Lean Agile Coach; empowers organizations to deliver results;**
- **President @ Sapir Consulting US LLC**
- **M.Sc. Engineering, PMP®, SAFe™ accredited**
- **Author of 10 bestseller business books**
- **Global clients -** telecoms, hi-tech, software development, R&D environments and petrochemical & infrastructure

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Survey – your background

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Change is Upon Us

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"The average lifespan of a company listed in the Standard & Poor 500 index of leading US companies has decreased from 67 years in the 1920s to just 15 years today"

– Richard Foster, Yale

In 8 years time, "more than 3/4 of the S&P 500 will be companies that we have not heard of yet"

http://som.yale.edu/richard-n-foster

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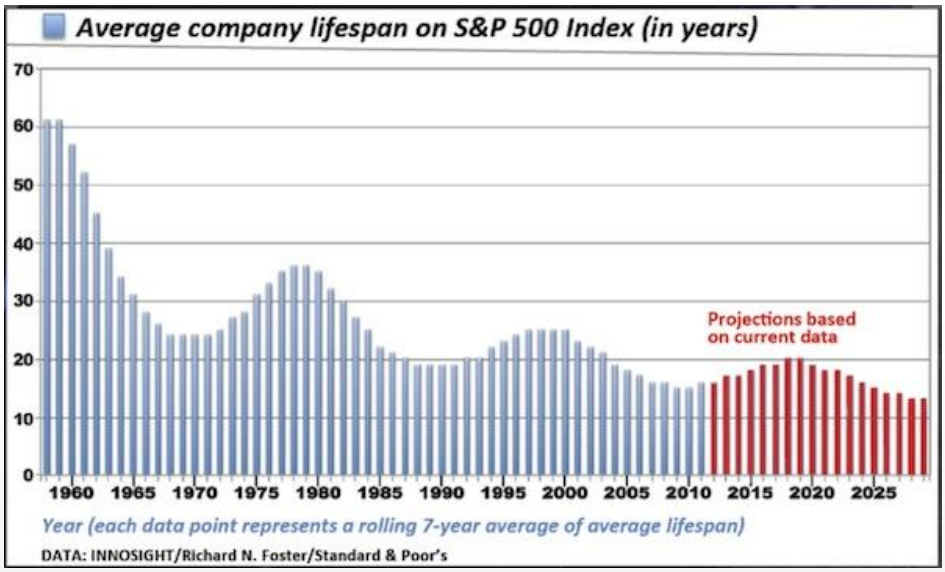

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Rethink Our Delivery Model

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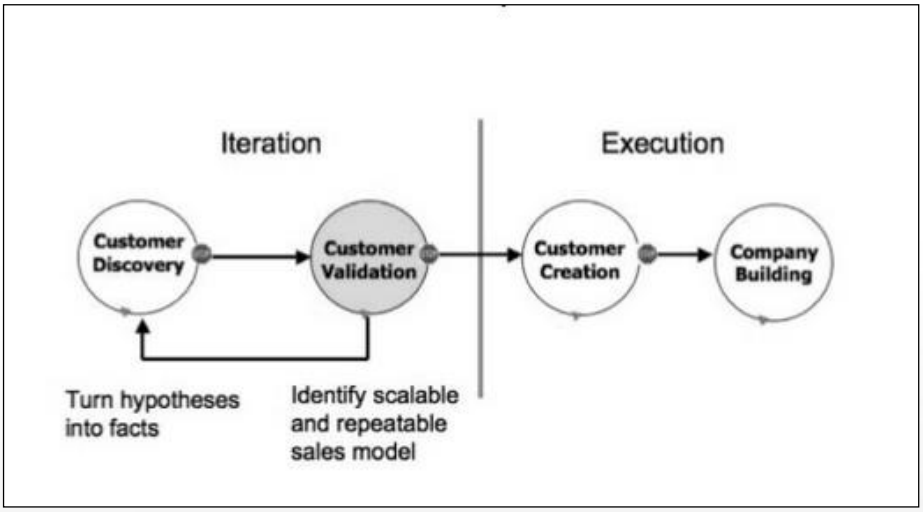

The Four Steps to the Epiphany - Successful Strategies for Products that Win
- Steve Blank

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"Put something in users hand and get real feedback ASAP."

Drew Houston, Dropbox

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Agile Paradigm Shift

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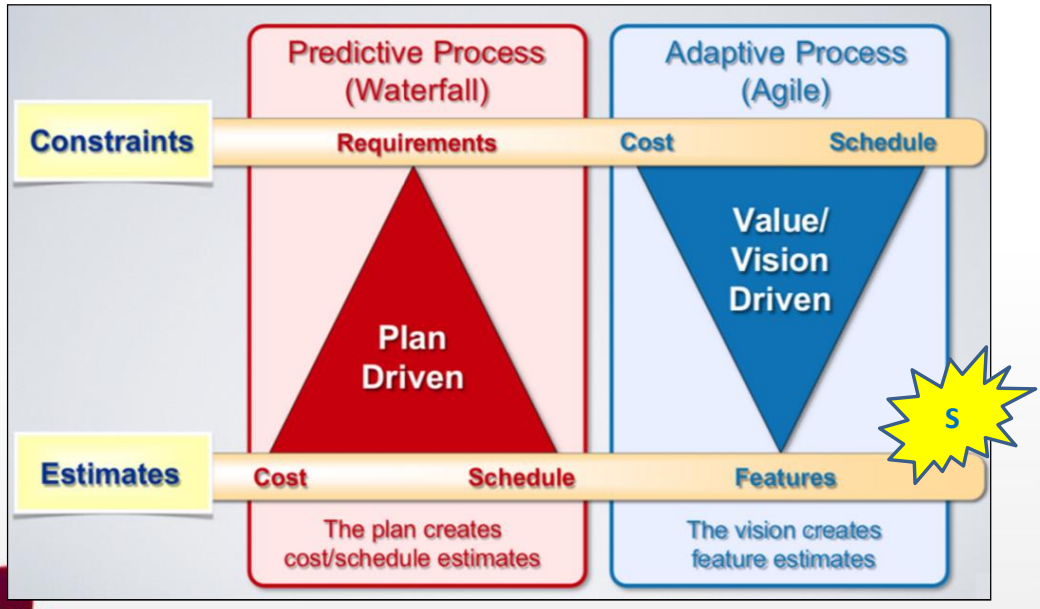

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Agile Process Elements

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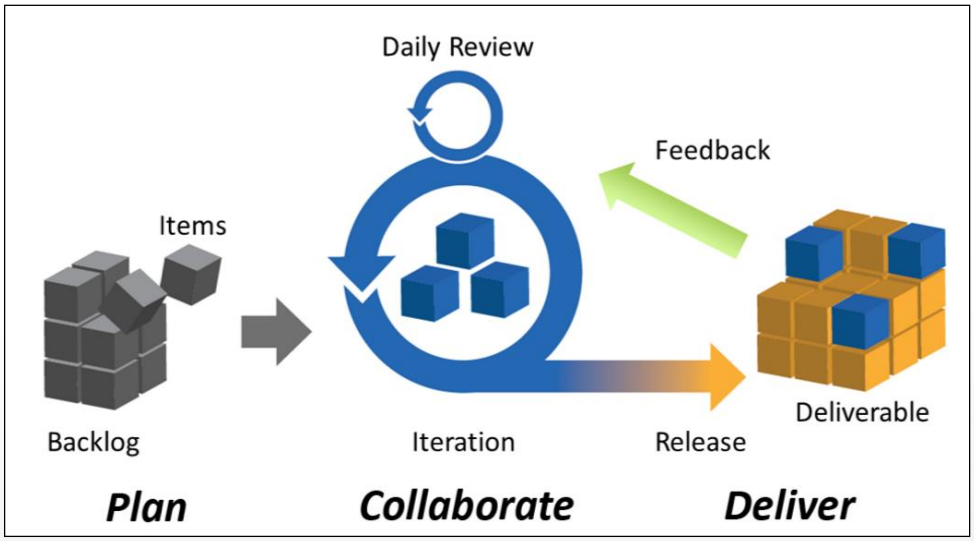

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Scrum Video

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Scrum Overview

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- Self-organizing teams
- Product progresses in a series of month-long “sprints”
- Requirements are captured as items in a list of “product backlog”
- No specific engineering practices prescribed
- Uses generative rules to create an agile environment for delivering projects
- One of the “agile processes”

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Pain Points?

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Coach View – Best Practices

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- Agile mindset wins, be wrong early, think about scaling from day one;
- Focus on what counts: product owner, team dynamics, time boxing;
- It is all about fast feedback, all else is superfluous.

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Avoid Anti Patterns

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- Scrum zealots
- Discussing story points to death
- Going through the motions instead of being an Agile Jedi
- Skipping reviews and retrospectives

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Putting it all Together
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Daily Scrum Meeting
24 Hours
Product Backlog
Sprint Backlog
2-4 Weeks
Potentially Shippable Product Increment
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Sprints

- Scrum projects make progress in a series of "sprints"
- Analogous to Extreme Programming iterations
- Typical duration is 2–4 weeks or a calendar month at most
- A constant duration leads to a better rhythm
- Product is designed, coded, and tested during the sprint

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Agreement!
No Changes During a Sprint

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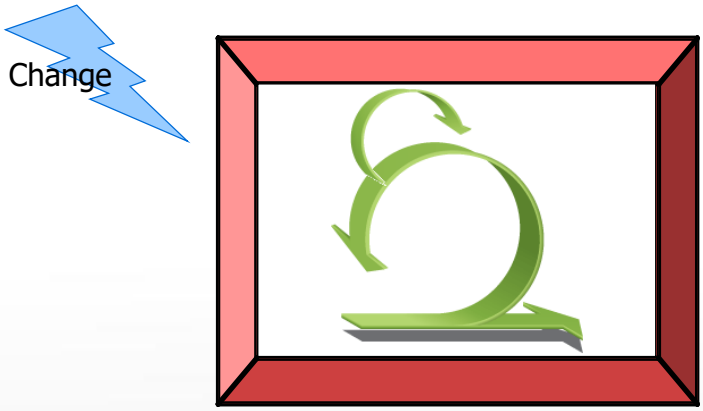

- **Plan sprint durations around how long you can commit to keeping change out of the sprint**

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Scrum Framework

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Roles

Product owner
Scrum Master
Team

Ceremonies

Sprint planning
Sprint review
Sprint retrospective
Daily scrum meeting

Artifacts

Product backlog
Sprint backlog
Burndown charts

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The Scrum Master

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- Represents management to the project
- Responsible for enacting Scrum values and practices
- Removes impediments
- Ensure that the team is fully functional and productive
- Enable close cooperation across all roles and functions
- Shield the team from external interferences

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Product Owner

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- Define the features of the product
- Decide on release date and content
- Be responsible for the profitability of the product (ROI)
- Prioritize features according to market value
- Adjust features and priority every iteration, as needed
- Accept or reject work results

The Team

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- Typically 5-9 people
- Cross-functional:
- Programmers, testers, user experience designers, etc.
- Members should be full-time
- May be exceptions (e.g., database administrator)

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The Team

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- Teams are self-organizing
- Ideally, no titles but rarely a possibility
- Membership should change only between sprints
- The secret of the Definition of Done!

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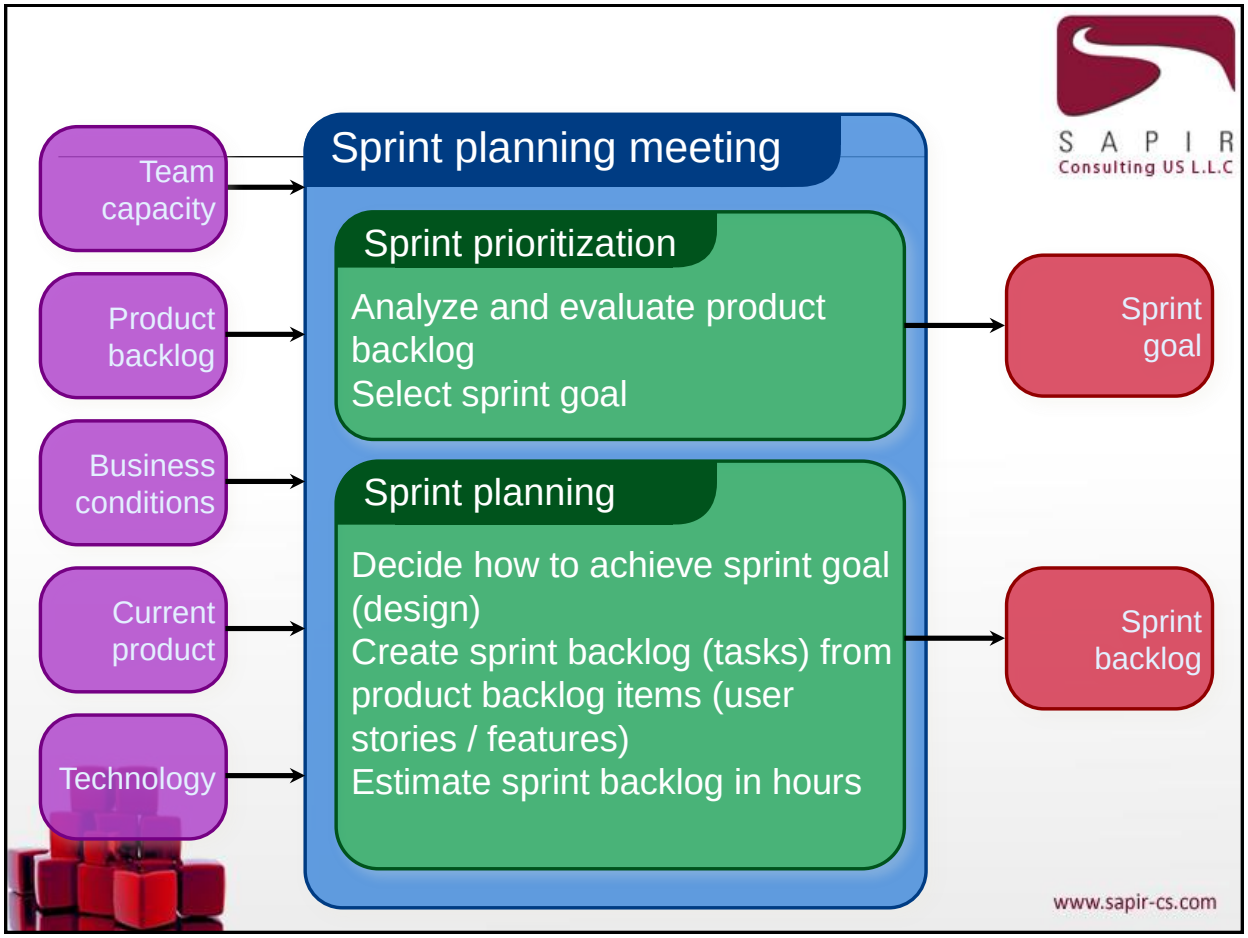
Sprint planning meeting
Team capacity
Product backlog
Business conditions
Current product
Technology
Sprint prioritization
Analyze and evaluate product backlog
Select sprint goal
Sprint planning
Decide how to achieve sprint goal (design)
Create sprint backlog (tasks) from product backlog items (user stories / features)
Estimate sprint backlog in hours
Sprint goal
Sprint backlog
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Sprint Planning

- Team selects items from the product backlog they can commit to completing
- Sprint backlog is created
- Tasks are identified and each is estimated (1-16 hours)
- Collaboratively, not done alone by the Scrum Master
- High-level design is considered

As a vacation planner, I want to see photos of the hotels.

Code the middle tier (8 hours)
Code the user interface (4)
Write test fixtures (4)
Code the foo class (6)
Update performance tests (4)

Story Estimating – Discussion

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- What do you know about Agile estimating – teams of three discussion
- If relevant to your experience:
  - Identify pros for story pointing
  - Identify challenges for story pointing
  - What are practices that make story pointing successful?

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Survey

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Share the previous slide discussion

using the Survey –

limit yourself to three items

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Story Estimating – Review

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- Estimate Stories with relative Story points
- The team estimates together in a bias free approach
- Story points are relative; they are not connected to any specific unit of measure
- A Story point is a singular number that represents:
  - Volume: how much is there?
  - Complexity: how hard is it?
  - Knowledge: what do we know?
  - Uncertainty: what's not known

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Story Estimating

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- Use Estimating Poker to relatively estimate the mass of a set of animals
- As a team at your table, identify the smallest animal and mark it as 1
- Estimate the remaining animals using values 1, 2, 3, 5, 8, 13, 20, 40, 100

Elephant

Giraffe

Horse

Hyena

Crocodile

Chicken

Gorilla

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The Daily Scrum

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- Parameters
  - Daily
  - 15-minutes
  - Stand-up
- Not for problem solving
  - Whole world is invited
  - Only team members, Scrum Master, product owner, can talk
- Helps avoid other unnecessary meetings

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Everyone Answers 3 Questions

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1. What did you do yesterday?
2. What will you do today?
3. Is anything in your way?

- These are ***not*** status for the Scrum Master
- They are ***commitments*** in front of peers

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The Sprint Review

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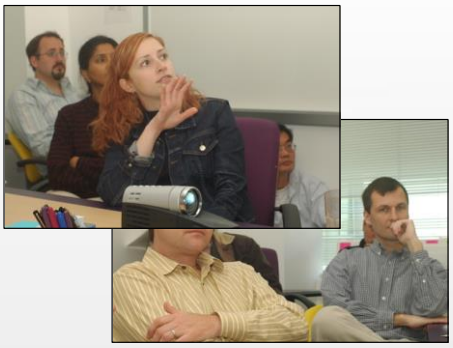
- Team presents what it accomplished during the sprint
- Typically takes the form of a demo of new features or underlying architecture
- Informal
- 2-hour prep time rule
- No slides
- Whole team participates
- Invite the world



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Sprint Retrospective

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- Periodically take a look at what is and is not working
- Typically 15–30 minutes
- Done after every sprint
- Whole team participates
- Scrum Master
- Product owner
- Team
- Possibly customers and others

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Start / Stop / Continue

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- **Whole team gathers and discusses what they'd like to:**

Start doing

Stop doing

Continue doing

This is just one of many ways to do a sprint retrospective.

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Scrum Framework

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Sprint backlog
Burndown charts

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Product Backlog

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This is the product backlog

- The requirements
- A list of all desired work on the project
- Ideally expressed such that *each item has value to the users or customers of the product*
- Prioritized by the product owner
- Reprioritized at the start of each sprint

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A Sample Product Backlog

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Backlog item	Estimate
Allow a guest to make a reservation	3
As a guest, I want to cancel a reservation.	5
As a guest, I want to change the dates of a reservation.	3
As a hotel employee, I can run RevPAR reports (revenue-per-available-room)	8
Improve exception handling	8
...	30

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The Sprint Goal

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- **A short statement of what the work will be focused on during the sprint**

Life Sciences

Support features necessary for population genetics studies.

Database Application

Make the application run on SQL Server in addition to Oracle.

Financial services

Support more technical indicators than company ABC with real-time, streaming data.

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Managing the Sprint Backlog

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- Individuals sign up for work of their own choosing
  - Work is never assigned
- Estimated work remaining is updated daily

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Managing the Sprint Backlog

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- Any team member can add, delete or change the sprint backlog
- Work for the sprint emerges
- If work is unclear, define a sprint backlog item with a larger amount of time and break it down later
- Update work remaining as more becomes known

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The Bare Essentials – Tomorrow!

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- Train the teams!
- Create/Refine the product backlog!
- Estimate and commit to a fixed duration delivery
- Run retrospective

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Create PBIs – Product Backlog Items

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- In teams of three Identify:
  - Product Owner
  - Team member
  - Business stakeholder
- The Business Stakeholder shares items from their work related backlog
- The product owner captures them, each item has value to the users or customers of the product (if relevant)
- The team member asks questions to clarify the stories
- As a team identify acceptance criteria
- Assign size as a team – relative sizing of all the items –
- Prioritize the backlog together

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A Sprint Backlog

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Tasks	Mon	Tues	Wed	Thur	Fri
Code the user interface	8	4	8		
Code the middle tier	16	12	10	4	
Test the middle tier	8	16	16	11	8
Write online help	12				
Write the foo class	8	8	8	8	8
Add error logging			8	4	

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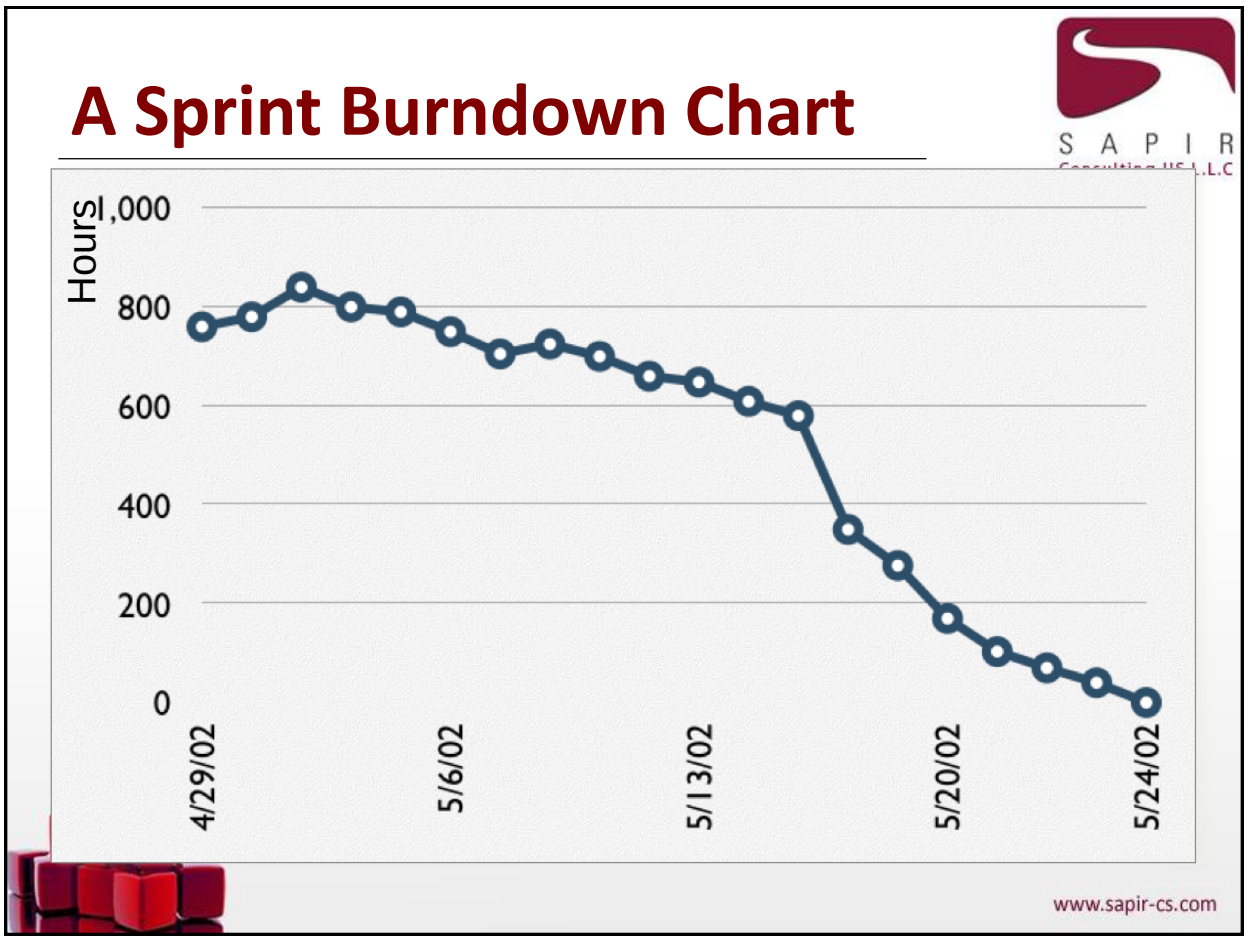
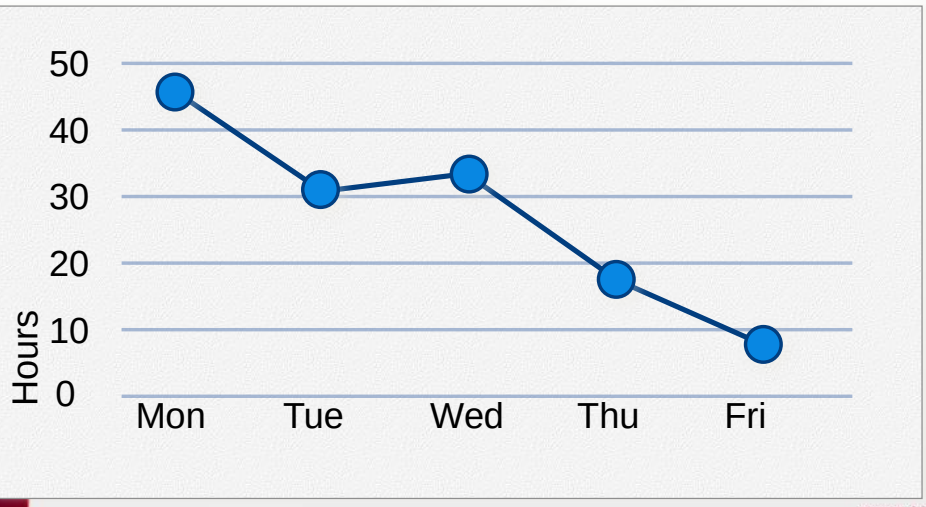
A Sprint Burndown Chart



Tasks	Mon	Tues	Wed	Thur	Fri
Code the user interface	8	4	8		
Code the middle tier	16	12	10	7	
Test the middle tier	8	16	16	11	8
Write online help	12				



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Kanban Video

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Kanban and Scrum

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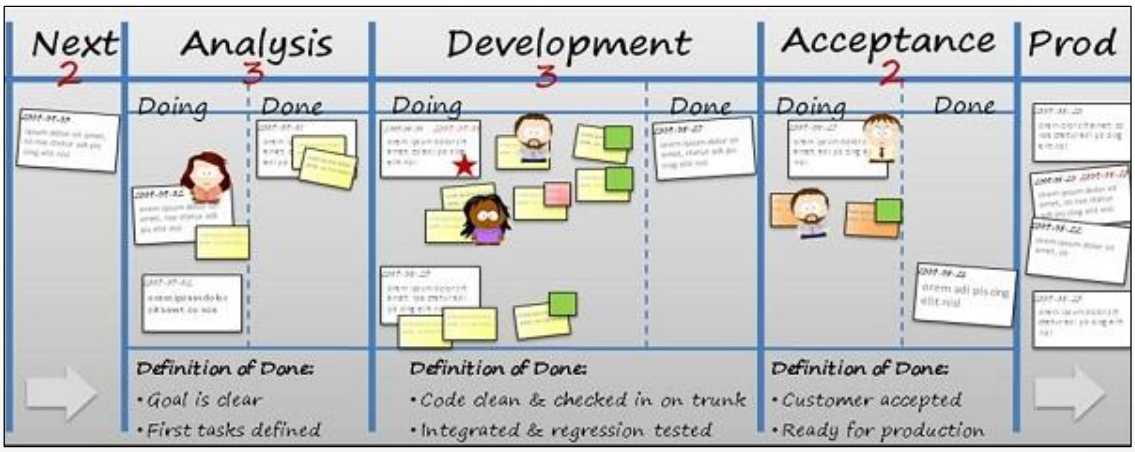

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Scalability

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- Typical individual team is *7 ± 2 people*
  - Scalability comes from teams of teams
- Factors in scaling
  - Type of application
  - Team size
  - Team dispersion
  - Project duration
- Scrum has been used on multiple 500+ pers projects
- Other Scaling models…SAFe®

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Scaling through the Scrum of Scrums

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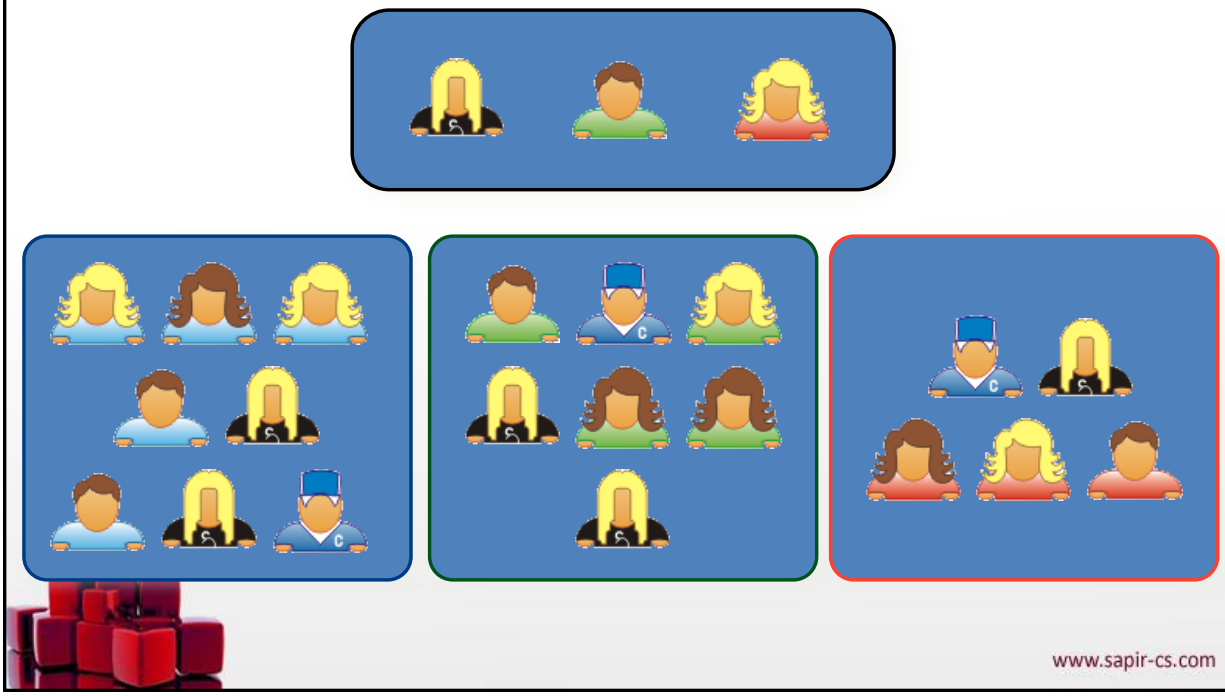

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Scaling through SAFe

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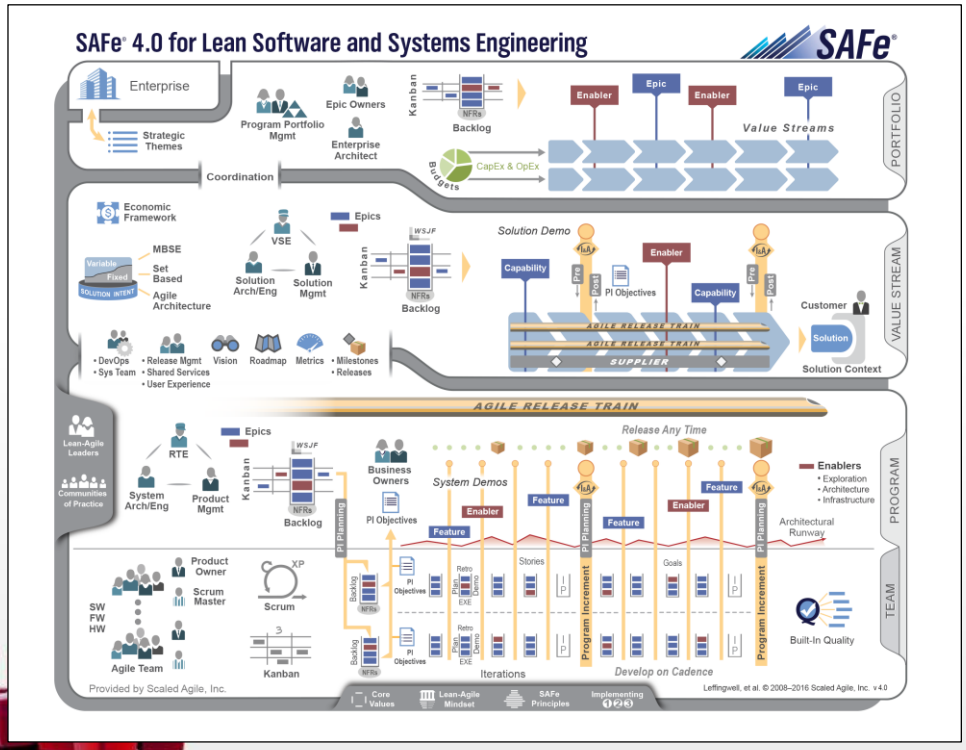

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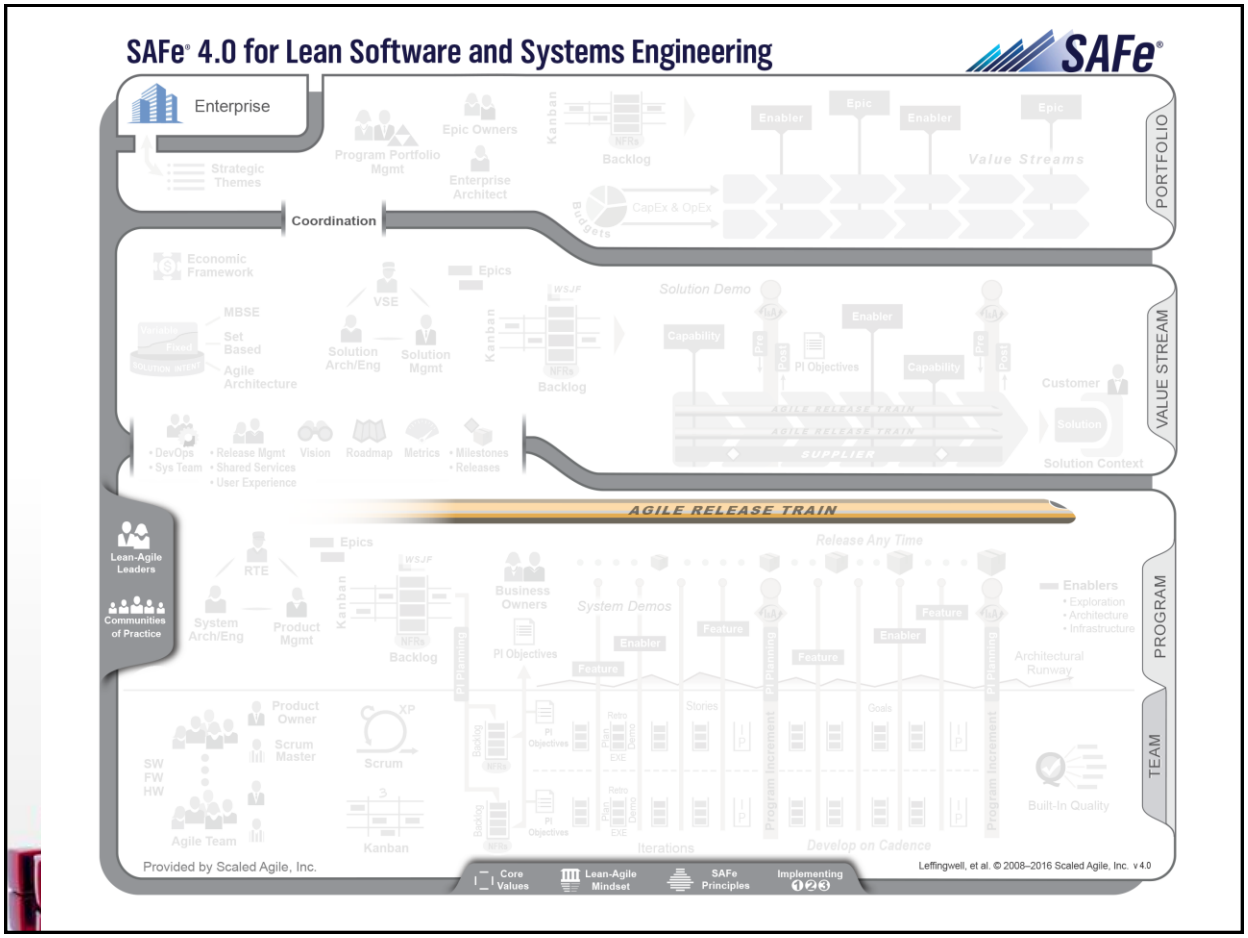

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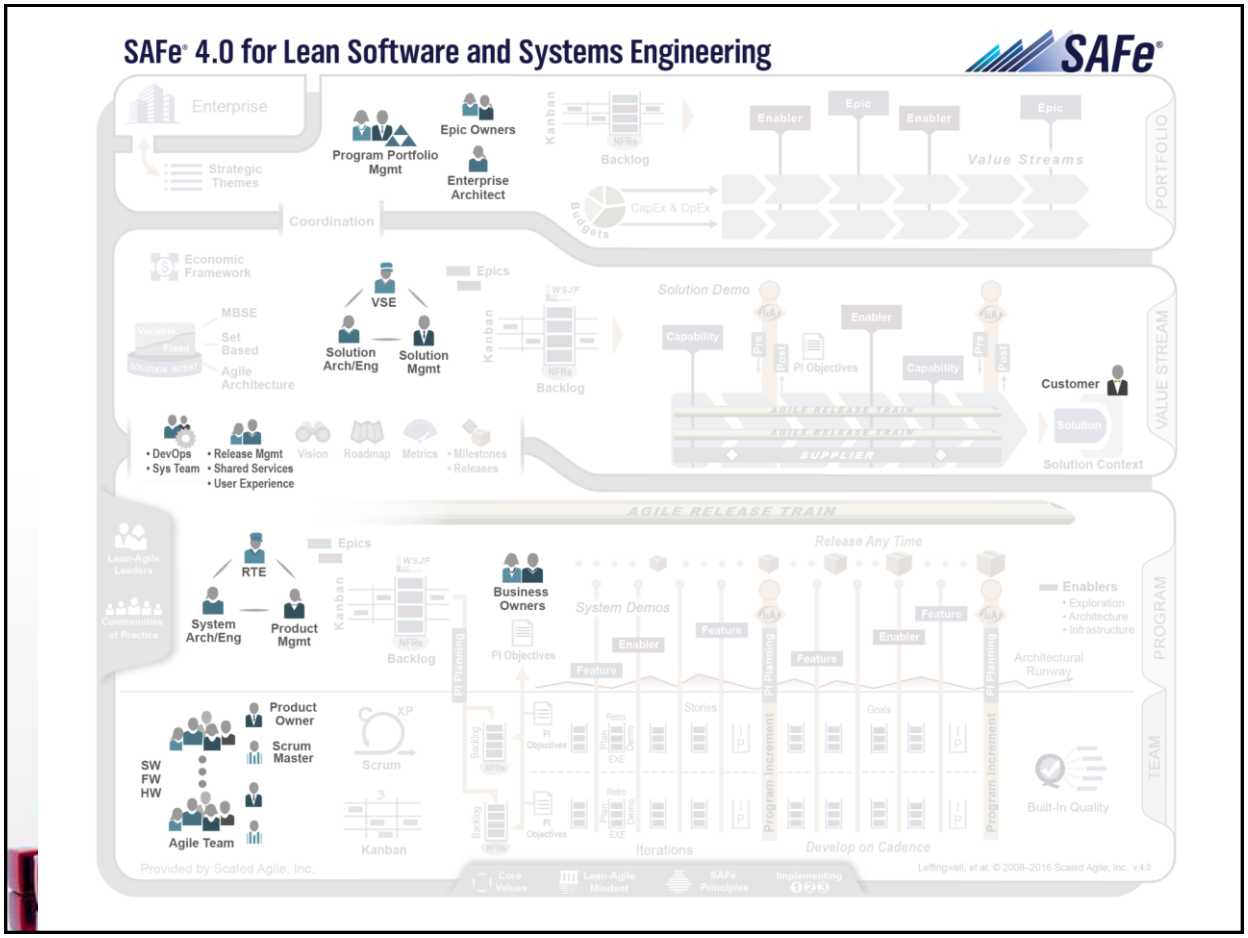
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Set Based
Agile Architecture
VSE
Solution Arch/Eng
Solution Mgmt
Epics
WSJF
Solution Demo
Capability
PI Objectives
Customer
Solution
Solution Context
VALUE STREAM
• DevOps • Sys Team
• Release Mgmt • Shared Services • User Experience
Vision
Roadmap
Metrics
• Milestones • Releases
AGILE RELEASE TRAIN
SUPPLIER
Lean-Agile Leaders
Communities of Practice
RTE
System Arch/Eng
Product Mgmt
Business Owners
System Demos
Release Any Time
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• Architecture
• Infrastructure
PI Planning
Architectural Runway
PROGRAM
Product Owner
Scrum Master
SW
FW
HW
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XP
Kanban
Stories
Goals
Program Increment
Built-In Quality
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SAFe Principles
Implementing
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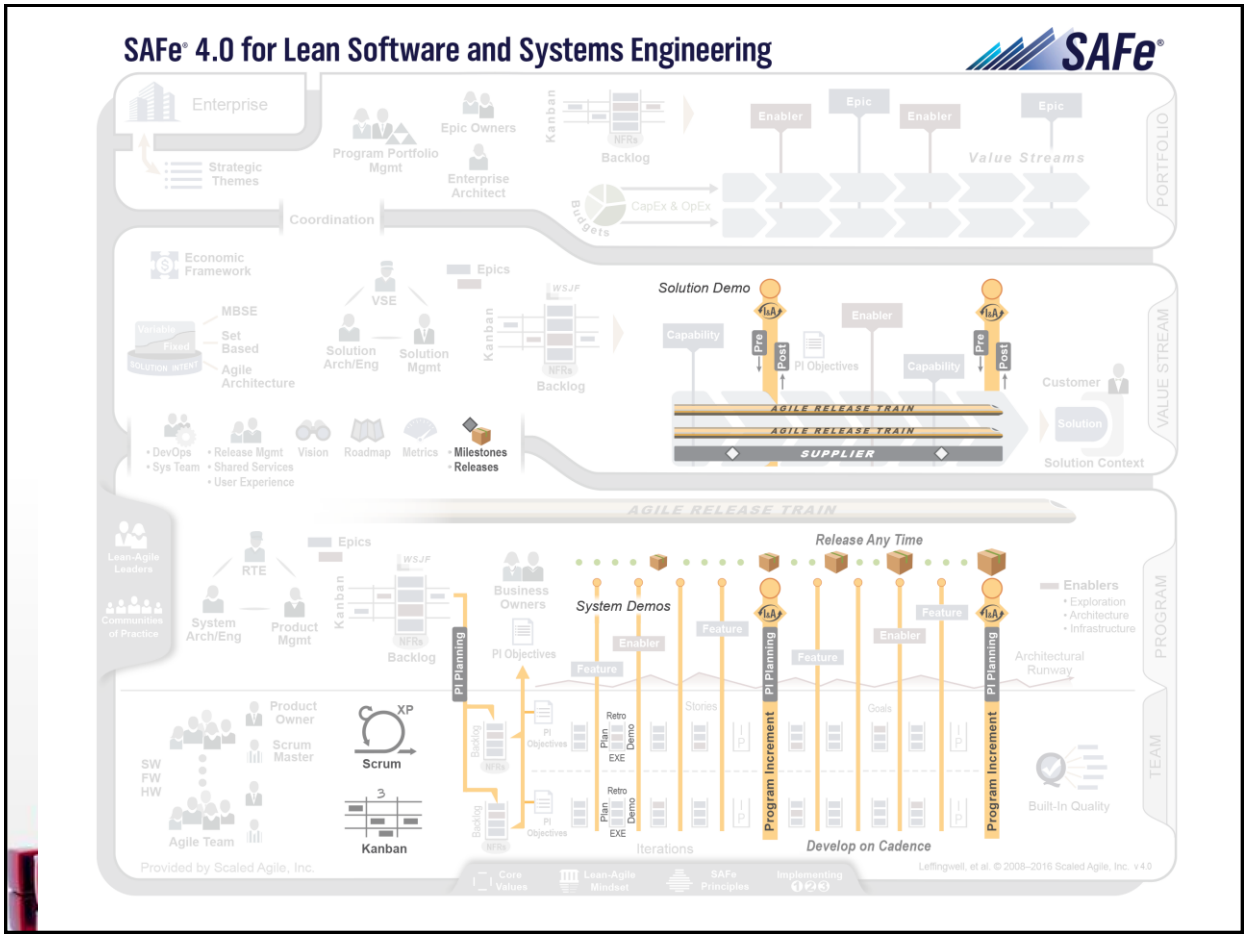
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Coordination
Budgets
CapEx & OpEx
Economic Framework
MBSE
Set Based
Agile Architecture
VSE
Solution Arch/Eng
Solution Mgmt
Epics
WSJF
Solution Demo
Capability
Pre
Post
PI Objectives
AGILE RELEASE TRAIN
SUPPLIER
Customer
Solution
Solution Context
VALUE STREAM
DevOps
Sys Team
Release Mgmt
Shared Services
User Experience
Vision
Roadmap
Metrics
Milestones
Releases
Lean-Agile Leaders
Communities of Practice
RTE
System Arch/Eng
Product Mgmt
Business Owners
System Demos
Release Any Time
PI Planning
Feature
Enablers
Exploration
Architecture
Infrastructure
Architectural Runway
PROGRAM
Product Owner
Scrum Master
Scrum
XP
SW
FW
HW
Agile Team
Kanban
Retro
Plan
Demo
EXE
Stories
Goals
Program Increment
Built-In Quality
TEAM
Iterations
Develop on Cadence
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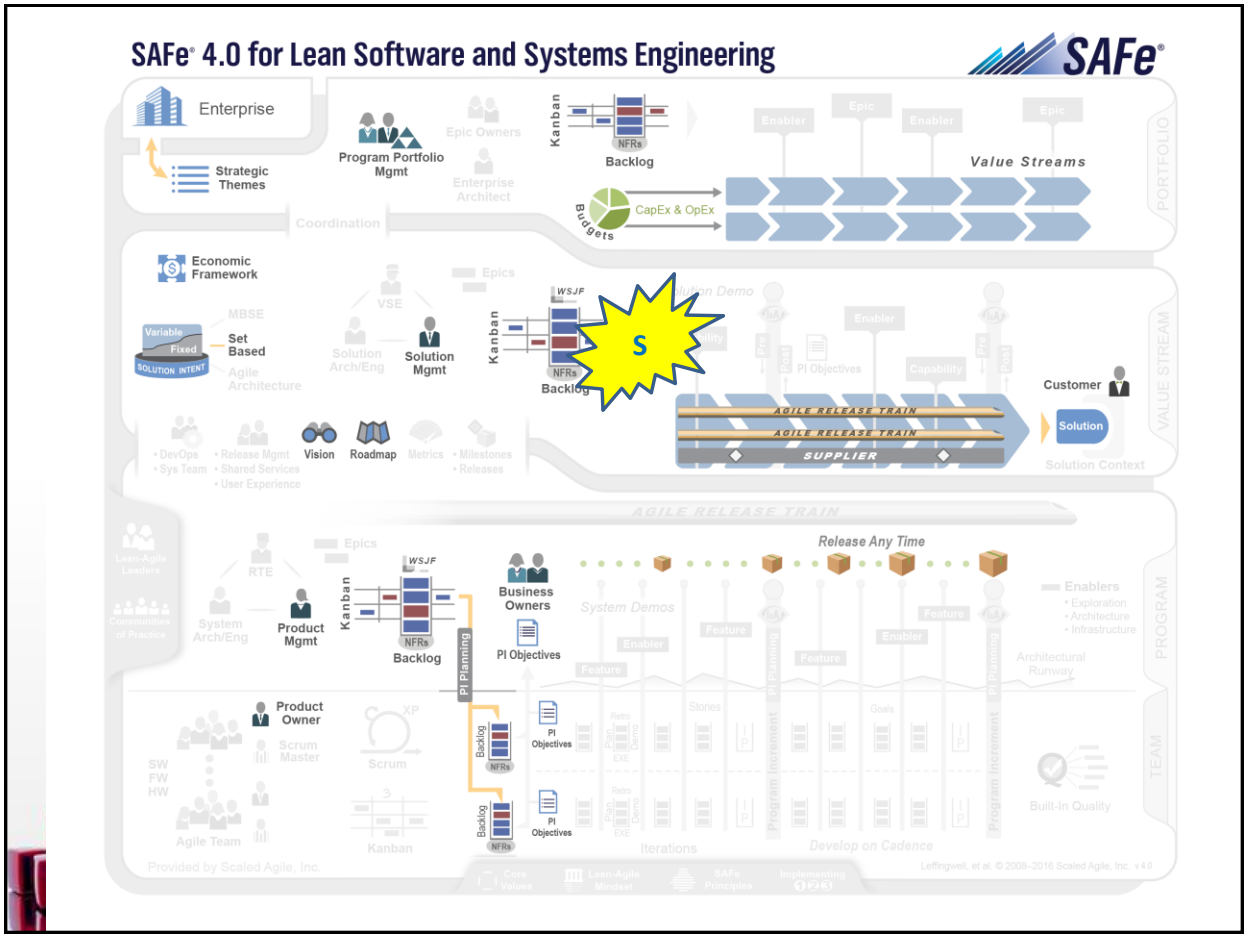
Core Values
Lean-Agile Mindset
SAFe Principles
Implementing



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Assessing the Culture Change

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Agile and 'traditional' speak different languages

Estimate:

- **Team: we were wrong…it's a learning process…let's retro**
- **Management: #$@!^%**

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It's not the same language

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Deadline:

- **Management: our clients are looking for…**
- **Team: this is not part of the Agile Manifesto or Scrum handbook, Software is difficult to predict**

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It's not the same language -

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Commitment:

- **Executive: You said it will be delivered in two weeks**
- **Team: I've committed to commit I didn't commit to deliver**

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Let's investigate further

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Agile leadership and the shoe continuum

Business Portfolio

Extreme Agile

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Extreme Agile – the zealot

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Business Portfolio

Extreme Agile

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The Scrum Master

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Business Portfolio

Extreme Agile

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Product owner or coach

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Business Portfolio

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Agile in the cold

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Business Portfolio

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PMO comfortable

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Business Portfolio

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PMO portfolio level

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Agile leadership and the shoe continuum

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Business Portfolio

Extreme Agile

How do we make it work???

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The Agile Manifesto
Agile Process

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Manifesto for Agile Software Development

We are uncovering better ways of developing software by doing it and helping others do it. Through this work we have come to value:

Individuals and interactions over processes and tools
Working software over comprehensive documentation
Customer collaboration over contract negotiation
Responding to change over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

Kent Beck	James Grenning	Robert C. Martin
Mike Beedle	Jim Highsmith	Steve Mellor
Arie van Bennekum	Andrew Hunt	Ken Schwaber
Alistair Cockburn	Ron Jeffries	Jeff Sutherland
Ward Cunningham	Jon Kern	Dave Thomas
Martin Fowler	Brian Marick	

Source:
http://agilemanifesto.org/

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Agile Principles 1-6

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- Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
- Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
- Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
- Business people and developers must work together daily throughout the project.
- Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
- The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

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Agile Principles 7-12

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- Working software is the primary measure of progress.
- Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
- Continuous attention to technical excellence and good design enhances agility.
- Simplicity--the art of maximizing the amount of work not done--is essential.
- The best architectures, requirements, and designs emerge from self-organizing teams.
- At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

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Culture Change

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In teams of four discuss what is the cultural change required to embrace Agile Scrum values:

- Review the manifesto and principles
- Using the following slide of four Agile/Scrum values, capture what would the ideal look like
- Using the subsequent slide of four Agile/Scrum values, capture what the current state in your organization is
- How would you mitigate the gap?

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Collaboration **Ideal:**	**Empowerment** **Ideal:**
Self-Management **Ideal:**	**Servant Leadership** **Ideal:**

Collaboration **Current:**	**Empowerment** **Current:**
Self-Management **Ideal:**	**Servant Leadership** **Ideal:**

Culture Change

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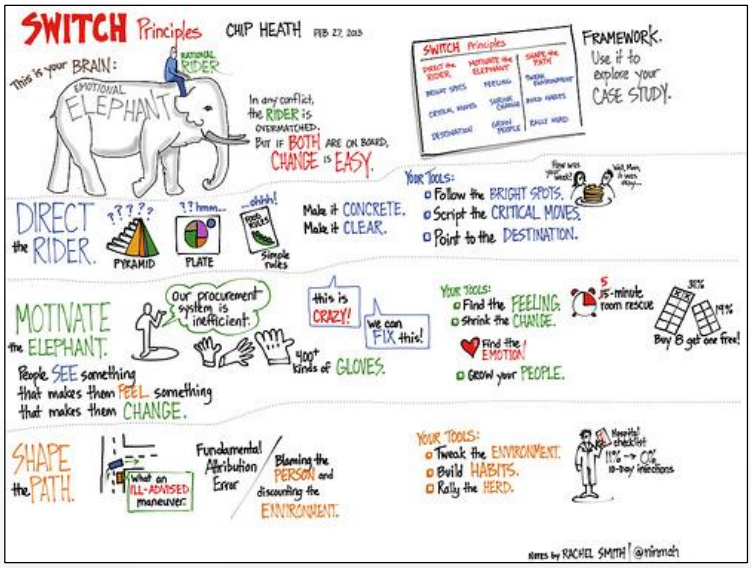

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Summary:
Agile approach - Scrum process

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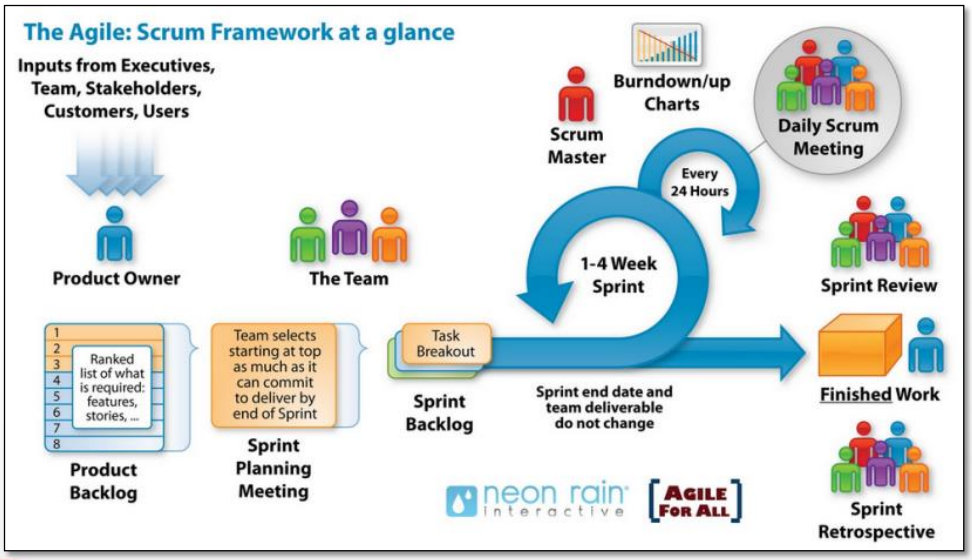

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Team Retro – One take away

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A Scrum Reading List

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- ***User Story Mapping*** **by Jeff Patton**
- ***Critical Chain Project Management*** **by Eli Goldratt**
- ***Silent Influencing*** **by Michael Nir**
- ***Scrum and XP from the Trenches*** **by Henrik Kniberg**
- ***Switch: How to Change Things When Change Is Hard*** **by Heath**
- ***The Lean Startup*** **by Eric Ries**
- ***Kanban and Scrum - Making the Most of Both*** **by Henrik Kniberg**
- ***Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation*** **by Tim Brown**
- ***Agile Retrospectives*** **by Esther Derby and Diana Larsen**
- ***Building Highly Effective Teams*** **by Michael Nir**

Portions of this presentation are from Mike Cohn
www.mountaingoatsoftware.com

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Coming Next :
Scaled Agile workshop

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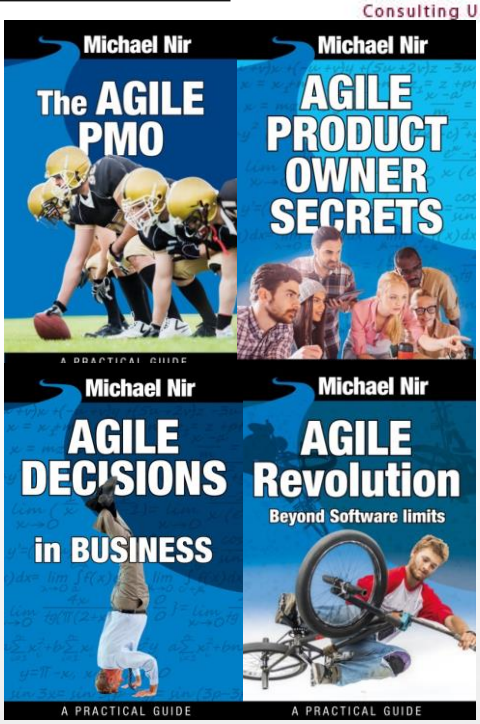
You are ready to start Scrumming

Thank You



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