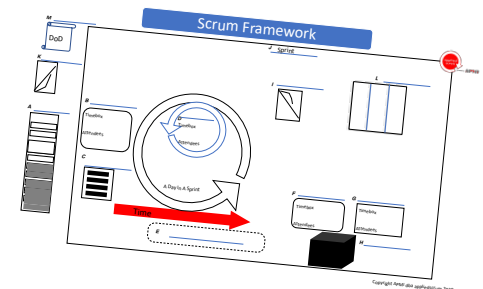
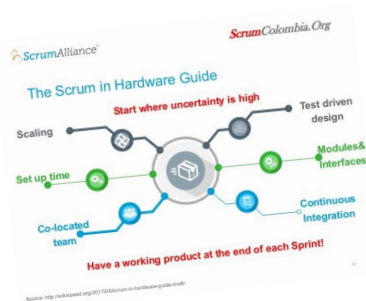


Scrum In Unusual Places

My Lessons On What Worked, What Didn't, and Why

Tamara Runyon, PMP, CST

Applied Scrum Webinar – April 10, 2023



Scrum Beginnings – Software Development



Where is Scrum Now?

- IT infrastructure
- Data Warehousing
- Firmware
- Finance
- Government
- Education – primary, secondary and tertiary levels
- Car development and manufacture
- Healthcare
- Healthcare
- Military applications
- Equipment Manufacturing
- Business Process Design
- Marketing – Digital and traditional
- Academic Research labs
- Many others

Lessons Learned The Hard Way

- Be *agile, creative and flexible* – and stay true to the Agile values and principles
- Be a *zero-gravity thinker and versatile* – the implementation of “standard” practices (think Definition of Done for example) can vary widely across different contexts.
- *Be pro-active* - Identify the real product early. That will kick start your understanding of what works and what doesn't

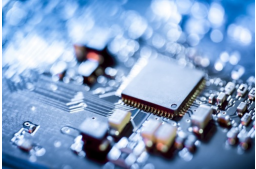
Lessons Learned The Hard Way

- Be *disciplined*. Consider what your objective is, and how you will measure success. What metrics add value?
- Be *humble* – The system won't necessarily shift to meet your needs. Change can happen slowly.

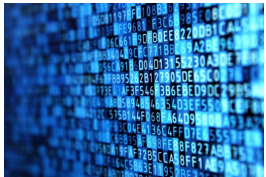
And remember -

- Be *adaptive*. Scrum is not always the solution.

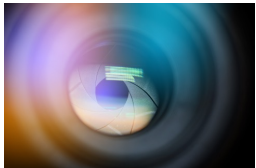
4 Case Studies



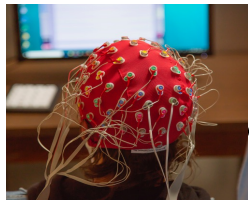
Micro processor chip design



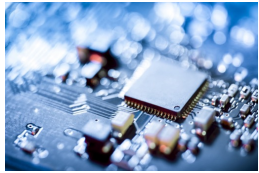
Software architecture solutions



Hardware - innovation and prototyping

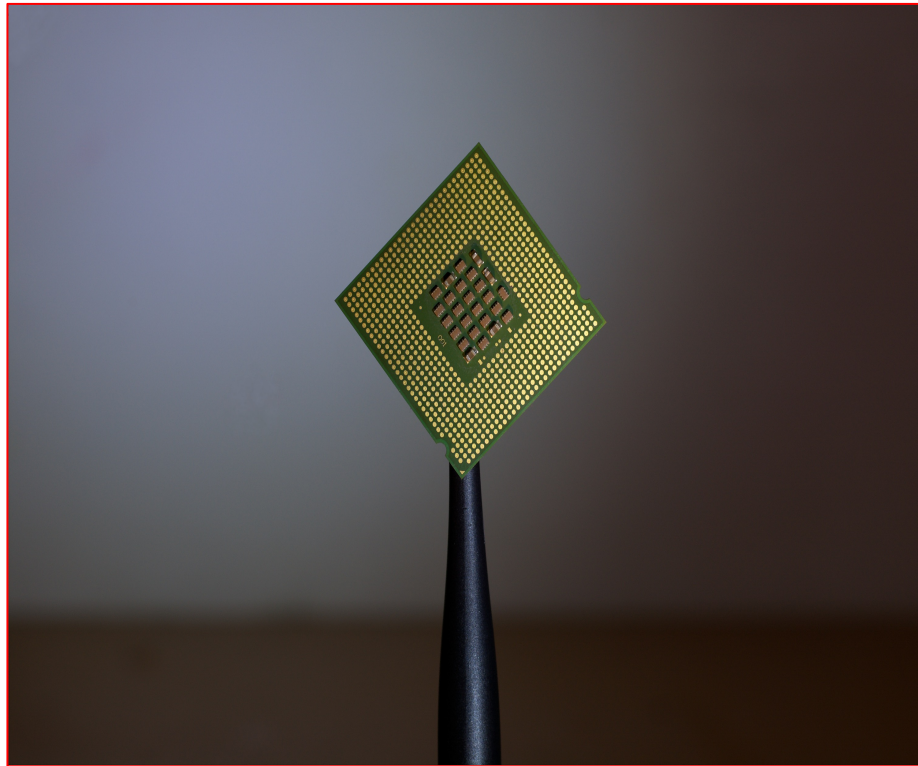


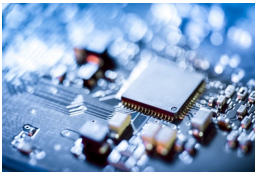
Research - academic research Labs



Micro-processor Chip Design

Case study #1





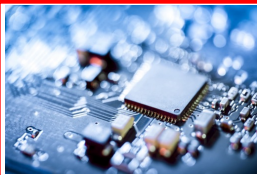
Goals

Reduce the time to market for new microprocessor chips

Decrease design risks

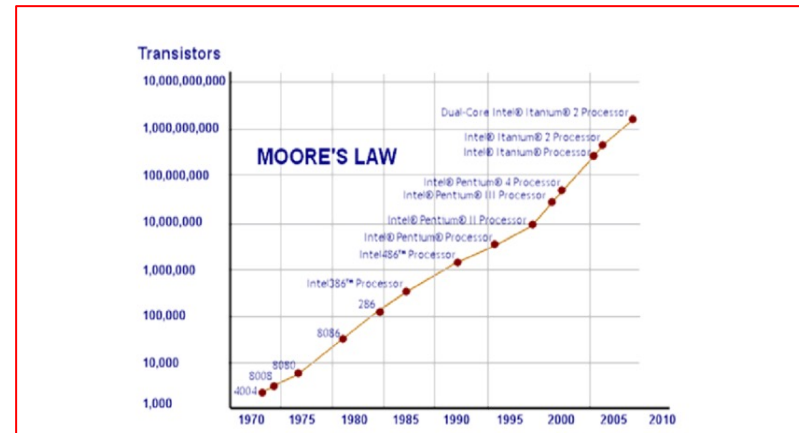
Increase communication and collaboration within the design team

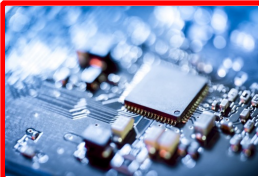




Challenges

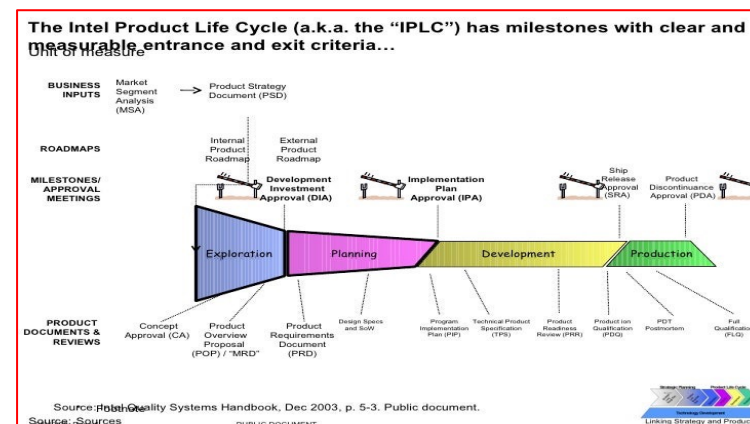
- Long, complex and expensive process to bring a semi-conductor chip to market.
- Chip design continues to increase in complexity, this was cause for concern amid increasing competition in new markets.

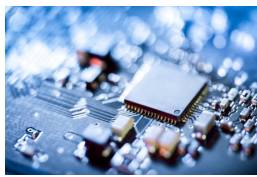




Challenges

- Physical prototype validation happens late. If the design is not correct at that point, millions of dollars are wasted.
- The system was not going to shift for us, we needed to find a way to fit within the system



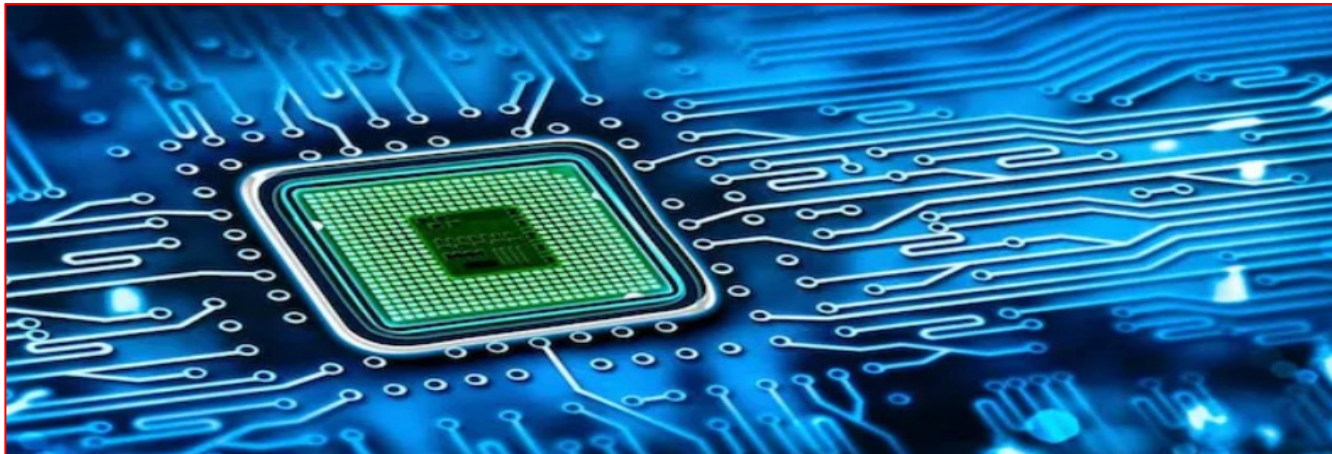


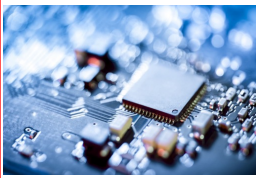
What Is The Product?

Struggled to define the product.

Aha moment came when we asked the question: Where in the current process can we iterate?

Discovered that the product is not the semi-conductor chip. The product is the design specification.





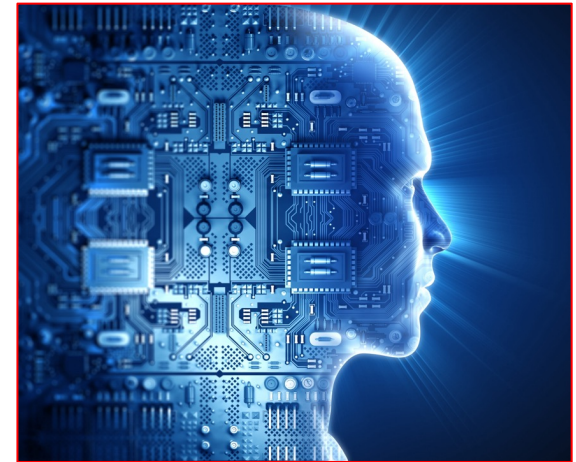
Insights and Solutions

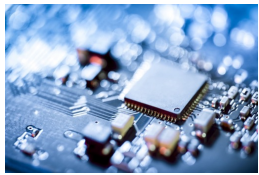
Scrum allowed the team to inspect and adapt frequently.

Small chunks of work helped the team gain forward momentum.

Dependencies were identified earlier and resolved faster.

The definition of done helped everyone understand “doneness” of each “increment”





Insights and Solutions

Product backlog increased transparency

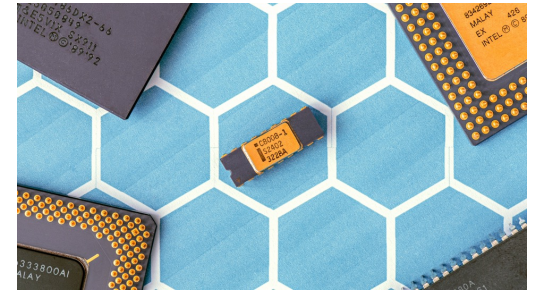
User Story format for product backlog items was not helpful.

Bullet point descriptions supported by acceptance criteria worked well.

Story Points worked well for estimating

Planning poker helped the team discuss and understand each chunk of work as they refined the product backlog

Story Points helped separate estimates from budgeted hours.





Software Architecture Solutions

Case study #2



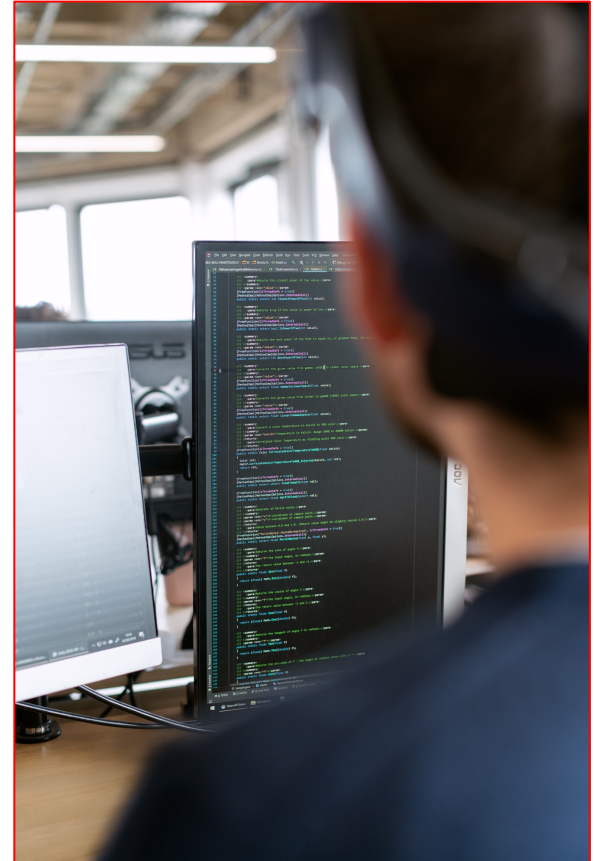


Goals

Validate current scrum practices

Increase transparency between team members

Identify potential process improvements





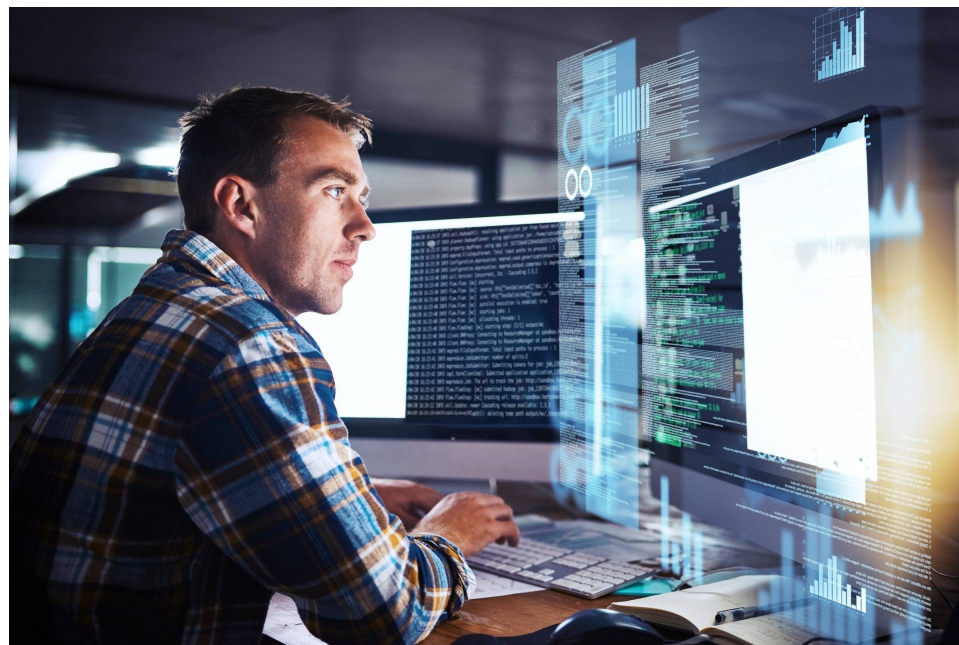
Challenges

- Team of senior software architects researched and developed prototype solutions for other Intel teams.
- Highly complex work, primarily researching solutions
- Once they handed off the solution, they moved onto another request for help.



Challenges

- Significant variability in the type and size of the work added complexity
- Each issue was unique and independent. Difficult to estimate research items – you don't know what you don't know.





What Is The Product?

Ah-ha! This team is not delivering a “finished” product. They are providing a service by researching and developing innovative prototypes to solve another teams difficulty



Observations

Scrum ceremonies added “weight” but were not adding value.

Sprint boundaries were very porous

Sprint planning as a whole team activity was not very useful.

Daily scrum was not helpful

Sprint Reviews were helpful – to team members only. No stakeholders involved.

Sprint Retrospectives had become sporadic.





Observations

Were the scrum roles adding value?

Scrum master was working part time;
mostly scheduled the meetings, and
provided some facilitation

Product owner did have a backlog of issues for the
team; and prioritized these items. Impossible for
him deeply understand what was needed for each
issue.





Observations

They had tried different practices with lackluster results

Swarming as a team was ineffective

Pair programming was more effective

Product backlog refinement as a team was time consuming, ineffective, and difficult. Problems with estimating research work.



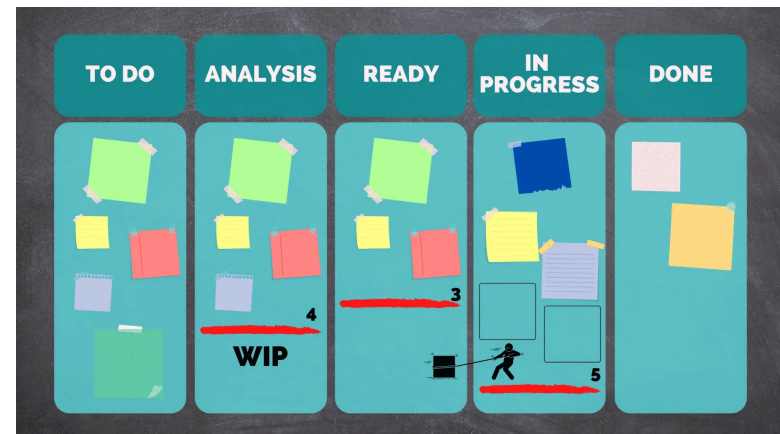


Insights

Scrum was not the best Agile framework for this team.

Needed something more lightweight

What about using Kanban practices instead of Scrum?





Solution - Kanban

The product backlog was on the wall as a simple Kanban board

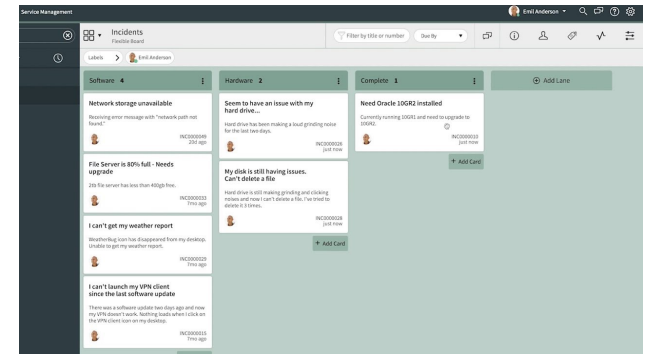
Very simple WIP limits

The board provided the needed visibility into what each team member was doing

Making work visible helped with focus

Regular reviews held where team members would share their findings

Team members could request help or pairing sessions at any time.





Innovative Hardware Development

Case study #3





Goals

Deliver value - get the product completed before funding runs out

Increase visibility – stakeholders needed more visibility into actual results

Increase speed - Reduce wait times and delays where possible

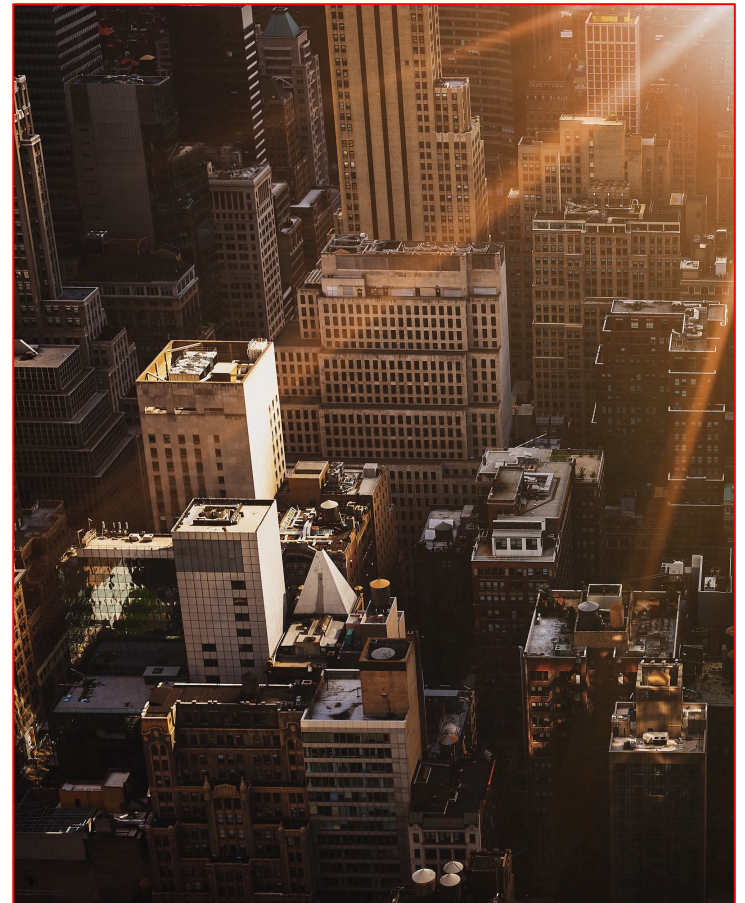


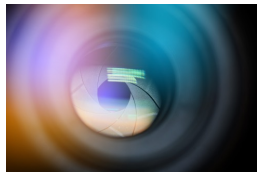


Challenges

Product was in the late prototyping stage. The technology worked; the machine optical lenses to bring sunlight into buildings.

Grant funding was running out





Challenges

Two issues with the prototype:
prototype worked in different
weather conditions, however in
strong sunlight it would catch fire.

needed a design and specs that
could be build at reasonable price
and scaled for manufacturing.

Decision had been taken to
work on two different
prototypes simultaneously;
Alpha and Alpha prime





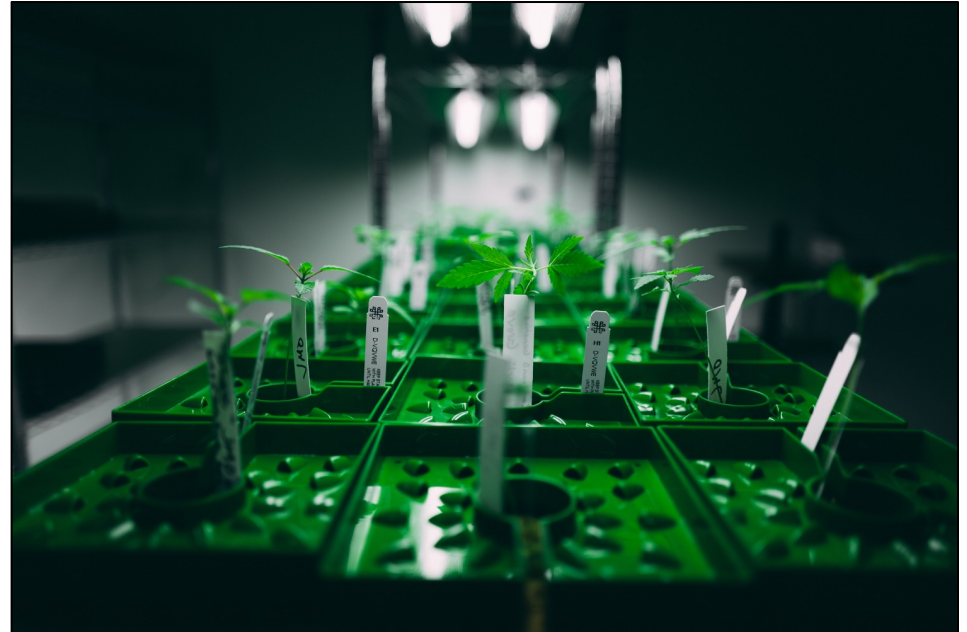
Challenges

Long lead times to receive ordered parts

Dependencies on rare external vendors

Dependencies on rare external vendors

Very strong skill silos between team members





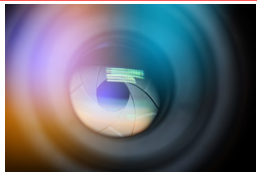
Solutions

Started with populating the product backlog.

Both the product owner and the scrum master were also developers

User story format did not make sense. We used bullet point descriptions.





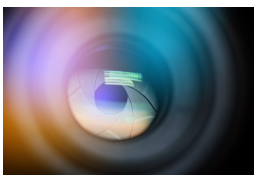
Solutions

Discovered that creating a general Definition of Done was not helpful. Acceptance criteria, however, were critical and greatly influenced story estimates.

Whole team participated in the estimating; the team SME for the item would be leading the discussion

Team prioritized the product backlog together.





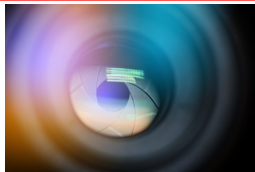
Benefits

Sprint planning created clarity and focus.

Silos came down rapidly. Everyone pitched in whether it was their primary area of responsibility or not.

Team could pivot quickly as information changed or interruptions happened.





Benefits

Daily scrums were very helpful.

Estimating tasks on the sprint backlog in hours helped increase focus for daily progress





Benefits

Sprint reviews were very helpful to show progress to investors.

Sprint Retrospectives helped the team progress faster as they discussed different experiments.

Team morale soared!





Academic Research Labs

Case study #4



CENTER FOR
TRANSLATIONAL
NEUROSCIENCE



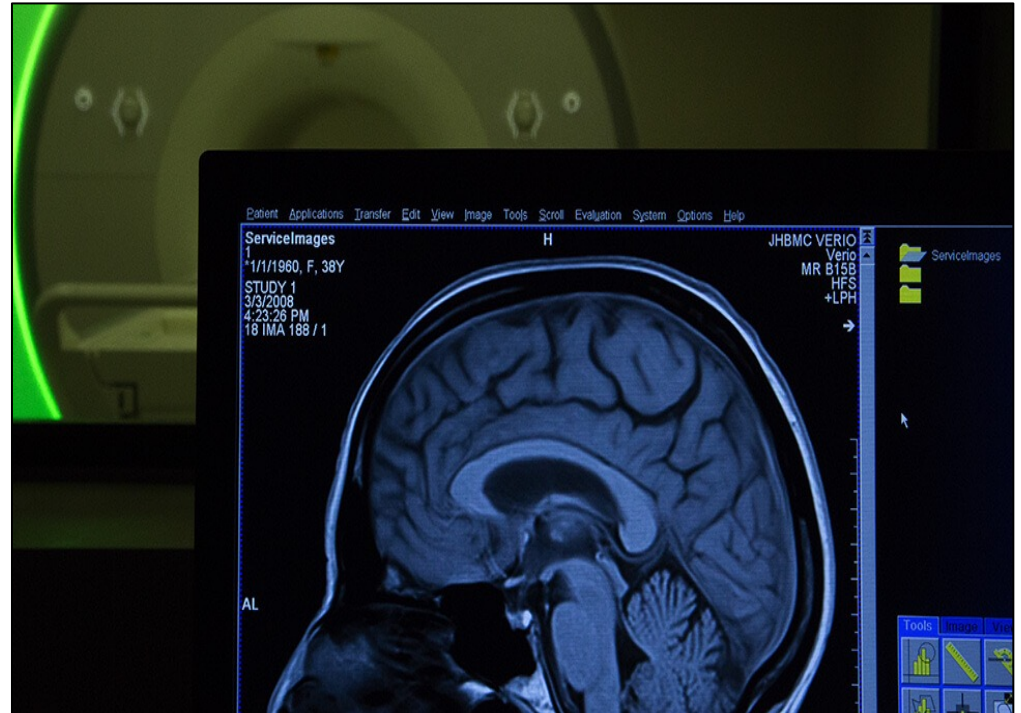


Goals

Increase the quality of research papers

Increase the quality of scientist's training

Shorten delays in getting decisions



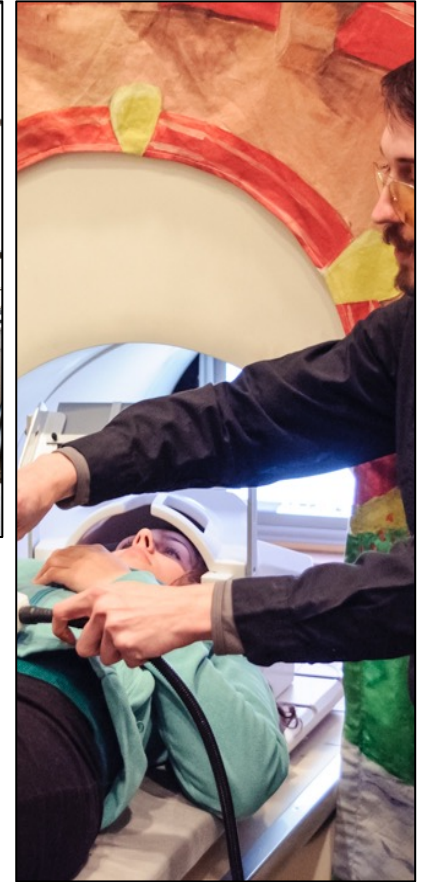


Challenges

Lack of systems providing structure planning and vision.

Difficulty in prioritizing competing projects.

Silos and dependencies on overburdened faculty



Challenges cont.

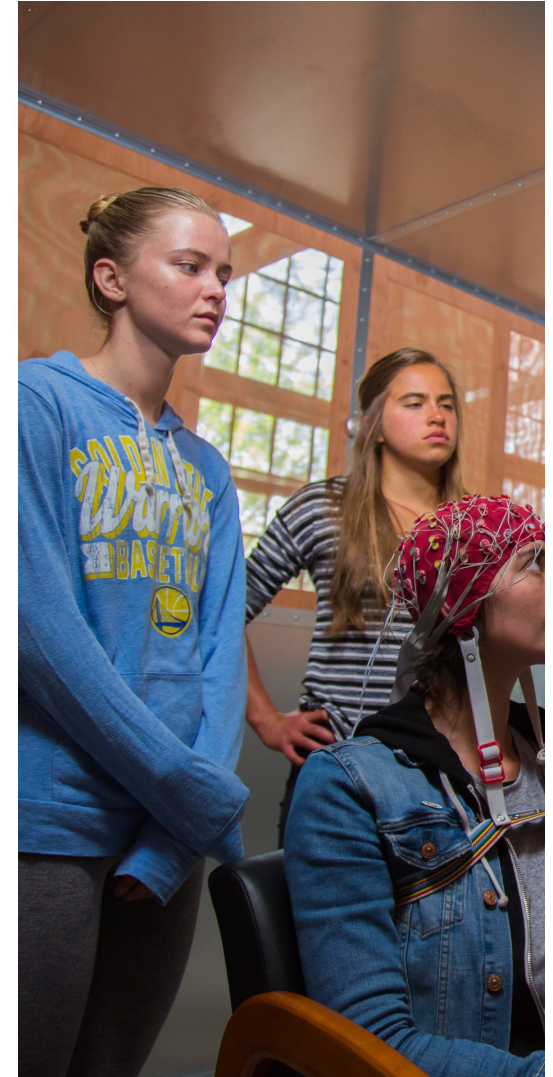
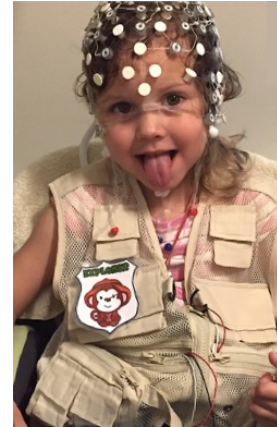


Long feedback loops between research and delivery of a product (research paper)

Long term training goals need to be articulated and connected to concrete actions.

Competing commitments and roles – teaching, research, clinical work

Frequent task switching and lack of focus



What Is The Product?



Knowledge

OPEN

Enhancement of Meditation Analgesia by Opioid Antagonist in Experienced Meditators

Lisa M. May, PhD, Peter Kosek, MD, Fadel Zeidan, PhD, and Elliot T. Berkman, PhD

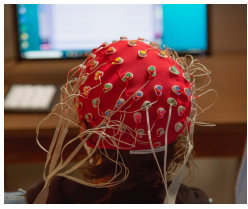
ABSTRACT

Objective: Studies have consistently shown that long-term meditation practice is associated with reduced pain, but the neural mechanisms by which long-term meditation practice reduces pain remain unclear. This study tested endogenous opioid involvement in meditation analgesia associated with long-term meditation practice.

Methods: Electrical pain was induced with randomized, double-blind, cross-over administration of the opioid antagonist naloxone (0.15-mg/kg bolus dose, then 0.2-mg/kg per hour infusion dose) with 32 healthy, experienced meditation practitioners and a standardized open monitoring meditation.

Results: Under saline, pain ratings were significantly lower during meditation (pain intensity: 6.41 ± 1.32 ; pain unpleasantness: 3.98 ± 2.17) than at baseline (pain intensity: 6.86 ± 1.04 , $t(31) = 2.476$, $p = .019$, Cohen's $d = 0.46$; pain unpleasantness: 4.96 ± 1.75 , $t(31) = 3.746$, $p = .001$, Cohen's $d = 0.68$), confirming the presence of meditation analgesia. Comparing saline and naloxone revealed significantly lower pain intensity ($t(31) = 3.12$, $p = .004$, $d = 0.56$), and pain unpleasantness ($t(31) = 3.47$, $p = .002$, $d = 0.62$), during meditation under naloxone (pain intensity: 5.53 ± 1.54 ; pain unpleasantness: 2.95 ± 1.88) than under saline (pain intensity: 6.41 ± 1.32 ; pain unpleasantness: 3.98 ± 2.17). Naloxone not only failed to eliminate meditation analgesia but also made meditation analgesia stronger.

Conclusions: Long-term meditation practice does not rely on endogenous opioids to reduce pain. Naloxone's blockade of opioid receptors enhanced meditation analgesia; pain ratings during meditation were significantly lower under naloxone than under saline. Possible biological mechanisms by which naloxone-induced opioid receptor blockade enhances meditation analgesia are discussed.



Insights and Solutions

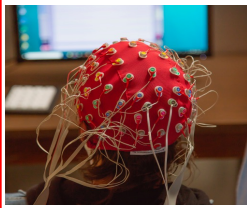
When adapting – stay true to the values and principles of the Agile Manifesto

Primary Investigator - Product Owner

Developer – Grad students/Investigators

Scrum master – New role to labs





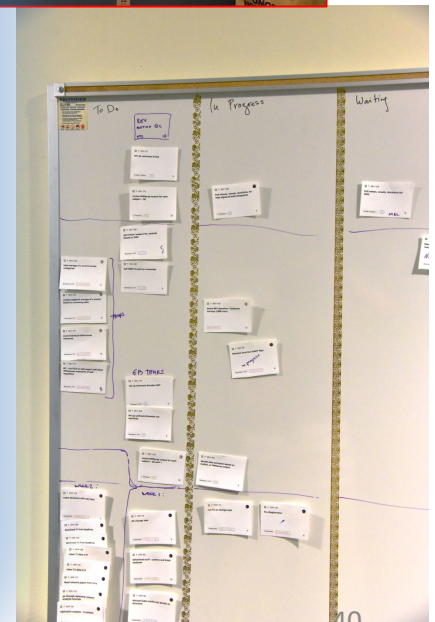
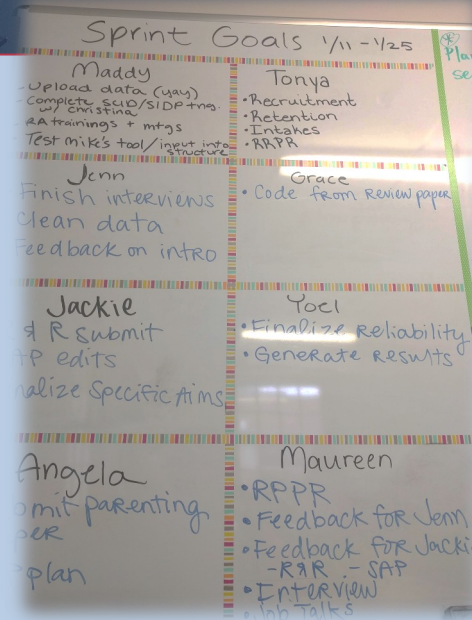
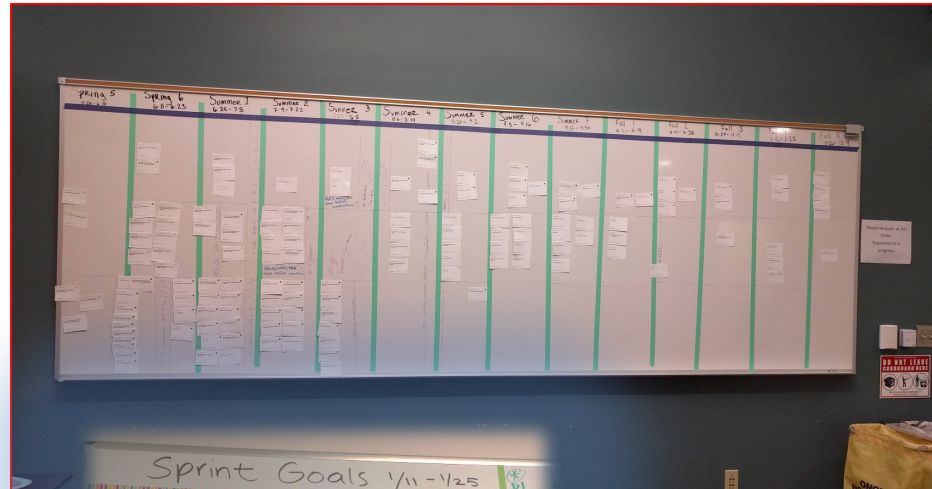
Insights and Solutions

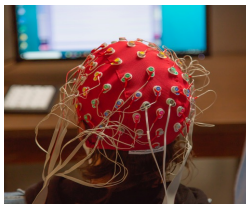
Major breakthrough when we added release planning

User stories added no value

Story points did add value

The idea of potentially shippable product had to be seriously adapted.





Insights and Solutions

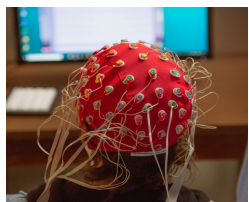
Sprint planning at the sprint goal level

Daily scrum was not daily

Sprint Review – review different lab's work, and rotate which labs are reporting based on what could benefit from review

Sprint retrospective adds value on multiple levels





Insights and Solutions

Metrics – think carefully about the value before investing the time to collect them

Tracking velocity was not adding value

Story points were helpful

Burn down charts not helpful





Benefits Of Labscrum

Principle Investigators are able to spend more focused time with trainees

More focus – reduced rework

Increased productivity

Increased knowledge sharing

Increased Learning

Increased quality of published papers



Review: Scrum In Unusual Places

- Be *agile, creative* and *flexible* – and stay true to the Agile values and principles
- Be a *zero-gravity thinker and versatile* – the implementation of “standard” practices (think Definition of Done for example) can vary widely across different contexts.
- Be *pro-active* - Identify the real product early. That will kick start your understanding of what works and what doesn't

Review: Scrum In Unusual Places

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- Be *humble* – The system won't necessarily shift to meet your needs. Change can happen slowly.

And remember -

- Be *adaptive*. Scrum is not always the solution.

Tamara Runyon, PMP, CST



- Experienced Agile coach with more than 30 years experience in business management and software development.
- Certified Scrum Trainer (2006 – present)
- Past member of Board of Directors of the Agile Alliance
- Conference speaker, published papers on Agile topics.



THANK
YOU

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