DevOps Dojo

A new approach to helping DevOps
development teams reach their
high-performing potential

The need for DevOps

The DevOps movement has taken the business world by storm

DevOps is the natural extension of Agile to include the collaboration between Development and Operations. This new approach to software delivery is seeing widespread adoption across all industries.

The migration towards DevOps process transformation is attributed to market research, which shows the impact on competitive advantage a good process can have.

The State of DevOps Report in 2018 found that DevOps Elite Performers experience:

• 46 times more frequent code deployments
• 2,555 times faster lead time from commit to deploy
• 7 times lower change failure rate
• 2604 times faster time to recover from incidents

We can see why!

There is a significant organizational benefit to DevOps adoption. In an era where technology is a key competitive advantage and every organization is becoming a technology company, it is clear that adoption of DevOps is a must to thrive in the modern competitive landscape.

# DevOps is the natural result of companies that perform Agile extremely well

However, DevOps adoption across the enterprise isn't so easy.

According to CA Technologies, 81% of executives believe that DevOps is critical for Digital Transformation, yet only one third have been able to deploy either Agile or DevOps widely across the organization.

Given the transformational benefits that organizations can achieve from adopting DevOps, this poses a huge problem. Enterprises struggle with DevOps adoption for many reasons:

- Resistance to culture change
- Lack of skills and knowledge
- The quantity of technical debt

To overcome these challenges, organizations turn to specialists such as TTC to help in the form of coaching. It is better received and the proper time is allocated when outside consultants come in for a short duration to ignite the necessary process changes and instil required skills in the internal and permanent teams.
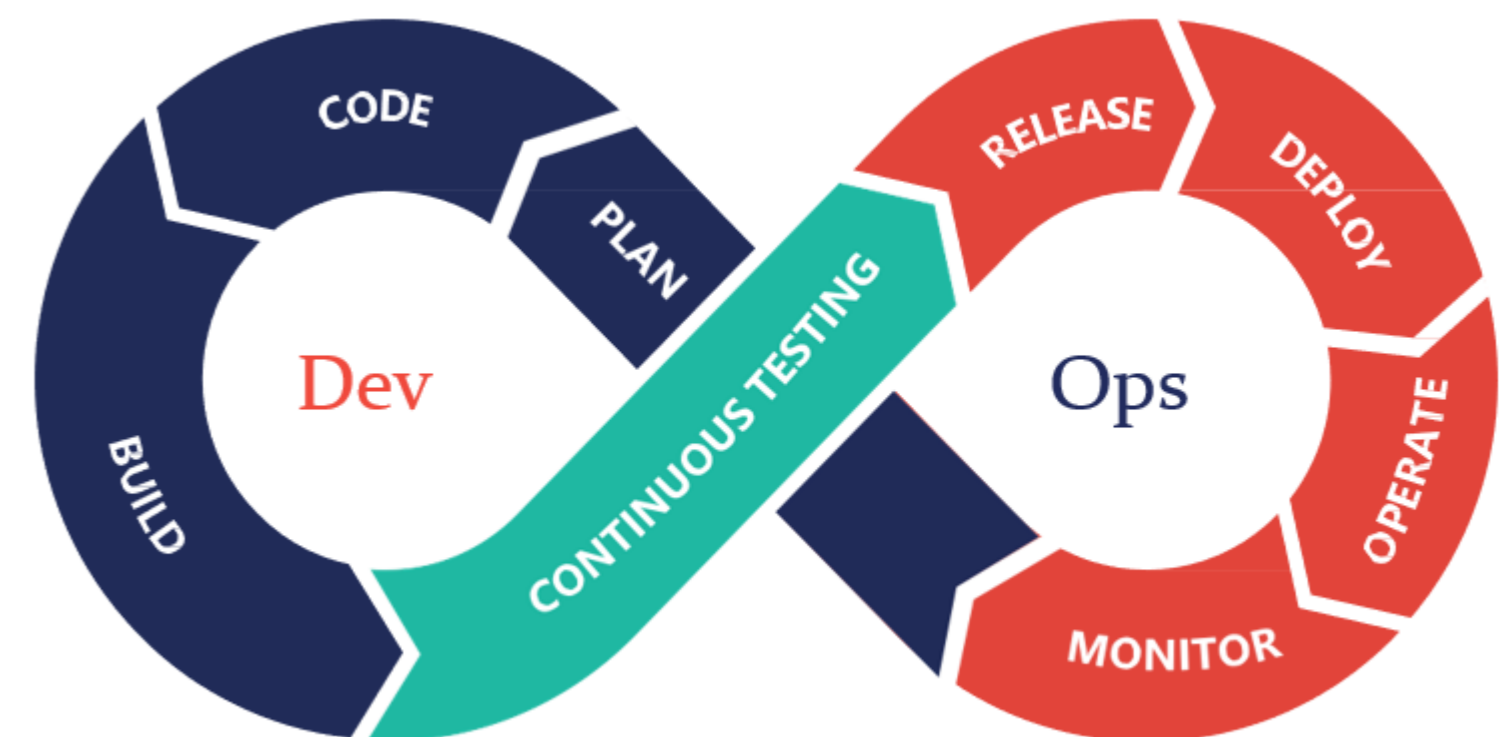
The origination of DevOps

Along the path of adoption of Agile and DevOps practices, development teams tend to rely on training and coaching from the experts in the Agile process.

There is a limit however, to how much benefit a 1-2 day training session can give a team and how much it can help people in embracing Agile processes and obtaining the most benefit out of scrum ceremonies.

This type of coaching is referred to as "Seagull Coaching".   Similar to "Seagull Management", the coach flies in , makes a mess and then leaves.

A more effective approach is then needed.

Target Corporation took the idea of a Japanese Dojo, described by Merriam Webster dictionary as "a school for training in various forms of self-defence (as judo or karate)," and applied to this to DevOps. Hence the idea of how the DevOps Dojo was born,

The concept of DevOps Dojo

The DevOps Dojo experience is one where teams can advance their Agile and DevOps skills while still performing their scheduled work. Following Target's example, many companies are establishing the dedicated facilities to conduct the Dojo or immersive style learning environments. In the software development world, the immersive DevOps learning experience is a physical space where the project teams might practice.

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How to get started

Shu: To obey

In a true Dojo practice, Shu is the first stage. It is the stage where instructions are given and the student is developed through humility and the learning of new things.

How to qualify DevOps Dojo teams

How do we know if a team is ready for DevOps Dojo training? There are several characteristics that are important to consider when qualifying any team for this experience. The team has to be co-located (present within the same physical space), cross-functional, strong and stable and working on a common backlog of work items. Most importantly, the team must be excited and eager to improve.

"nothing great
was ever done
without
enthusiasm"

- Ralph Waldo Emerson

What to expect

This is not a typical training course with lectures and PowerPoint presentations. The DevOps Dojo process provides teams with opportunities to learn new habits and replace old and ineffective ones. This is done while teams still work on real tasks and deliver real business value.

Coaches are there not just to talk about the theory, but also to provide hands on guidance with how to deliver tasks effectively.

In the beginning

For many participants, the first day of DevOps Dojo seems like the least productive.

Like how legendary UCLA basketball coach John Wooden taught his players to tie their shoes on the first day of practice, the focus is on the basics and setting clear expectations for the team, which is critical to the success of all participants.

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House rules

As a first step, everyone has to agree on the "House Rules" in order to ensure participation and a healthy working and learning environment for all team members.

An example of house rules could be a list similar to this:

- Participate in all ceremonies
- Be in the Dojo, physically and mentally
- Pair and swarm whenever possible
- Have strong opinions, but hold them loosely
- Don't be afraid to pull the Andon cord
- Get comfortable being uncomfortable
- Decisions should be team decisions
- Never use the term "resources" when it relates to people

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Name your team

As an initial exercise, the team is asked to pick a new name. A team name can have a huge impact on your project.

_____

"Naming your team is one sure way of driving a great working culture, boosting engagement and ensuring the long-term success of your projects"
- AgileLiteracy.com

_____

Team names are representative of not only those participating, but also those who impact others outside the team.

What does a team name do?

- Creates a first impression
- Gives your team an identity
- Helps team members become accountable
- Supports team bonding
- Creates friendly competition

Team members are encouraged to write down as many potential names they can think of on a large whiteboard, and make a collective decision in selecting the team name.

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Complete the vision template

The vision is the roadmap that can help drive decisions for your team during DevOps Dojo

It is pertinent that the team shares a vision and everyone moves in the same direction. Proad.com suggests using the following template when getting started on the Dojo:

FOR: [name of the business operation that benefits from the
             development product]
WHO: [describe what the business actually does]
THE: [product name]
IS A: [product definition or category]
THAT: [what the product does for business]
UNLIKE: [what does this product help replace – legacy systems,
             excel, etc]
OUR: [describe the product architecture L&F, functionality and
             business purpose]

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Working agreements

The Dojo is a very high paced environment and everyone is expected to be present due to team commitments and a tight schedule. It is important that everyone agrees on guidelines for communication and availability.

Here is an example of guidelines that teams may agree on:

Schedule work/hours:

- Arrive at 8.30am
- No team meetings between 11am and 1pm
- No meetings after 3.30pm
- Notify team of absence at least one day in advance

Assume good intent

Start and end things on time: utilize timer for all the meetings and ceremonies

Proactively communicate: to the team your stories and commitments for the upcoming Spring Planning Meeting if you are expected to be absent

Work that represents value delivered to the customer is recorded as stories and tasks

Dojo principles

"There are three constants in life ....
change, choice, and principles"
- Steven Covey

The team would be expected to adopt the following
guiding principles and integrate them into their
regular work schedule going forward:

- Focus on customer value
- Value teams over individuals
- Foster trust and transparency
- Limit work in progress
- Pull quality forward
- Deliver early and often
- Continuously experiment and learn

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Learning model and goals

As we approach completion of setting up the DevOps Dojo, the next exercise is to assess the team's maturity in the Agile and DevOps processes and define team goals to advance along the maturity chart by the end of the Dojo training. TTC provides a template for maturity assessment:

| Focus Area		M1	M2	M3	M4	M5
Explore	Exploratory Testing	○	○	✓	✓	✓
Optimize	Risk-Based Prioritization	○	○	✓	✓	✓
	Test Case Design		○			
Automate	UI Automation: Script-Based	○	○	▮	▮	▮
	UI Automation: Model-Based	○	○	○	○	✓
	API Automation		○			
Manage	Active Test Data Management	○	○	○	○	✓
	Test Driven Service Virtualization					
Integrate	CI Integration (CI, CD)	○	○	○	○	✓

It is critical for the team to make an honest assessment of where it currently stands in each maturity category and to target the score that the team would like to get in six months. The assessment is followed by a brainstorming session that will result in specific goals that need to be achieved to improve the team's overall maturity. The goals are recorded and posted for reference.

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Goal example

This is an example of a goal set by a team with the outcomes achieved.

Goal	Measure	Outcomes
Set up a limited number of automated UI test examples	2 tests created using BPM (view as API testing and 2 tests created in Tosca (UI testing) – do the same tests	Several team members working with Will from Tricentis daily
Configuration management for the DB [Stretch]	Oracle releases can be moved to production in an automated pipeline	Had initial discussion but technology is not ready
Release pipeline for Oracle releases	Automated enforcement of Oracle IDs and roles for production DBs	Made connection with the team and FI regarding puppet labs
Optimize upgrade processes	Do Value Stream Map of upgrade process and determine changes and automation	Completed VSM for upgrade process and Identified 100s of days of potential savings via changing the process
OT organization proposal	Have a recommendation for a go forward structure of the OT organization to be more Agile	Recommendation made and well received. The OT LT now iterating on a plan.

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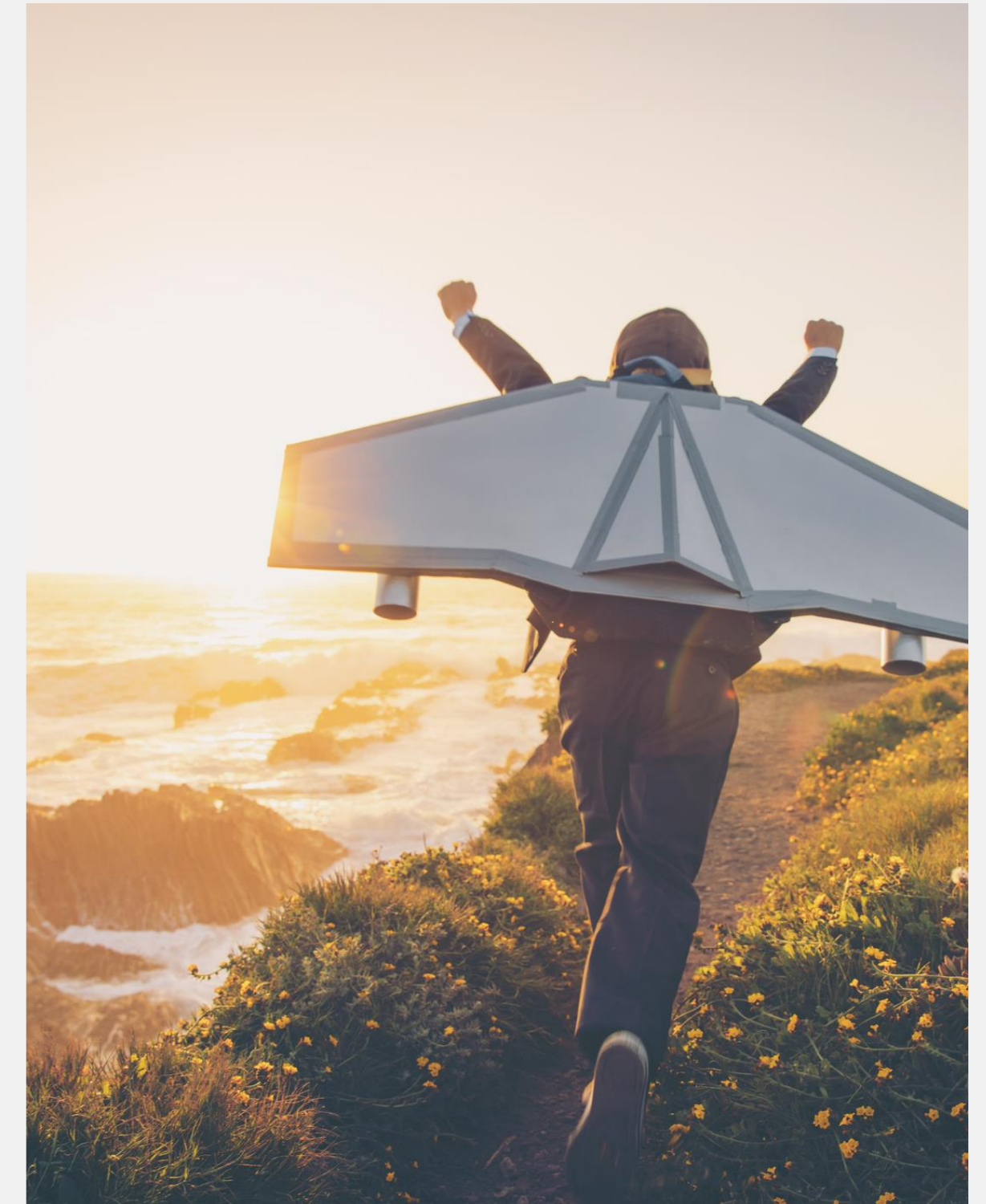
Implementing the Dojo

Ha: The break

Where the old becomes the new. During the second stage in a traditional Dojo, this is where the student puts time and effort into the mastery of form and technique.

Now that the foundation has been set it is time to focus on the team and what will naturally occur during the Dojo. Phase 2 focuses on the tasks needed to complete the working part of the Dojo.

Skill and interest assessment

In an effort to develop each team member into a T-shaped (broad and deep) contributor, the team will create a chart of all the skills necessary to perform their work and have each member fill in their 'Current skill level' and 'Interest level'.

The chart is posted for reference to encourage team members to pair up on assignments with SMEs in areas where they would like to advance.

Sample chart

Skill	Team member 1 (Skill / Interest)	Team member 2 (Skill / Interest)	Team member 3 (Skill / Interest)
PL SQL	Novice / Interested enough	SME / None	SME / Interested enough
Unit testing PL (SQL)	Novice / Extreme	SME / None	Proficient / Extreme
TFS Release Manager	Proficient / Interested enough	SME / Extreme	SME / Interested enough
Tosca	Proficient / Extreme	SME / Extreme	Novice / Extreme
Upgrades	Novice / Interested enough	Proficient / Interested enough	Proficient / None
Business knowledge	SME / Extreme	Proficient / Extreme	SME / Interested enough
JAVA	SME / None	Proficient / None	Novice / None
Performance testing	Proficient / Extreme	Novice / Interested enough	Novice / Extreme
Test Management	Proficient / Interested enough	SME / Extreme	Proficient / Extreme
SCRUM	Proficient / Interested enough	SME / Interested enough	SME / Interested enough

Skill Level: SME (stars) · Proficient (check) · Novice (!)

Interest Level: Extreme (stars) · Interested enough (check) · None (!)

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Pairing up for execution

To advance team collaboration and move toward developing T-shaped people, it is imperative that every story is assigned to more than one person. There will be one primary assignee who is ultimately responsible for delivering value, and there is at least one or two secondary assignee who either contribute to completing the story or at least learn by watching the primary person work.

In the Agile community, this strategy is referred to as "Pig and Chicken". It is derived from this cartoon:

Pig and chicken

The pig and chicken cartoon essentially means that the primary assignee is the 'pig' (committed to delivering) and the other assignees are the 'chickens' (involved to some degree). Ultimately, no story should be worked on by just one person.

Initially this may feel extremely unsettling for all parties involved, especially given the tight Hyper Sprint schedule where you only have 2-3 productive hours in a Sprint. Now you have an overhead for the 'pig' having to teach and explain their work to the 'chickens', while the chickens have their own commitments they need to be working on rather than learning from the pig.

Remember the house rules?

Get comfortable with being uncomfortable.

This strategy will pay off going forward.

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The sprint

We are what we repeatedly do. Excellence is not an act, but a habit.

One of the challenges associated with converting to Agile is that many of the key rituals are repeated so infrequently that many teams may take a long time, if ever, to become proficient at them. For example, retrospectives occur only once per sprint and with a typical sprint being 2 or 3 weeks, we may only have the opportunity to practice how we conduct a retrospective 15 times a year.

The Dojo addresses this by conducting Hyper Sprints. These are rapidly accelerated sprint cycles, as fast as one sprint per day, to ensure the team quickly realizes results and makes the necessary adjustments as they learn progressively more about Agile practices from the Dojo coaches.

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Before the team jumps into cranking out the work for the first sprint, the Dojo coaches will encourage the team to come up with specific definitions for when a script is "ready" to be worked on and when the script is considered to be "done".

Here are some examples for each definition.

Ready

The customer and business value have been determined
Script is captured in a format
"ASA <customer>, INEED TO <have a specific work accomplished>, SO THAT <business value is added>

Approvals and permissions are in place (i.e. no external processes are blocking the work from being done)

Script is appropriately sized and scoped
- Considered team capacity and sprint length
- Defined tasks that need to be done

Acceptance criteria is defined as:
- Specific
- Attainable
- Able to produce a demo
- Testable

Team members to execute work have been identified and are ready, willing and capable of accomplishing the work.

Done

Acceptance criteria has been met

Accomplishment defined in the story has been demonstrated to the team

Story has been accepted by the product owner

Story is updated in the tracking system (JIRA, TFS etc)

Applause!!!

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Sprint planning and goals

It is always helpful to define sprint goals before going through the exercise of selecting the stories to be completed in a given sprint.

During the sprit planning meeting, it is always important to keep in mind how the team's sprint goals contribute to the broader goals of the organization.

Many organizations utilize Agile frameworks such as SAFe (Scaled Agile Framework). To achieve organizational alignment, SAFe uses enterprise concepts such as Pls (program increments). The article below describes the concept of the PI and how it fits into the Agile Release Train (ART) schedule.

https://scaledagileframework.com/pi-planning

Once defined, the sprint goals are posted somewhere at a visible location, poster or whiteboard for the team to reference.

The stories selected to be completed in the given sprint are pulled out of the backlog that was already prioritized by the team and the product owner (prioritization is typically done in the backlog grooming sessions).

Each sprint is written on a post it note and is attached to the whiteboard according to priority (top to bottom). The whiteboard would typically have at least three columns: TO DO, DOING and READY FOR APPROVAL. As the team progresses through the sprint, each story is moved into the appropriate column with the goal being that all stories reside in DONE before the scheduled sprint review.

Sprint schedule

Weeks 2 – 5 agenda

Day One
8:ooam: Planning
12:30pm: Stand up
3:00pm: Refining

Day Two
8:ooam: Stand up
12:30pm: Stand up
2:30pm: Reviews using demos and retrospective

The Dojo is conducted in Hyper Sprints (1 or 2-day sprints) to make sure the team quickly realizes results and makes necessary adjustments as they progressively learn more about Agile practices from the coaches. Short duration sprints naturally require a rigid schedule where all scrum ceremonies take place in the same day,

Here's an example:

The first question that comes to mind is "When do I have time to do the scheduled work?"

The key here is to be able to break down the work into small enough pieces (i.e. size the scripts to the amount of work that can be accomplished in 2-3 hours). There are multiple approaches to script sizing in the Agile world. The article below describes the seven most commonly used Agile estimation techniques.

https://www.softwaretestinghelp.com/agile-estimation-techniques/

Coaches may work with the team to determine which techniques would work best for a given team and how to break down the large features into smaller size scripts.

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Stand up meetings

If we refer back to our 'pig' and 'chicken', during the stand up meetings, the assigned 'pig' for each story would communicate the current progress status including the level of involvement contributed by the assigned 'chickens'. The stories are covered in the priority order as posted on the board. If anyone is unable to attend the stand up meeting, it is expected that they communicate their status to the team prior to the meeting.

The important questions to ask:

- Is there anything preventing you from completing the story in this sprint?
- Can anyone else on the team, in addition to the assigned 'chickens' jump in and assist in completing the story?
- Have any additional items (bugs, stories or tasks) come up that were requested to be completed in this sprint?

If so, the team has to vote on whether to include the additional item or not, considering the capacity. These additional items are called 'break-ins'.

Sprint reviews, demos, and retrospective

Demos

One of the most rewarding parts of any sprint completed in a Dojo is the demo of the work that has been completed. Every feature or story that was finished within a given sprint has to be shown to the team and stamp approved by the product owner.

No partially complete work can be demoed. The team and the product owner are encouraged to ask questions during the demo, but not so much as to significantly extend the demo window time. Depending on the size of the team, each demo can be allocated a window of 3-5 minutes.

A demo should be accompanied by the summary of what work has been completed and how it aligns with the sprint goals, which is typically presented by the 'pig'. At the conclusion of each demo the presenter is greeted by the applause from the team (refer back to the "definition of done").

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Sprint reviews, demos, and retrospective

Retrospective

For retrospective meetings, each team member is given post-it notes and a pen. Everyone is encouraged to write down as many items as they can about what they think went well in this sprint and what they felt did not. The time window for writing notes is 5 minutes.

The whiteboard is split into two sections and each team member goes up to the board and talks about each item – positive or negative. Similar comments posted by different team members are grouped together.

At the conclusion of retrospective meetings, the team is allowed to vote on two items posted on the negative side of the board that they think would be most important to address in the next sprint.

The most voted on items are selected and taken into consideration in the next sprint planning meeting.

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Quality maturity assessment

Ri: Freedom

'Ri' is meant to suggest an elegant integration
of skills, a smooth, seemingly effortless flow
that is the hallmark of a master.

The idea behind ri is that the individual internalizes the lessons of shu until they are second nature, then has the breakthrough moment of ha and finally reaches a place where things simply flow.

At some point during the Dojo training, the team will work with test coaches to perform an assessment of their Quality Maturity and develop goals to advance the testing practices going forward.

The goal of the assessment is to identify the levels of maturity across various dimensions of quality at the team's current state. Once the assessment has been completed, the team will vote on what areas of improvement they would like to focus on the most.

The 'pain points' related to quality are also brought up, discussed and recorded.

Upon review of the maturity assessment and pain points, the test coaches will come up with recommendations for improvement of the test practices. The team can define the test strategy with targets for improvement and consider using new or alternative test management and automation tools moving forward.

Quality maturity assessment learning model

This learning assessment model is intended to be a blameless tool for teams to understand and set continuous improvement targets over specific practices and values. The Dojo learning model wants to see improvement across teams within the organization. Not every practice will apply to every team, but we suggest most will apply to all teams if you are forward thinking.

As part of their inspect and adapt process, teams should come together to review their current maturity state across these practices (at minimum) every six months. As the team continues to learn and grow, we encourage this be done ultimately during every PI. Additionally, the team owns their own goals and proficiency targets based on what makes sense for the products they support and their ability to commit time/energy over the planning period.

Mechanically, we recommend a scrum master from another team (or some other impartial individual) facilitate the conversation so the entire team can contribute. You do not need an Agile coach or someone from the Evolve team, just a facilitator who is familiar with the tool. We recommend using 'planning poker' to get the team's initial reaction to each practice, and then using the team's response to speak conversation on why there may be some disagreement – or if the team is fully aligned, you have an easy answer.

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Quality maturity assessment: Dojo learning model

This matrix should be used at the beginning of the Dojo and at the six month mark. To graphically display results, a spider diagram may be used. Below is just a short example.

Practice	Learning	2	3	4	5
Readiness	Team is hesitant to challenge the status quo.	Team believes agile concepts may work, but has more of a 'wait and see' attitude.	Team has cautious optimism, but may not persevere through an obstacle.	At least half the team is eager to move forward, but a couple may wait and see.	The entire team is eager to change and embrace agile concepts.
Teamwork	Individuals work in silos.	Team members are aware of others' work and have regular discussions.	Team understands skill growth required and has a plan to achieve it.	Teams regularly swarm on high priority work and pair to share knowledge.	Individuals are cross-functional and can work on anything that comes to them.
Empowerment	Team is told what to do and who does it.	Team has been told by management that it is empowered and understands what this means, but does not exercise much power yet.	Team estimates tasks and backlog items that are given to them, but they do not have much say in what that work is yet.	The team chooses which stories to work on and exercises some control over how it follows agile practices.	While the business sets the priorities, the team understands them and can determine how to deliver. The team actively shapes how it runs its agile process with little interference from management.
Work management	No common backlog or work management tool. WIP is hidden.	A work management tool is used to capture a common backlog	Team uses agile framework (scrum, Kanban or XP) to manage work from a common backlog.	WIP is understood and managed to improve flow.	The team captures metrics on flow and uses them to improve.
Inspect and adapt	Team does not perform any retrospective activities. It is too busy to change how it works.	Team has occasional retrospectives but few actions have been taken.	Team has regular retrospectives and some actions have been taken. Some small improvements have happened.	Team has regular retrospectives and improvements regularly show up in the backlog in the following iteration or PI.	Team has adopted full kaizen mindset, showing continuous improvement across iterations and program increments. Inspect and adapt workshops have yielded tangible, measurable results.
Requirements	Team is provided loose technical requirements with no background or business context.	Team is provided detailed technical requirements in a large batch. There is a one time hand-off from business to the team.	Team is provided with detailed technical requirements in smaller batches for incremental development. Conversations and collaboration are sporadic.	Over the life of the program, a business stakeholder describes non-functional requirements from a user's perspective and the team collaborates on the solution.	Business stakeholder and/or product owner discusses requirements with the team and helps develop the acceptance criteria throughout the cycle based on feedback loop.

Conclusion

TTC provides a six-week DevOps Dojo program. Our experienced coaches can help your organization achieve true Agile practices.

Organizations that are looking to begin their DevOps journey or that are looking to take the next leap forward should look to the DevOps Dojo approach.

At the conclusion of the Dojo it is expected that the team carries forward the newly learned habits into its daily work.

There is a better awareness of the backlog and the refinement meetings are concluded in a more effective way. The stories are refined with clear acceptance criteria and are prioritized based on business value. Continuous improvement items are introduced to reduce technical debt. New stories are written as necessary, based on new business requests.

The team no longer wants to work in silos. There is a collaborative approach to every problem and swarming is practiced when it is necessary to ensure every story is completed within a given sprint. Pairing practices are utilized on every story with at least one or more 'chickens' involved. Everyone on the team feels ownership of the work that has been committed.

Team members are continuously developing into T-shape contributors. Demos are done as part of every sprint meeting to ensure the transparency of the sprint achievements.

Overall, the team has advanced to the higher level in Agile practices and is able to quickly and consistently deliver value to the business.

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