The answer is

Scrum Outside Of Software

Mikael Boman
European lead - agile coaching, GE Healthcare

Imagination at work.

Copyright © 2016 by Mikael Boman, GE Healthcare. Permission granted to INCOSE to publish and use.

So what was the question?

How to get started with agile in systems development?

And now – I'll try to show you how...

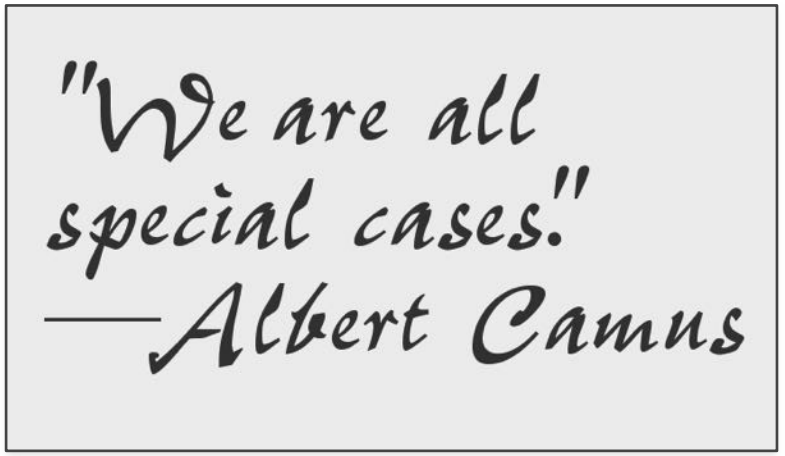
See tutorial regarding
confidentiality disclosures.

Arguments against agile

Agile does not work for us, because..

2005: *Agile does not work for us - we are not a small startup*

2008: *Agile does not work for us - we are working in banking/insurance/medical software*



2014: *Agile does not work for us - we are working with hardware/chemistry/biology*

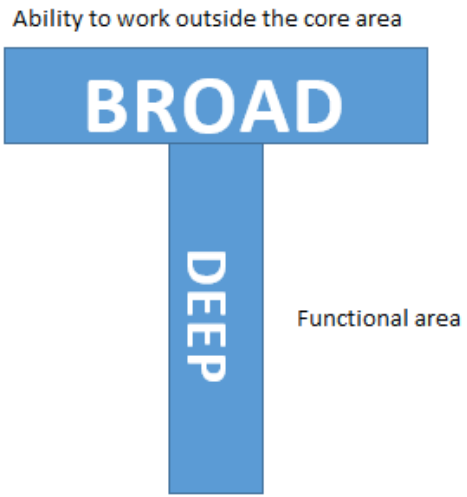
- Every organization/team is special in their own
- But we are more similar than different, in part because we are all human beings

Agile is only for software development because that is were it was invented

- Yes and no…
- It was invented for use in software product development…
- …but as you will see, it has origins outside of software and has been used extensively outside of software the last 10 years or so

We cannot do agile, because in our teams, not everyone can do any task

- First of all: That was never the intention of cross functional teams
- Second: That is actually the case in most software development teams as well
  - Teams have testers, C# client side coders, Java server side coders, HTML5 web client coders, PL-SQL experts etc etc
- What we want, is T-shaped competence
  - Ability and interest in working outside of own core competence in order to help broader team



We cannot do agile, because we do not have full time resources

- First step – stop thinking about people as resources
  - As long as we keep thinking about people as resources, we will have cases where people are allocated 10% of their time to a project – which simple does not work
- Next step: review if there is a way to get the people who need to be involved, involved to a higher degree if you bunch a few projects together
- Consider not including the people who are actually only working 10% in the project – let them form a component/functional team with their peers and bundle together more of their work

We cannot do agile, because we have such long cycles in our work

- Again – an argument also often used by software developers
  - *"I need 80 hours to fix this database query"*
- My answer to this: please identify the intermediate steps
  - For knowledge sharing to peers
  - As a progress indicator
  - As a way to identify potential improvements/simplifications

Influencing People

ADKAR model
Hiatt

http://www.change-management.com/

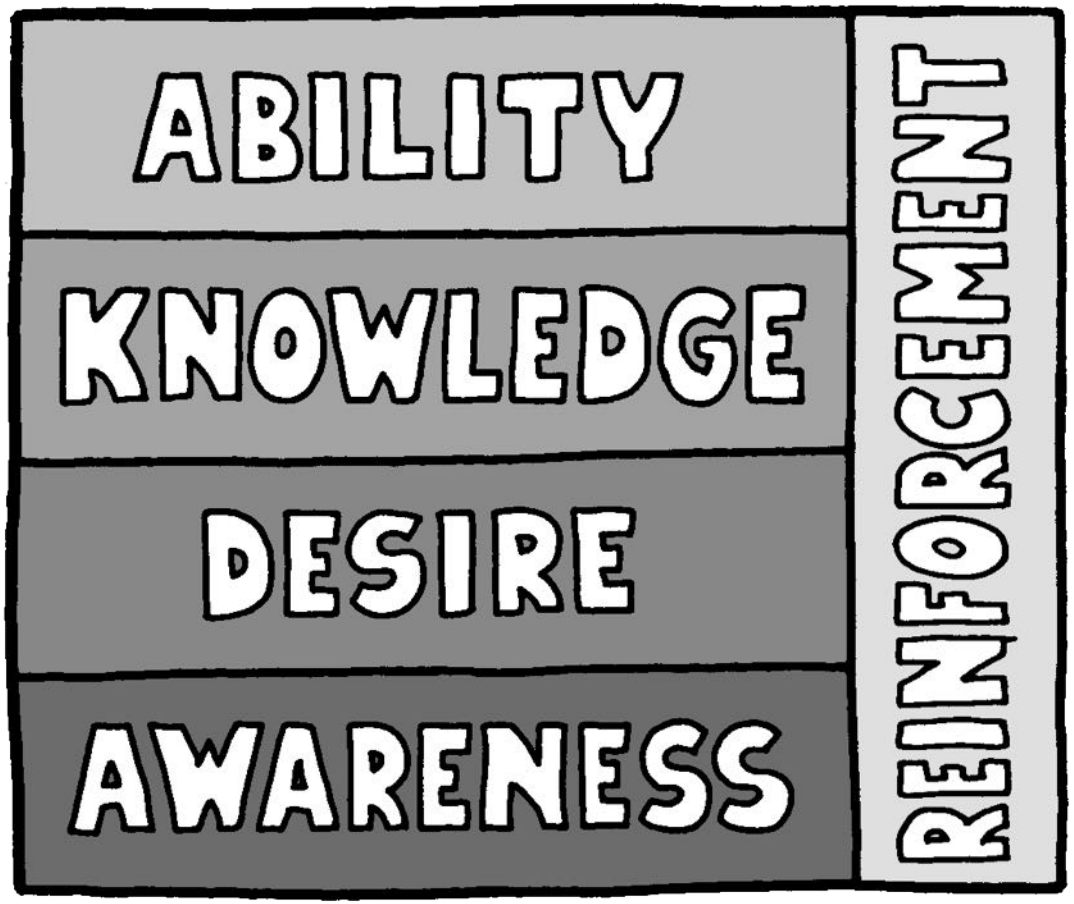


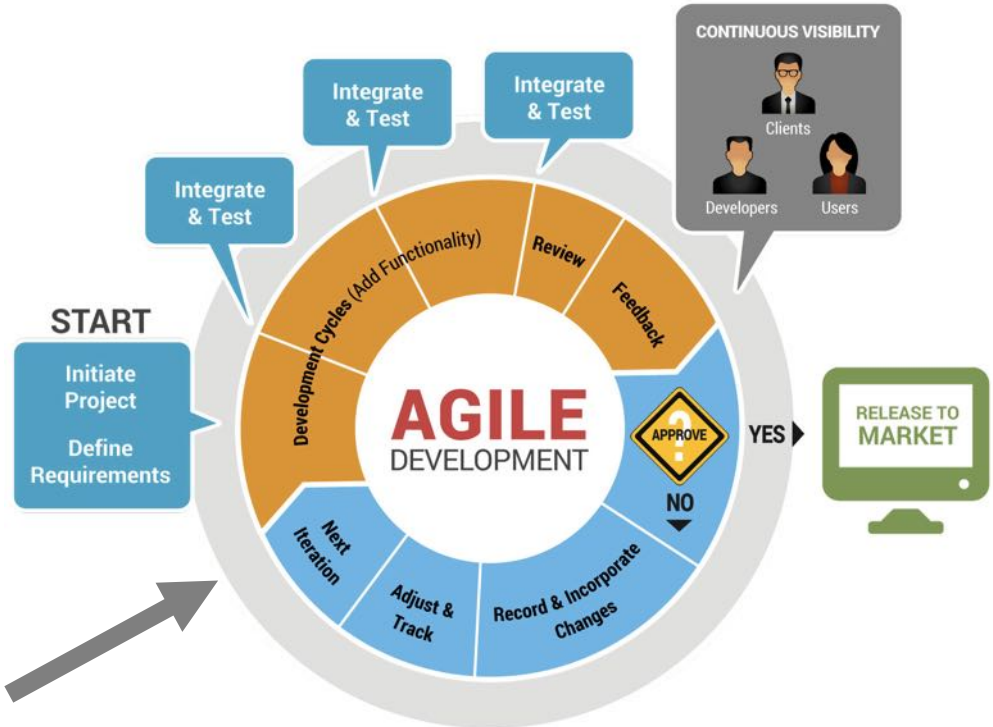
Illustration © Jurgen Appelo, Creative Commons 3.0 BY http://www.management30.com/

Origins of agile

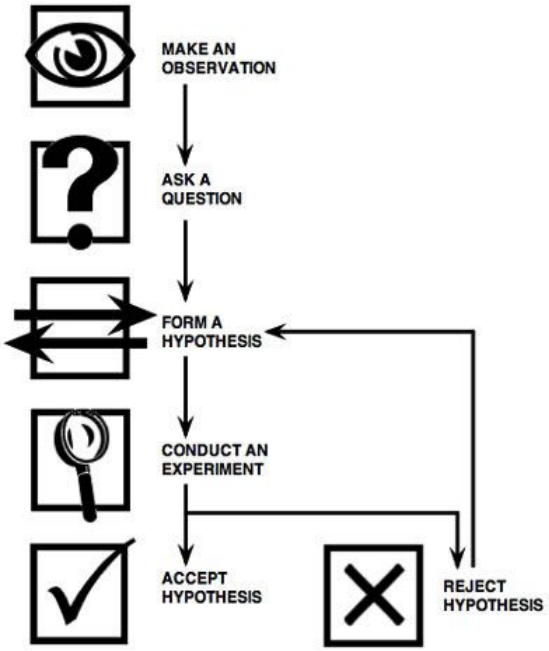
imagination at work

Agile frameworks

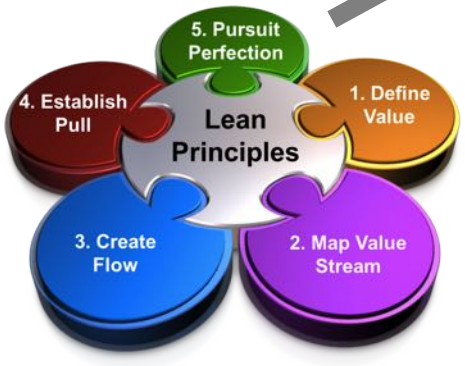
Built on old learnings



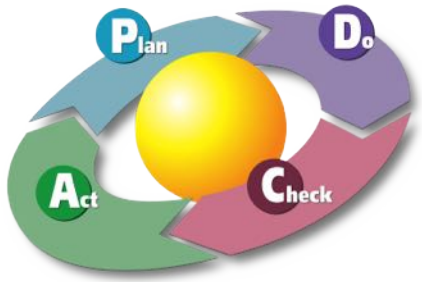
Agile, 1990s



Scientific method, 1600s



Lean, 1950s



PDCA, 1950s

What sparked the move to agile software development?

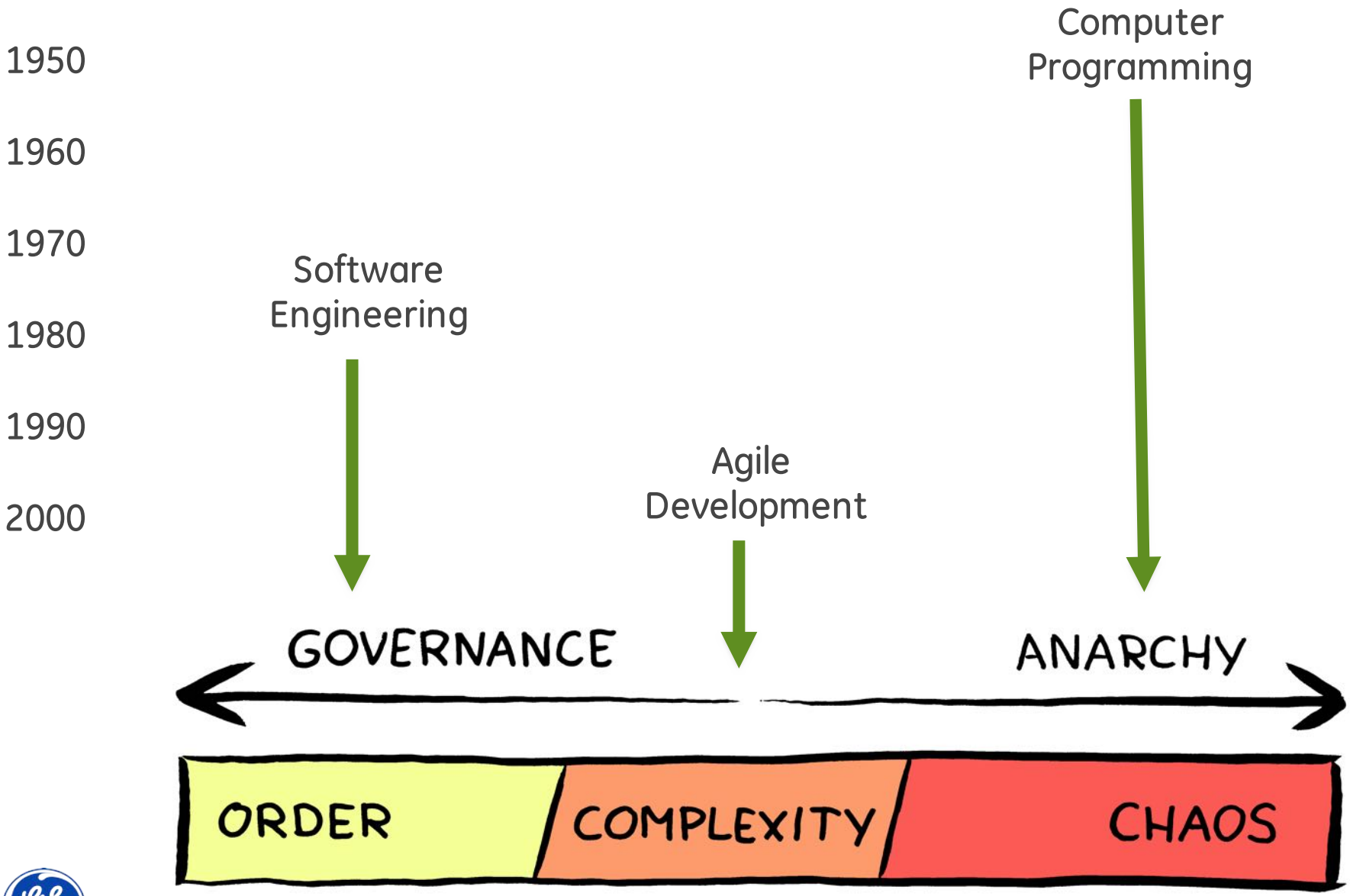
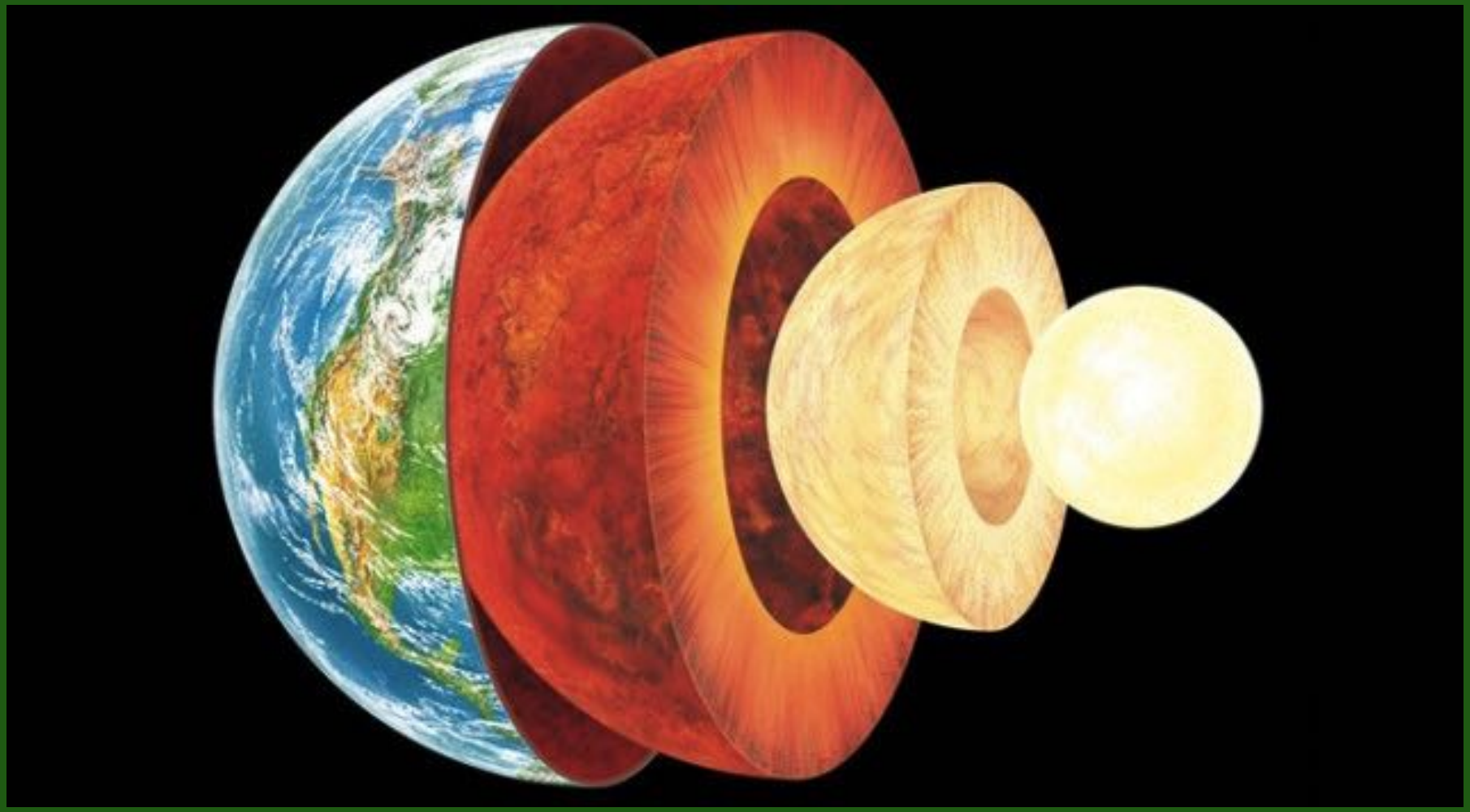


Illustration © Jurgen Appelo, Creative Commons 3.0 BY http://www.management30.com/

Core of agile



Transparency is key

© Scott Adams, Inc./Dist. by UFS, Inc.

It depends

- Ken Schwaber, Scrum co-creator

What is an Agile way of working? (with all jargon gone!)

Part 1

- Have a long term, prioritized plan for what you want to do
- Break down the work into smaller pieces and create a short term plan for the next few weeks
- Meet daily/often to share knowledge, support each other in making progress and identify & remove blockers
- At the end of the few weeks, stop and compare you plan for that period to what really happened – what is DONE?
- At the end of the few weeks, also stop to reflect on your way of working and challenge yourself to improve

What is an Agile way of working? (with all jargon gone!)

Part 2

- Allow individuals and teams time to focus in order for them to be able to get things done
- Allow the relentless transparency to enable informed decision making
- If you are building something – try to form a team of all (or as many as is feasible) of the competencies needed to take the idea of what to build to something in the hands of the customers.

The Adoption Curve model

Rogers

http://en.wikipedia.org/wiki/Diffusion_of_innovations

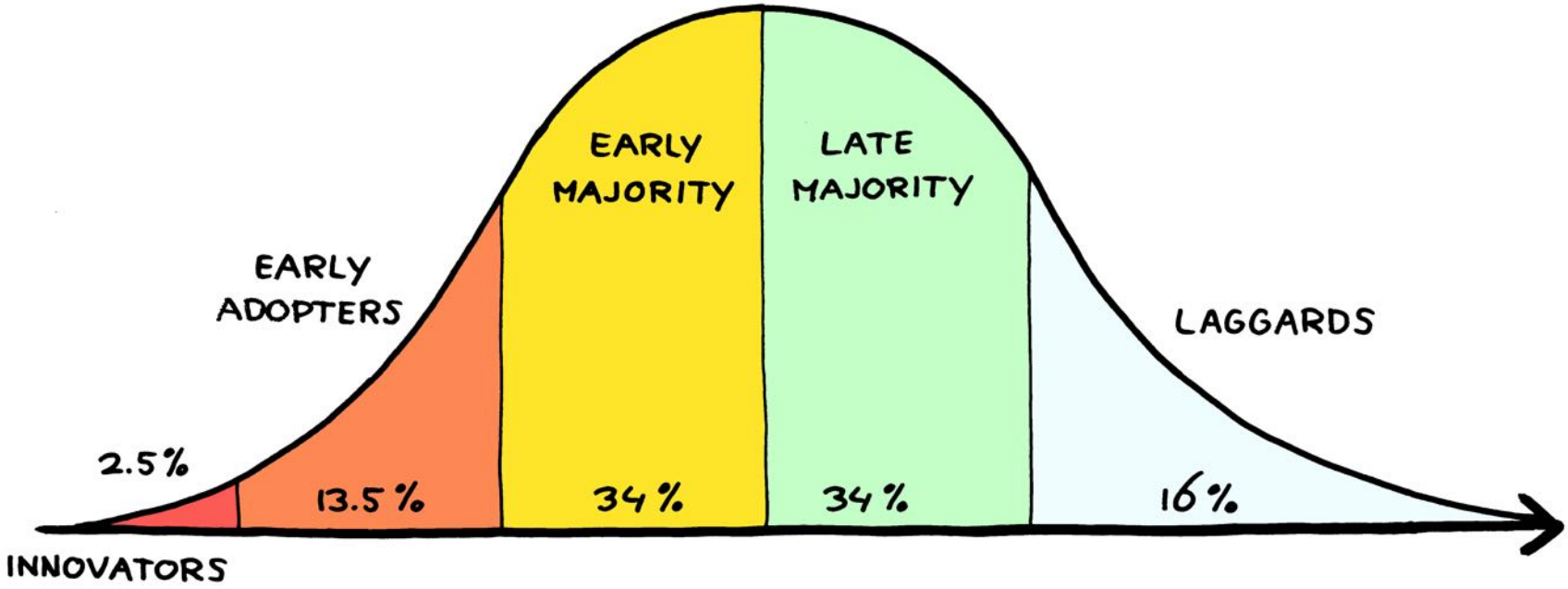


Illustration © Jurgen Appelo, Creative Commons 3.0 BY http://www.management30.com/

Implement change with an Iterative approach

PDCA cycle
Deming/Shewhart

http://en.wikipedia.org/wiki/PDCA

Illustration © Jurgen Appelo, Creative Commons 3.0 BY http://www.management30.com/

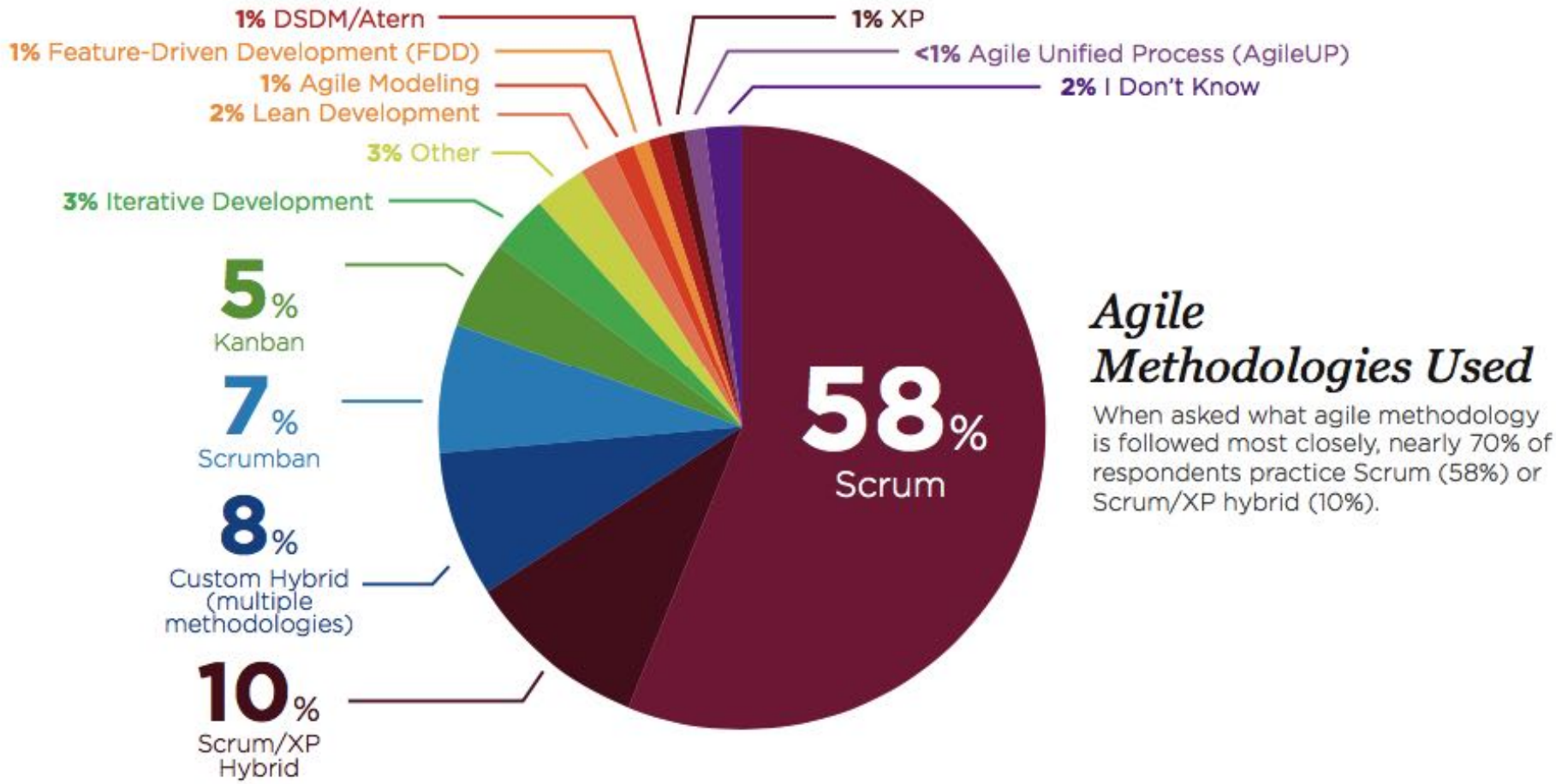
Agile is an umbrella term for many things

Started out as a way of managing software product development work.

Went on to be a family of frameworks – some useful for plannable work, others for unplannable work.

Evolved into a brand used for describing new ways of writing requirements, estimating effort, managing people, etc.

AGILE METHODS AND PRACTICES



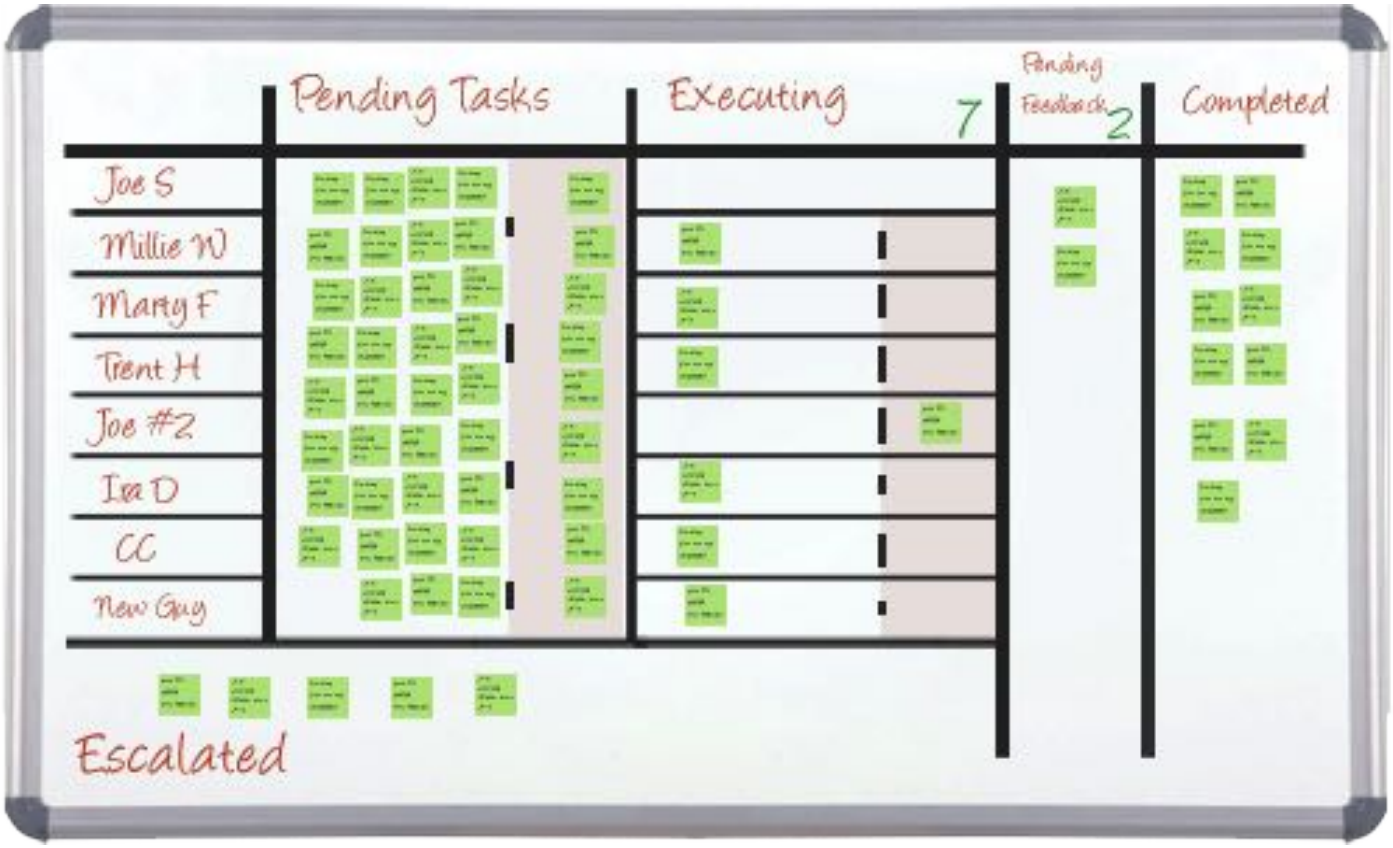
Agile Methodologies Used

When asked what agile methodology is followed most closely, nearly 70% of respondents practice Scrum (58%) or Scrum/XP hybrid (10%).

http://stateofagile.versionone.com/

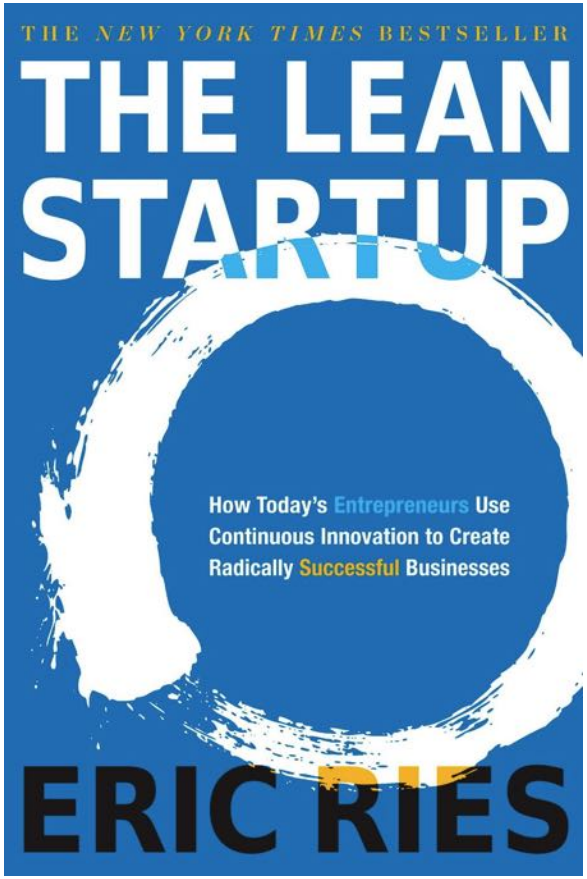
Agile maintenance/support

Kanban



Read more on http://www.everydaykanban.com/what-is-kanban/

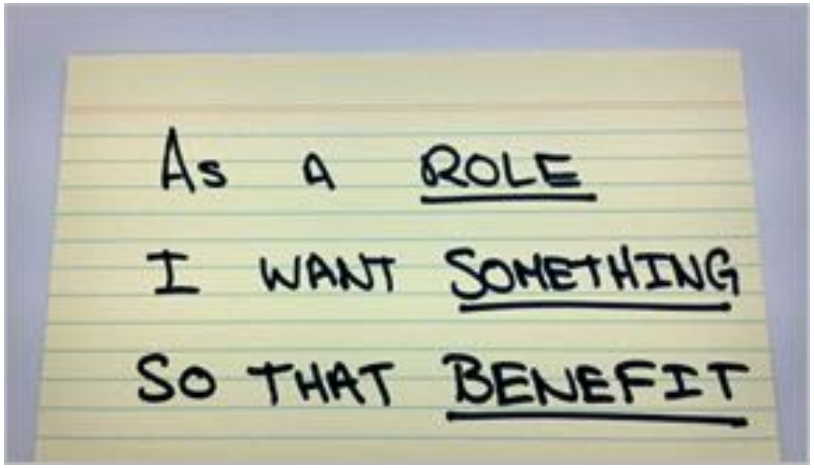
Agile product discovery



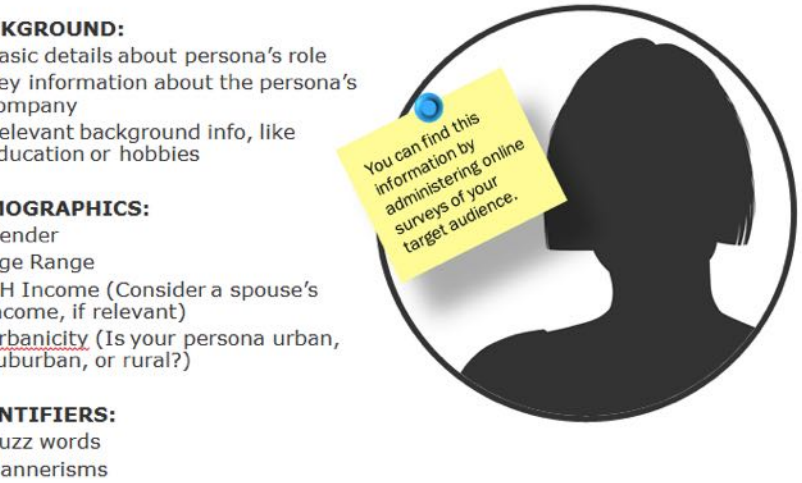
Read more on http://www.theleanstartup.com and http://fastworks.ge.com/

Agile requirements

User Story



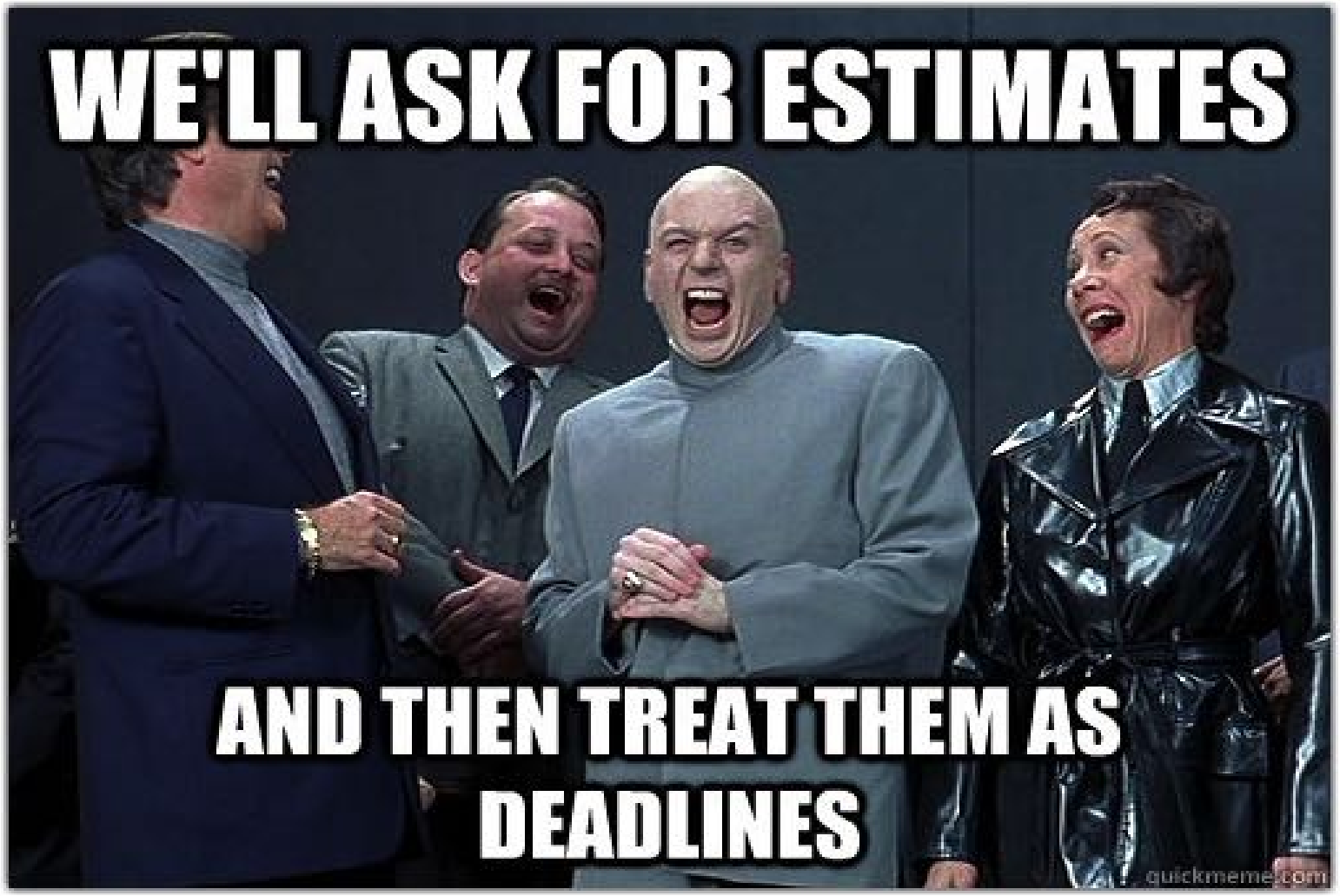
Personas



User Story Mapping

Read more on http://guide.agilealliance.org/guide/storymap.html, http://guide.agilealliance.org/guide/personas.html and http://guide.agilealliance.org/guide/user-stories.html

Agile estimation – the problem we are trying to solve



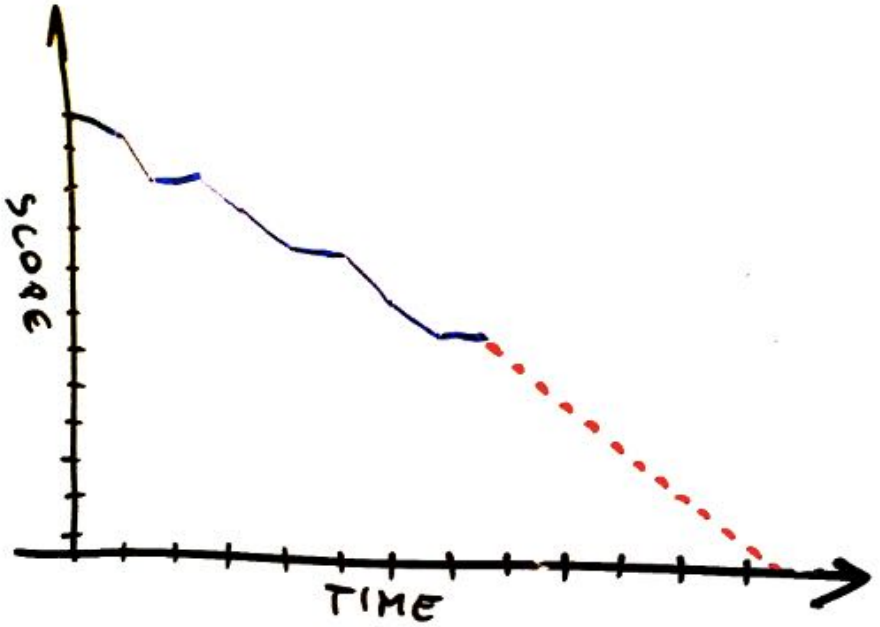
It is better to be vaguely right then precisely wrong

- Carveth Read, British philosopher

Agile estimation & planning

Story Points

Burndown charts



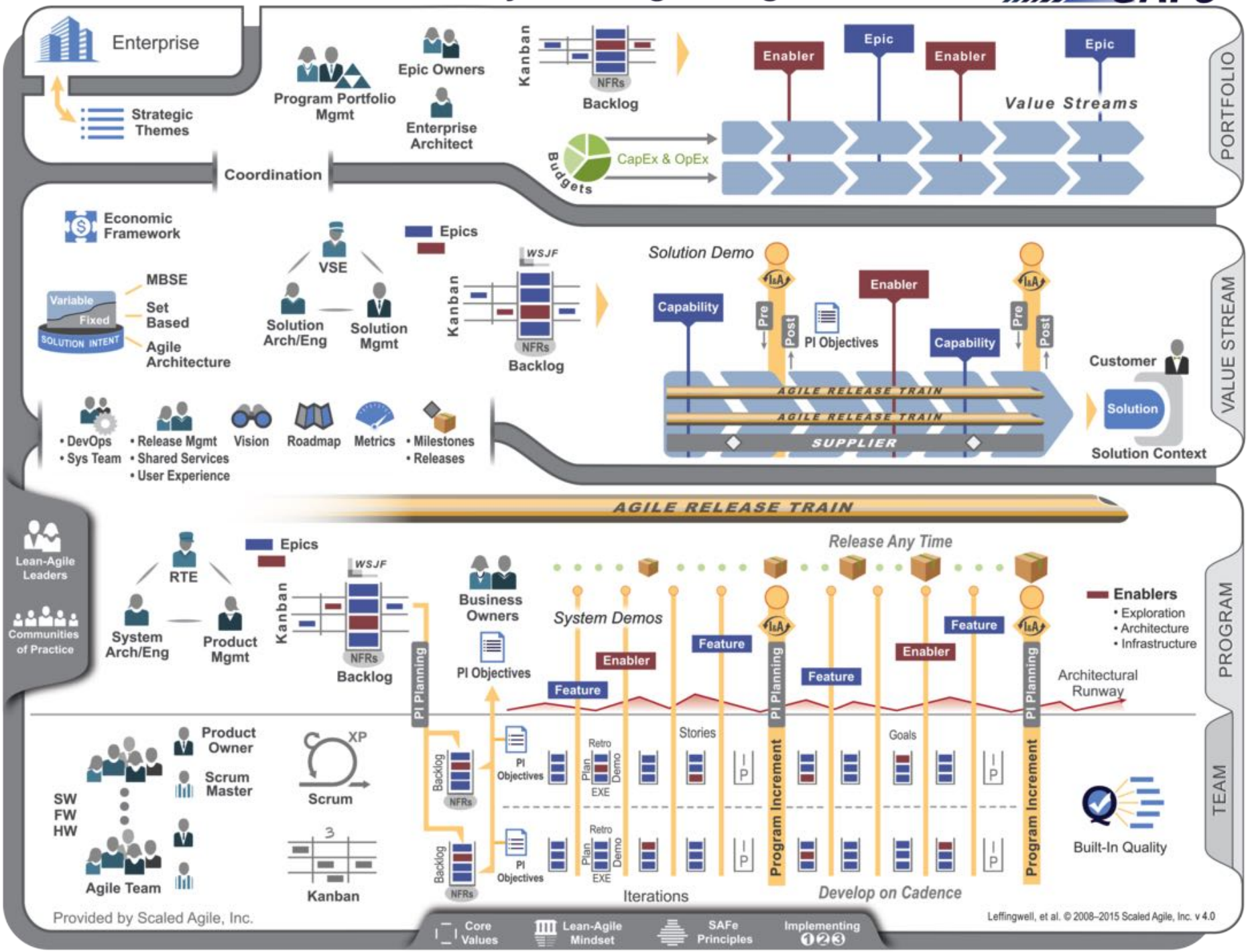
Read more on https://www.mountaingoatsoftware.com/blog/the-main-benefit-of-story-points and http://guide.agilealliance.org/guide/burndown.html

Agile management

ORGANIZATION

Read more on http://www.management30.com

SAFe® 4.0 for Lean Software and Systems Engineering



MORE EXAMPLES
PLEASE

Consulting company sales team

- Had a backlog of companies to contact
- Conducted a sprint planning, deciding what activities to focus on for the next sprint of 2 weeks
- Had a daily standup
- Had a review (compare plan to outcome) and retrospective (improve ways of working) at the end of every sprint
- Used a capacity board to balance activities
- Sales manager was acting as Product owner, owning the priorities

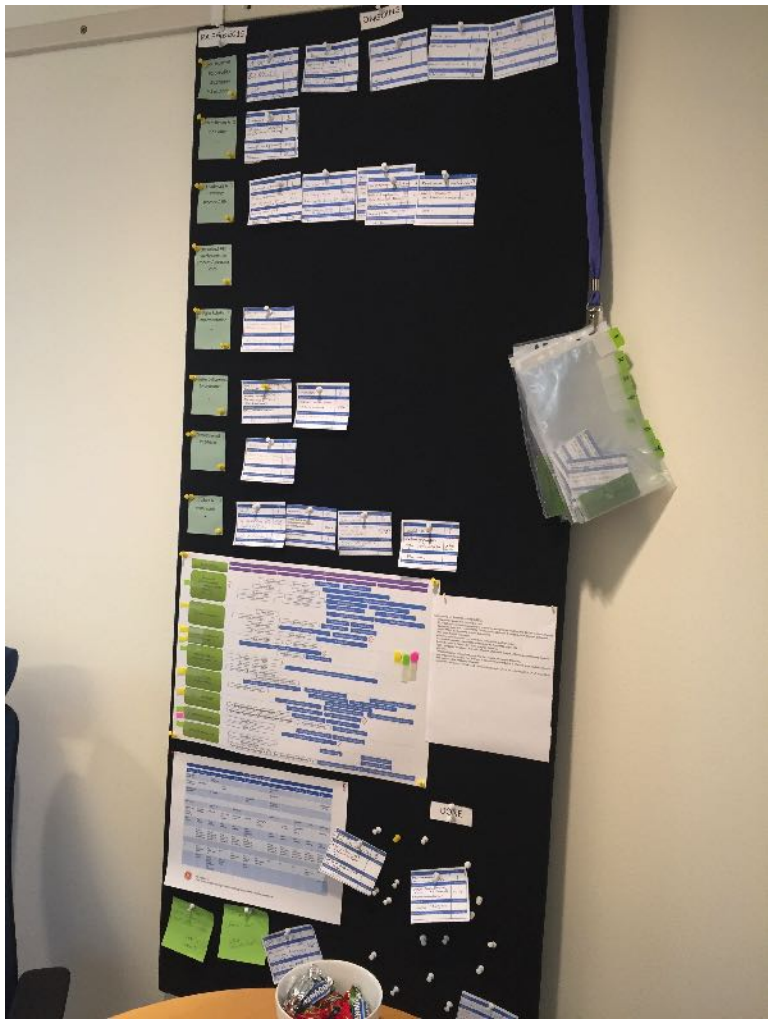
Consulting company sales team

Benefits the sales team saw

- Better follow-up on actions
- Stricter priorities
- More realistic timelines
- More transparency around work overload
- More knowledge sharing and support within the team

Life Sciences Protein Analysis department - management team

- Set up Epics for the year (connected to the Beliefs)
- Have a Release Train planning for the next quarter - what high level activities (Features) to focus on
- Have a sprint planning meeting every two weeks where User Stories for the next sprint was defined
- Have a pulse meeting every alternate two weeks to synch and share progress



Life Sciences Protein Analysis department - management team

Benefits the management team has seen

- Better follow-up on commitments
- Better throughput due to work breakdown
- More realistic timelines
- More transparency around work overload
- Alignment in way of working with engineering teams

Life Sciences Protein Analysis department – capacity board

Sync every Friday by the board.

Green = all good

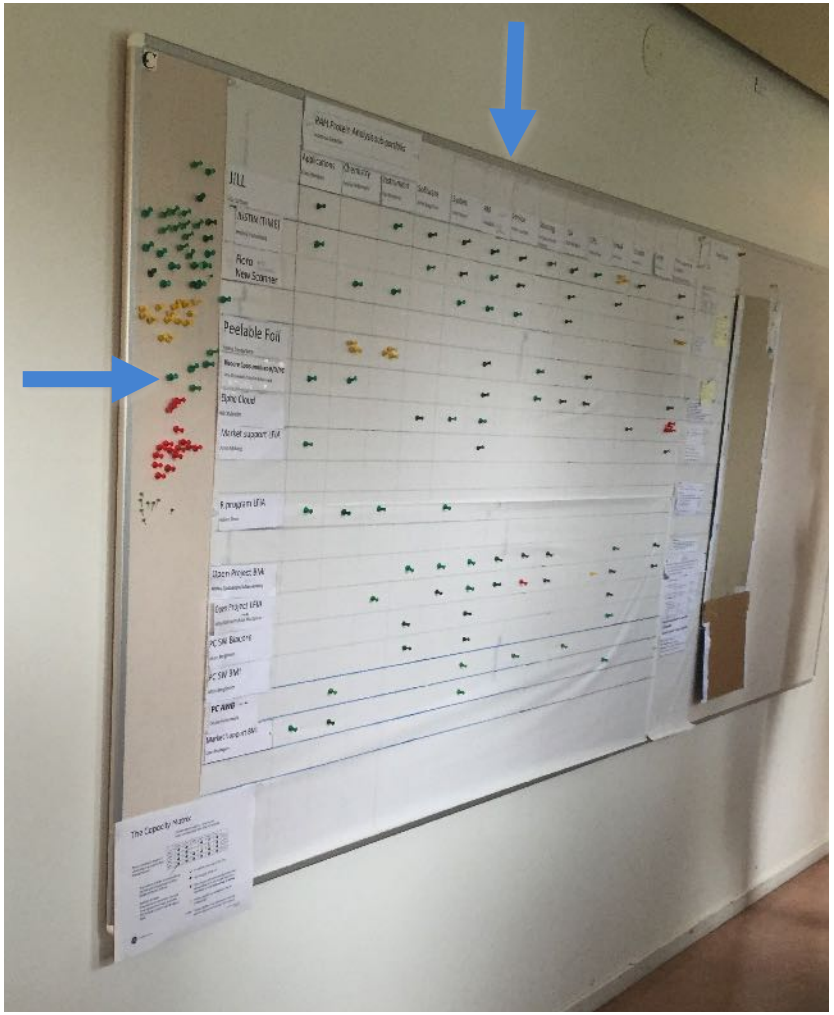
Yellow = challenged but owned

Red = problem

Add one new pin per week if status is yellow or red.

Functions

Projects



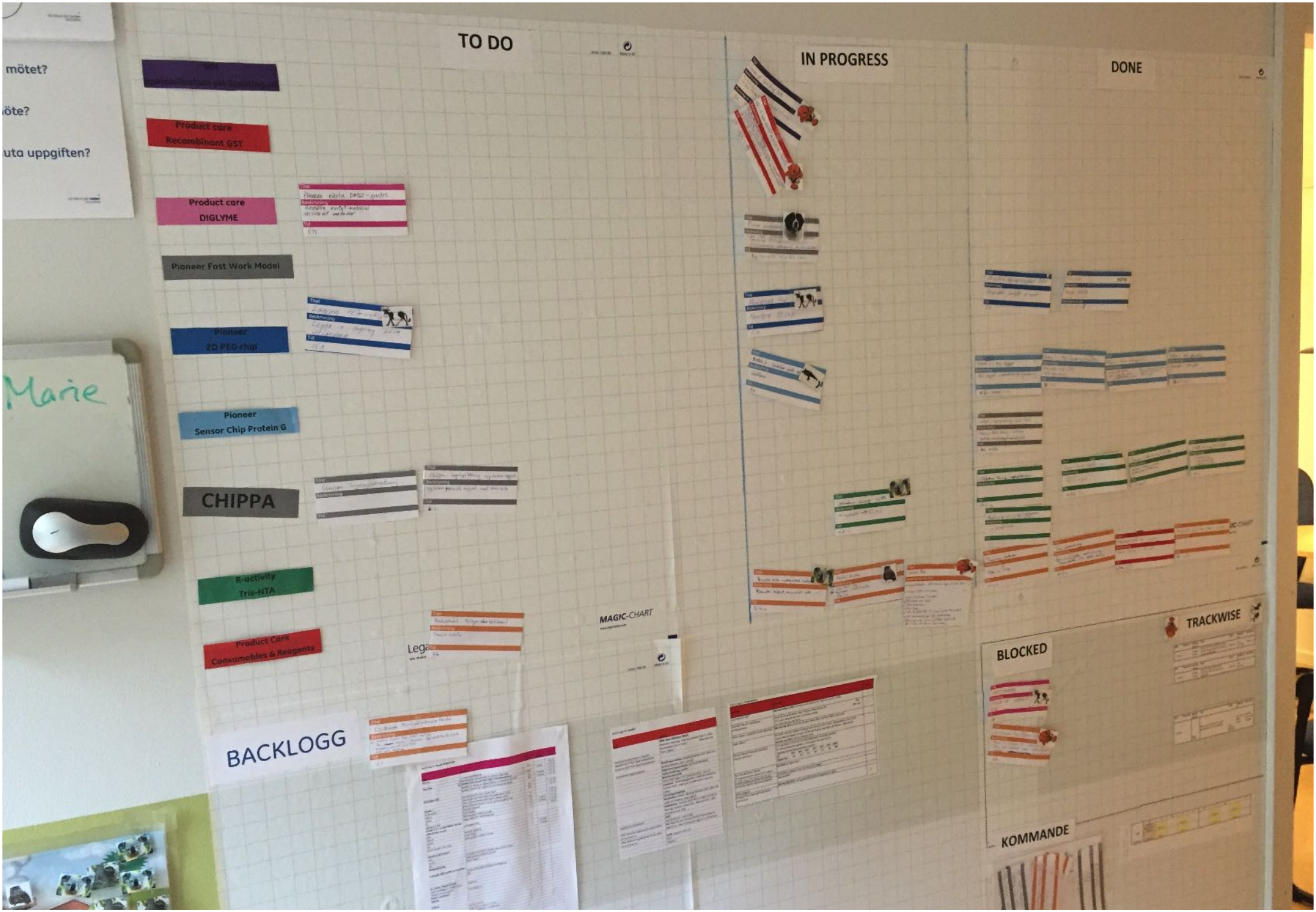
JILL
JUSTIN (TIME)
Flora
New Scanner
Peelable Foil
Elpho Cloud
Market support LFIA
R program LFIA
Open Project BMI
Open Project LFIA
PC SW Biacore
PC SW BMI
PC AWS
Market Support BMI
The Capacity Matrix

Life Sciences - Biacore consumables

- Complete product lifecycle – product development, support, etc
- A group of five chemistry research scientists – one of which is the project manager
- Some overlap in knowledge/competence – but not 100%
- Named themselves Farmen ("The farm")

Benefits they have seen so far

- Faster support within the team
- Better awareness of other's tasks
- Knowledge sharing on *howto* level
- Transparency around overload


TO DO
IN PROGRESS
DONE
mötet?
öte?
uta uppgiften?
Product care
Recombinant GST
Product care
DIGLYME
Pioneer Fast Work Model
Pioneer
2D PEG chip
Marie
Pioneer
Sensor Chip Protein G
CHIPPA
R-activity
Tris-NTA
Product Care
Consumables & Reagents
MAGIC-CHART
TRACKWISE
BLOCKED
BACKLOGG
KOMMANDE

Uppsala office consolidation

- Consolidation of two offices in Uppsala to one location
  - 60 people, 15 labs, a lot of chemicals, about 50 instruments
- Created a project plan in Excel
- Managed day to day operations on Scrum Board
- Met every two weeks to do sprint planning
- Met every two days to do standup meeting

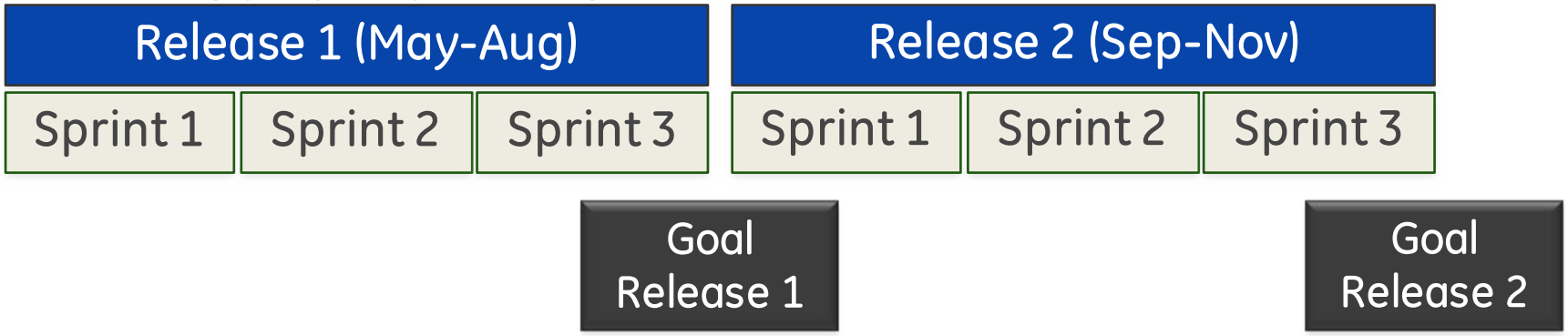
Uppsala office consolidation

Benefits the project team experienced

- The project, and milestones along the way, finished on time
- The visualization made everyone aware of the plan and status
- The stress level never got high - the progress was visible

Agile Methodology in the system project Jill

- Consists of 2 software teams, 2 hardware teams and 1 system & verification team
- Complete, prioritized backlog of all development activities
  - High priority items with detailed description and time estimates
  - Low priority to be defined well in advance of activity
- 1 month project sprints
  - Software teams do two sprints of two weeks
- 3 month releases
  - Clearly communicated goal
  - Consist of a number of Epics
  - End with an integration
- Rolling project planning 9 months into the future



Other examples

- Life Sciences - Cell Therapy
  - Verification done in Cardiff, UK
  - Uses a Scrum Board to visualize, share workload and knowledge

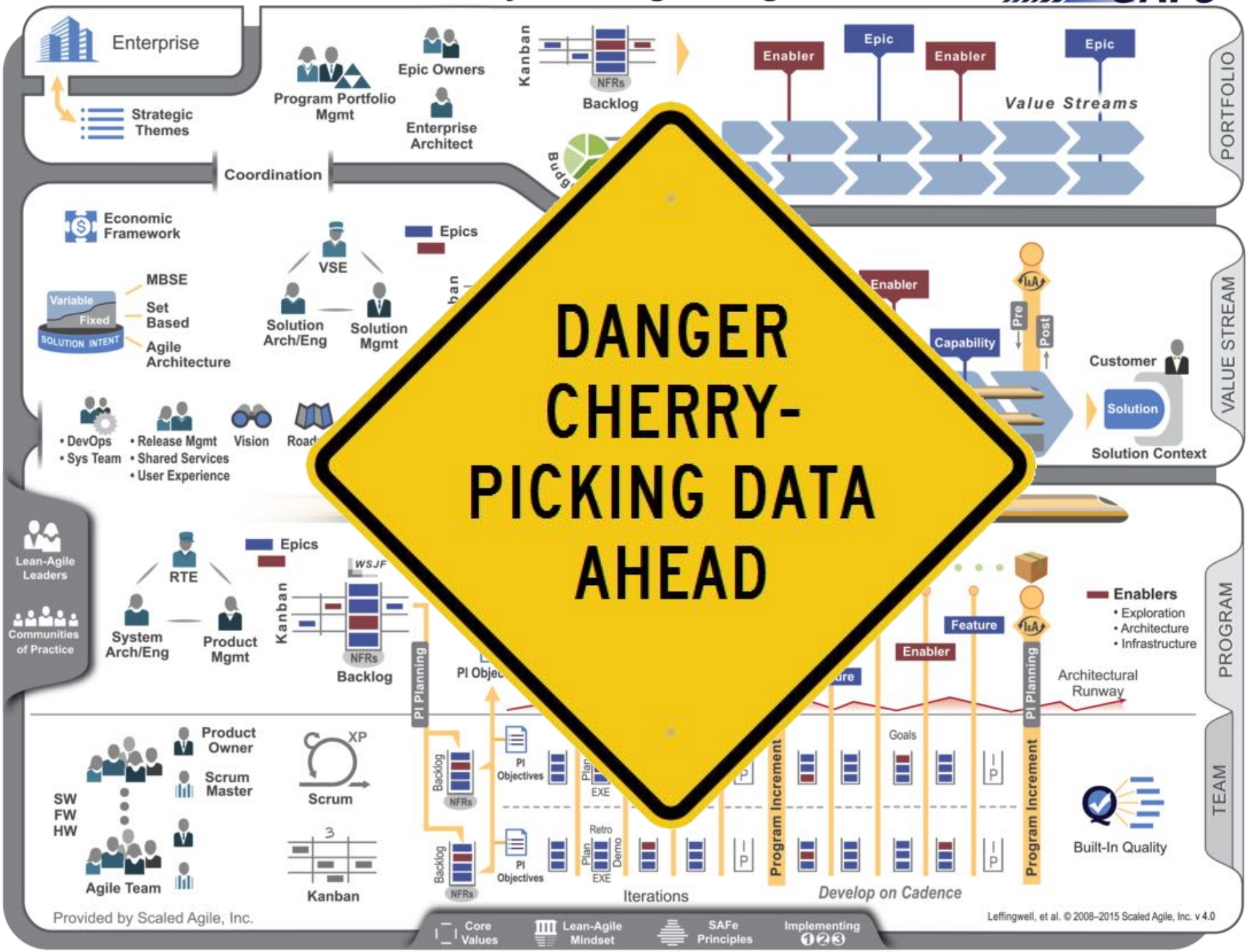
- Life Sciences - Bioprocess hardware
  - Started using 3D-printing to be able to do quicker prototyping to enable a more agile way of working

- Wikispeed.org
  - Designing a car as a globally distributed team

imagination at work

You must becom

SAFe® 4.0 for Lean Software and Systems Engineering



DANGER
CHERRY-
PICKING DATA
AHEAD

In order to break the rules you must be self aware

Going truly Agile will make you feel uncomfortable at times.

And that is OK

Q&A