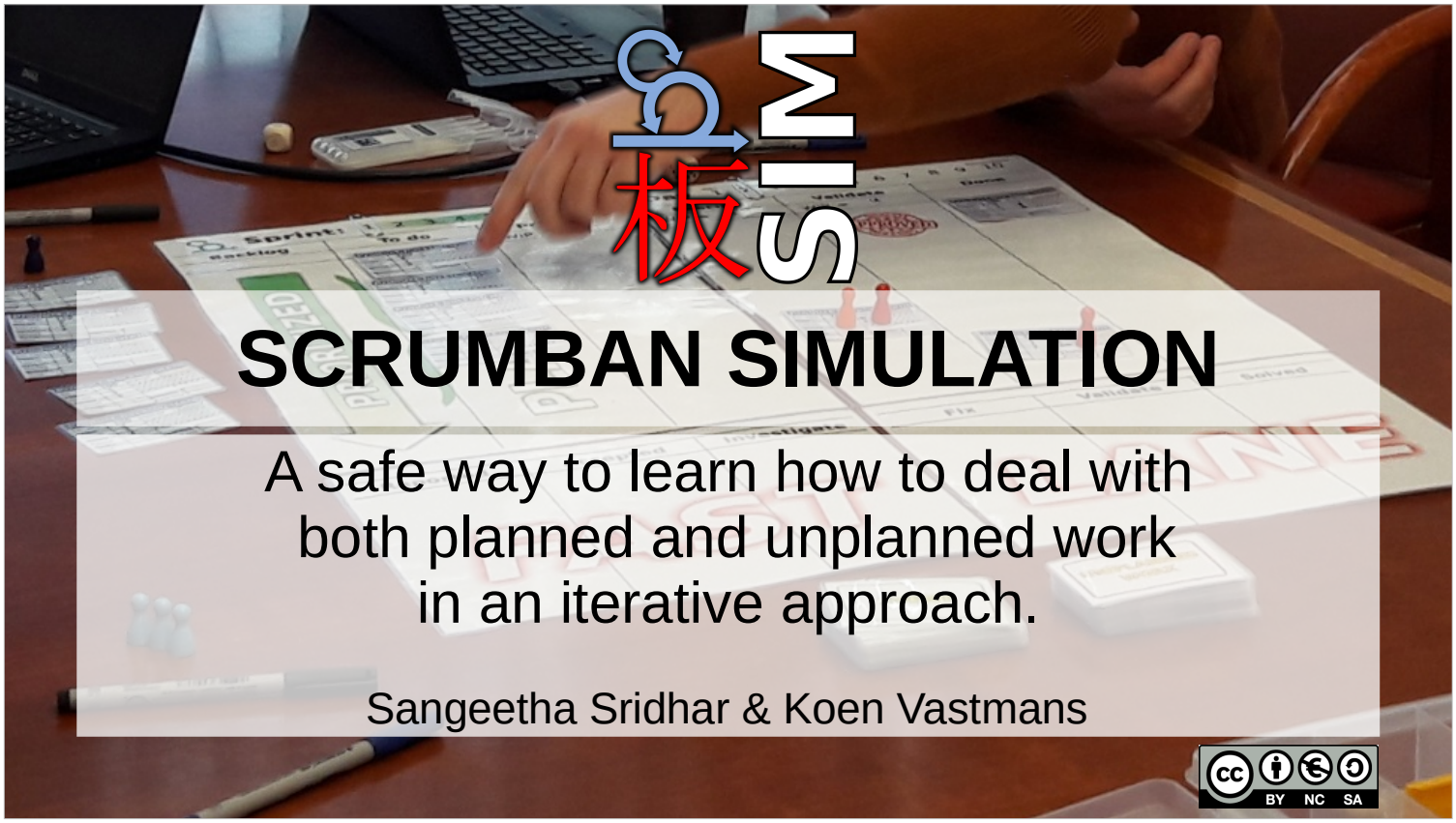
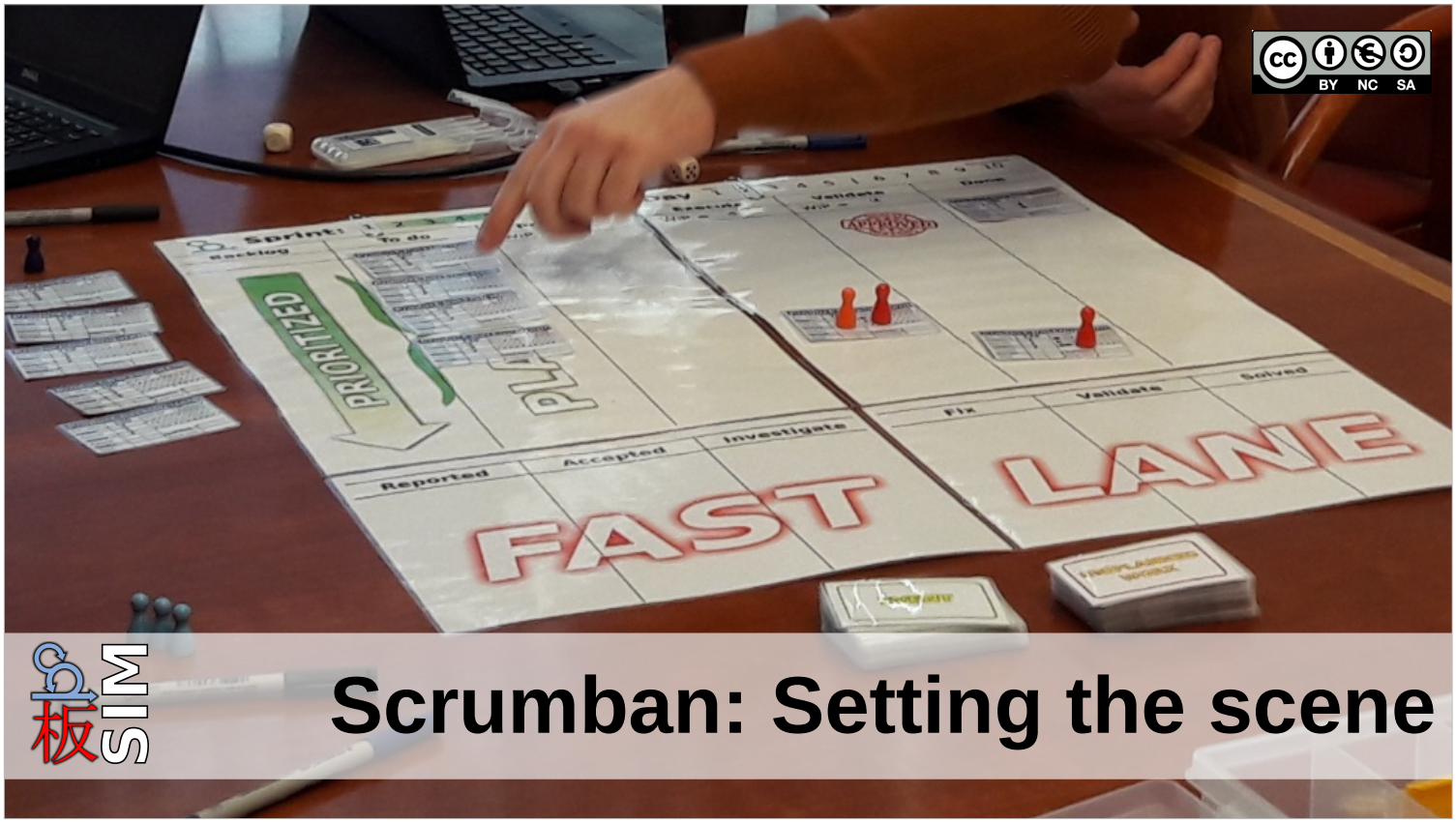


SCRUMBAN SIMULATION

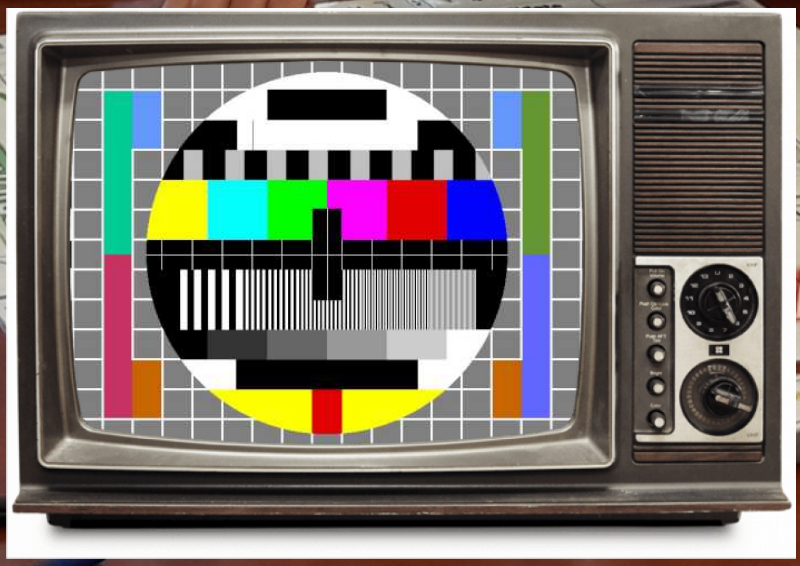
A safe way to learn how to deal with
both planned and unplanned work
in an iterative approach.

Sangeetha Sridhar & Koen Vastmans



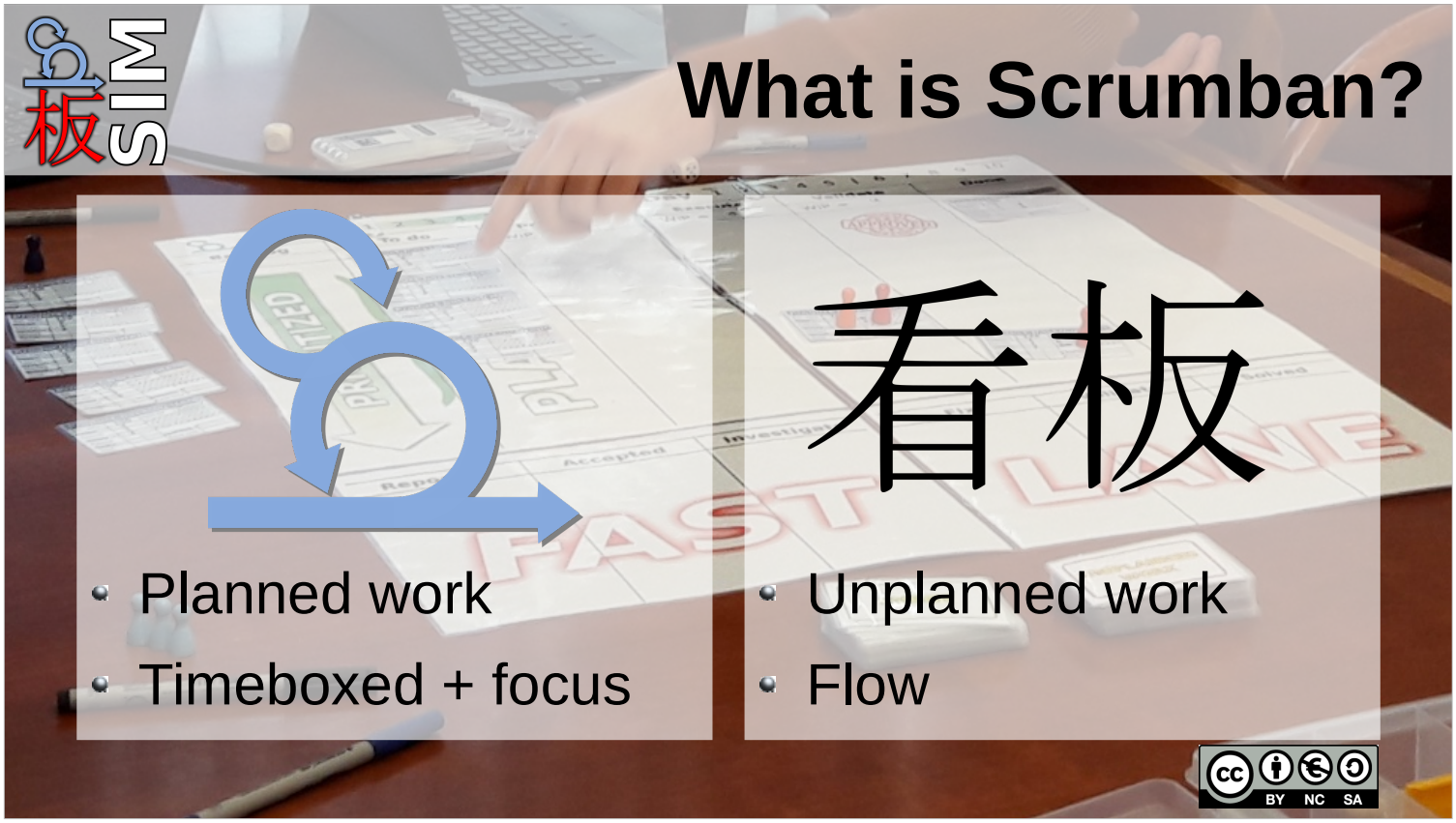
Scrumban: Setting the scene

Why Scrumban?



Will open a YouTube video

Click on the screen to start the video.
A Youtube video will be loaded into a browser window. The video is an expanation about the wht of scrumban and the simulation

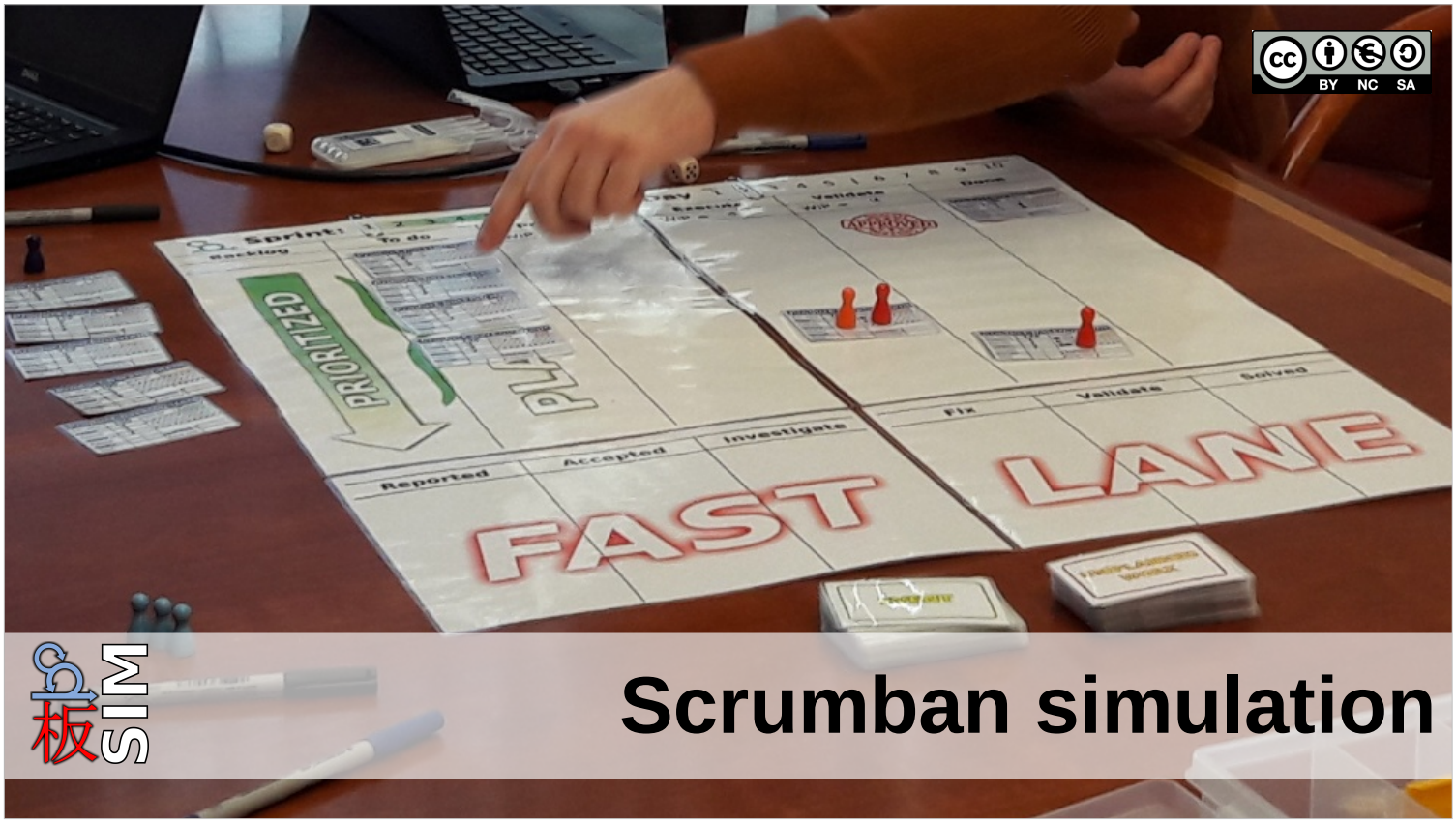


The word Scrumban is a combination of Scrum and Kanban.

You know Scrum is typically used in a context where you want to plan your work in short iterations and inspect and adapt after each iteration. The timebox of the iteration gives focus.

Kanban on the other hand is not about planning in timeboxes but about flow instead. Therefore Kanban is very useful in an unpredictable context.

Scrumban effectively is the combination of both planned iterations and a flow of unplanned work. It is typically useful in a context where people have to deal with unplanned work but also focus on finishing planned work. Planning things gives focus. But because of the combination of planned and unplanned work, the iterations aren't as strict as in Scrum: they are more meant as an evaluation cycle for the entire solution, not just the iteration scope.



Scrumban simulation

The Scrumban simulation is meant as a fun way to learn the principles of Scrumban in a safe environment.

It is context-agnostic on purpose. It does not have any notion about development or engineering activities and the work is abstract, to focus more on the Scrumban principles themselves.

This ensures that the simulation can be used in any domain, be it development, operations or business.

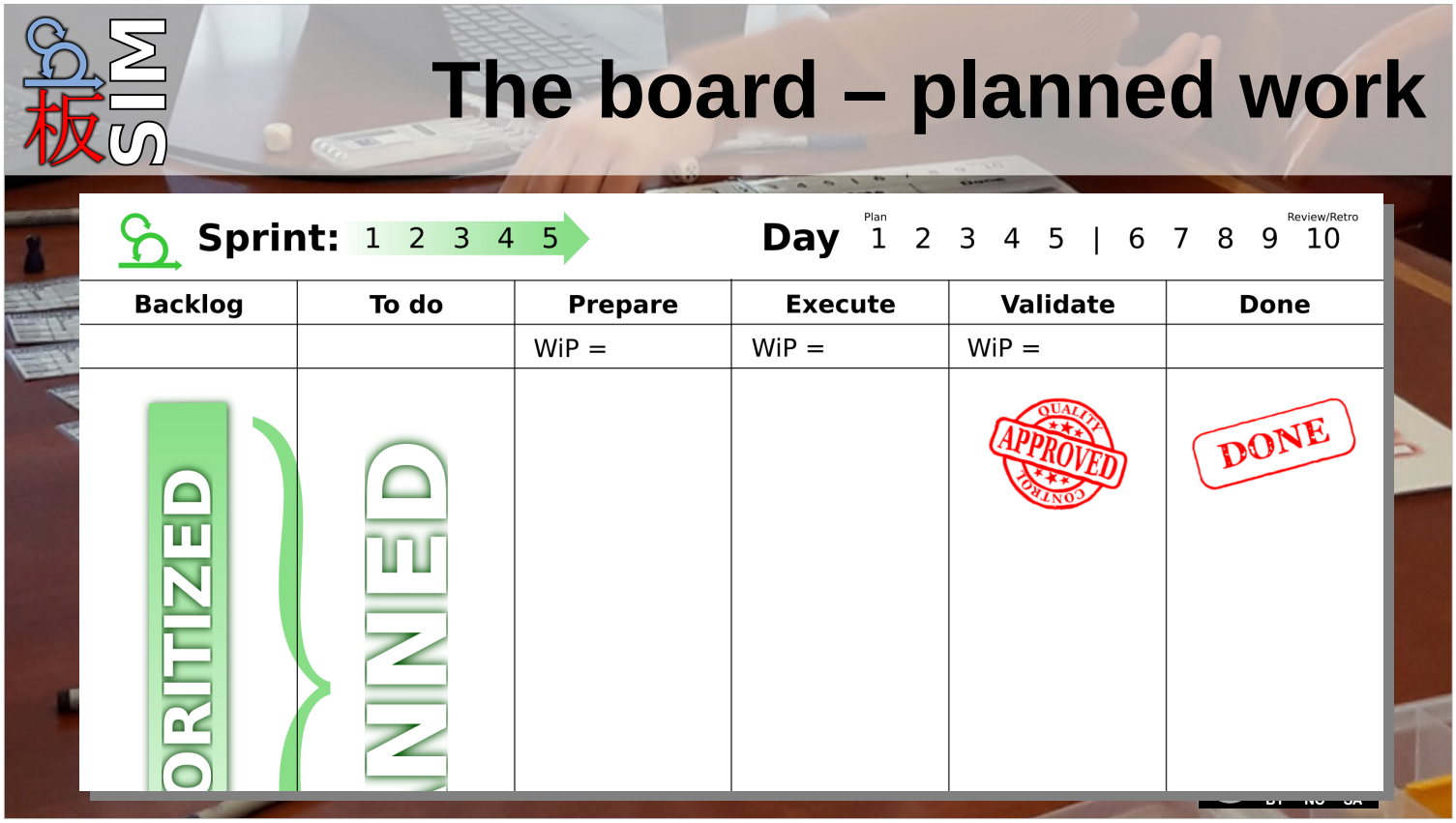
Objective

The objective of the simulation is to find the right balance between both planned and unplanned work.

Typically you have a team of at least 2 and at most 6 members and a product owner. For this simulation someone can take up the role of product owner and also participate as a team member.

Team members are generalizing specialists. This means they can do all kinds of work, but they are specialized in some activity. They are better at that, so they will be more efficient in they specialty.

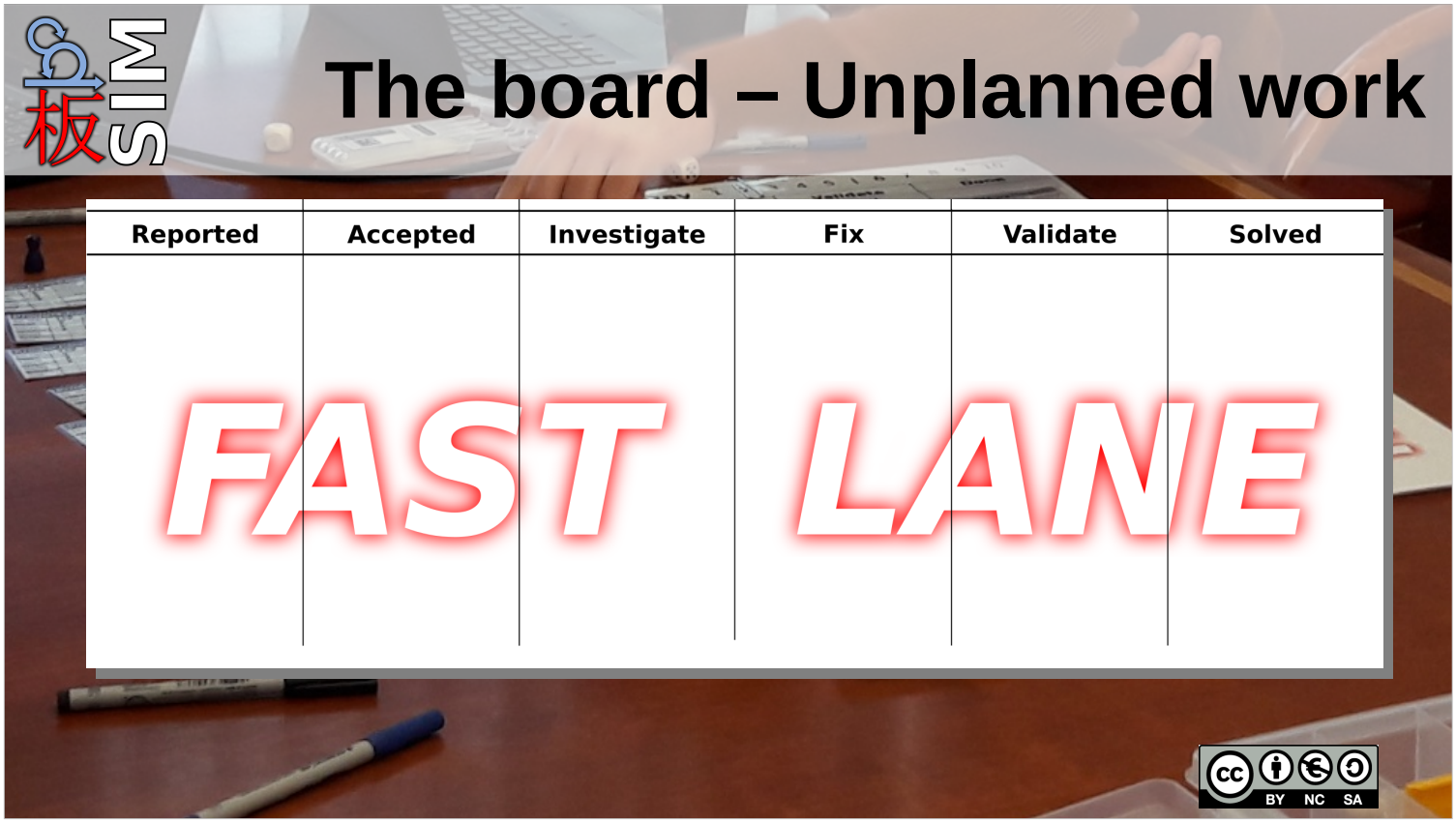
The board – planned work



The board is divided in 2 parts. The top half of the board is the part for the planned work. Here you have the following columns:

- Backlog (not yet planned)
- To do (planned)
- Preparation
- Execution
- Validation
- Done

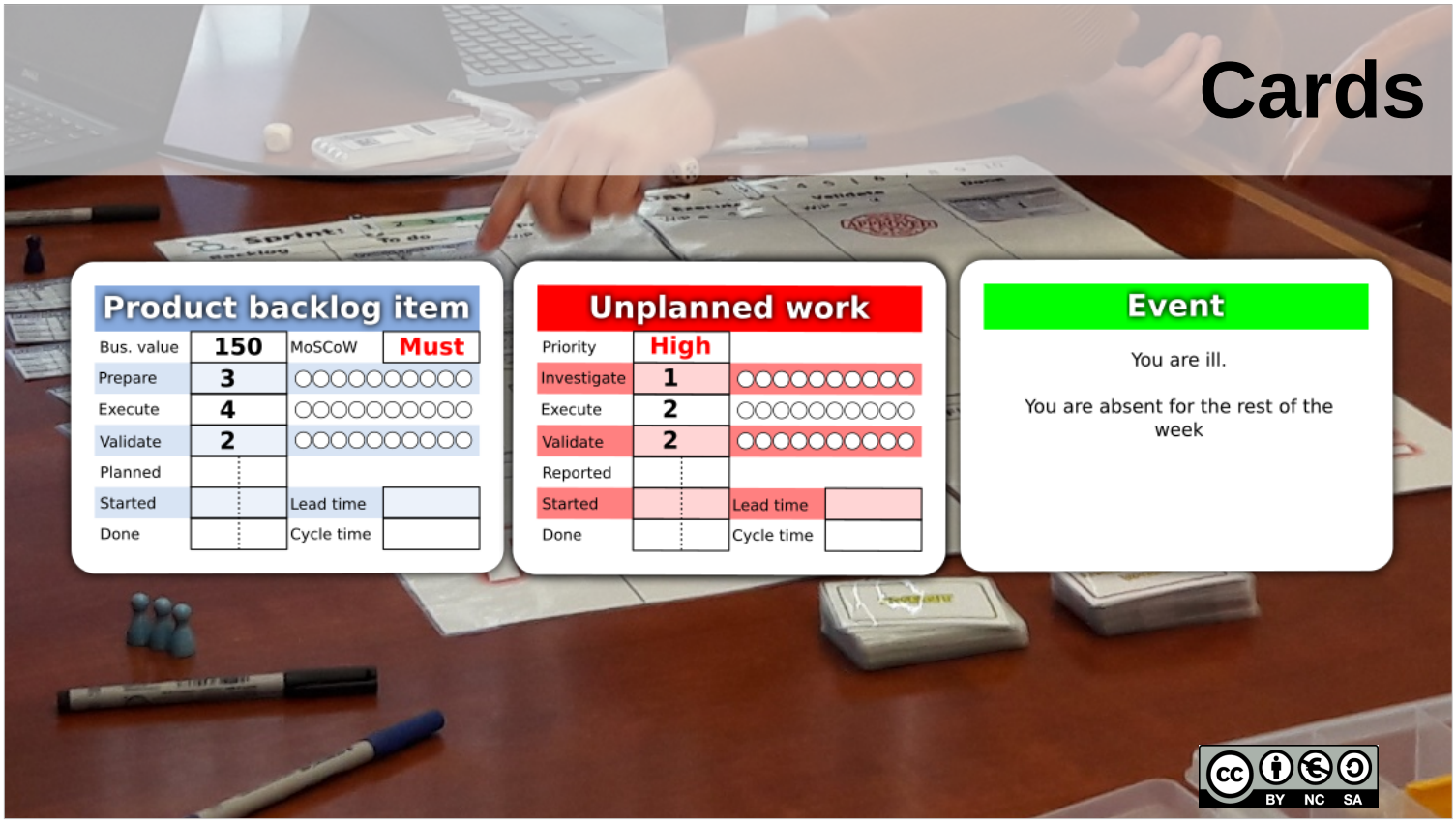
The board – Unplanned work



The bottom half of the board is the fast lane and is meant for dealing with unplanned work. These are the columns of this part of the board:

- Reported (an unplanned work item is reported, but not yet accepted)
- Accepted (you will work on it)
- Investigate (like preparation)
- Execute
- Validate
- Done

Cards



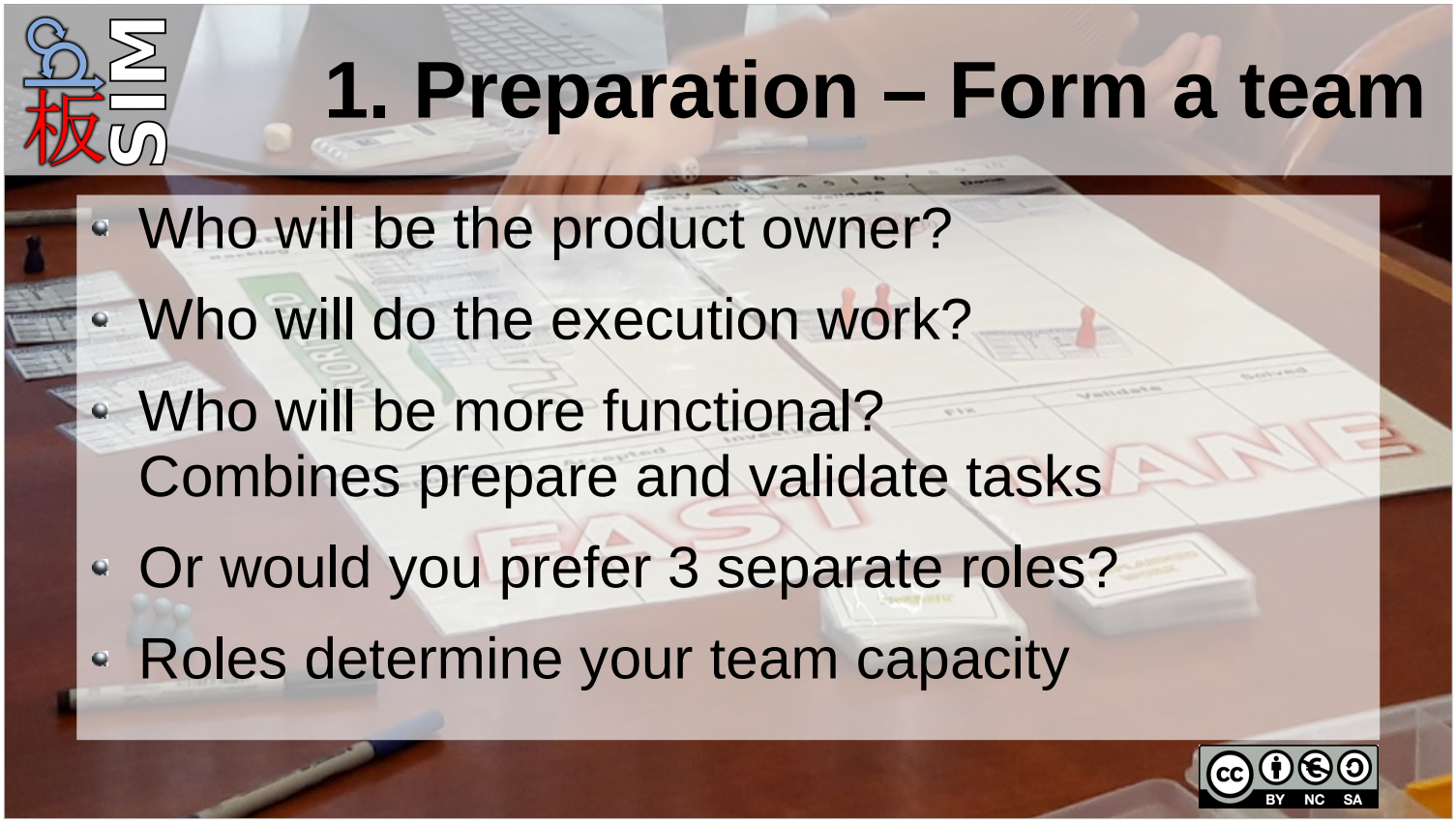
The simulation uses 3 types of cards:

- Product backlog items – the work that needs to be planned
- Unplanned work – the work that interferes with your planned work
- Events – things that can happen along the way – either pleasant or anoying

The product backlog items can be seen, because you need to prioritize and plan the backlog. The unplanned work cards and event cards remain on a stack, face down.

Step by step explanation

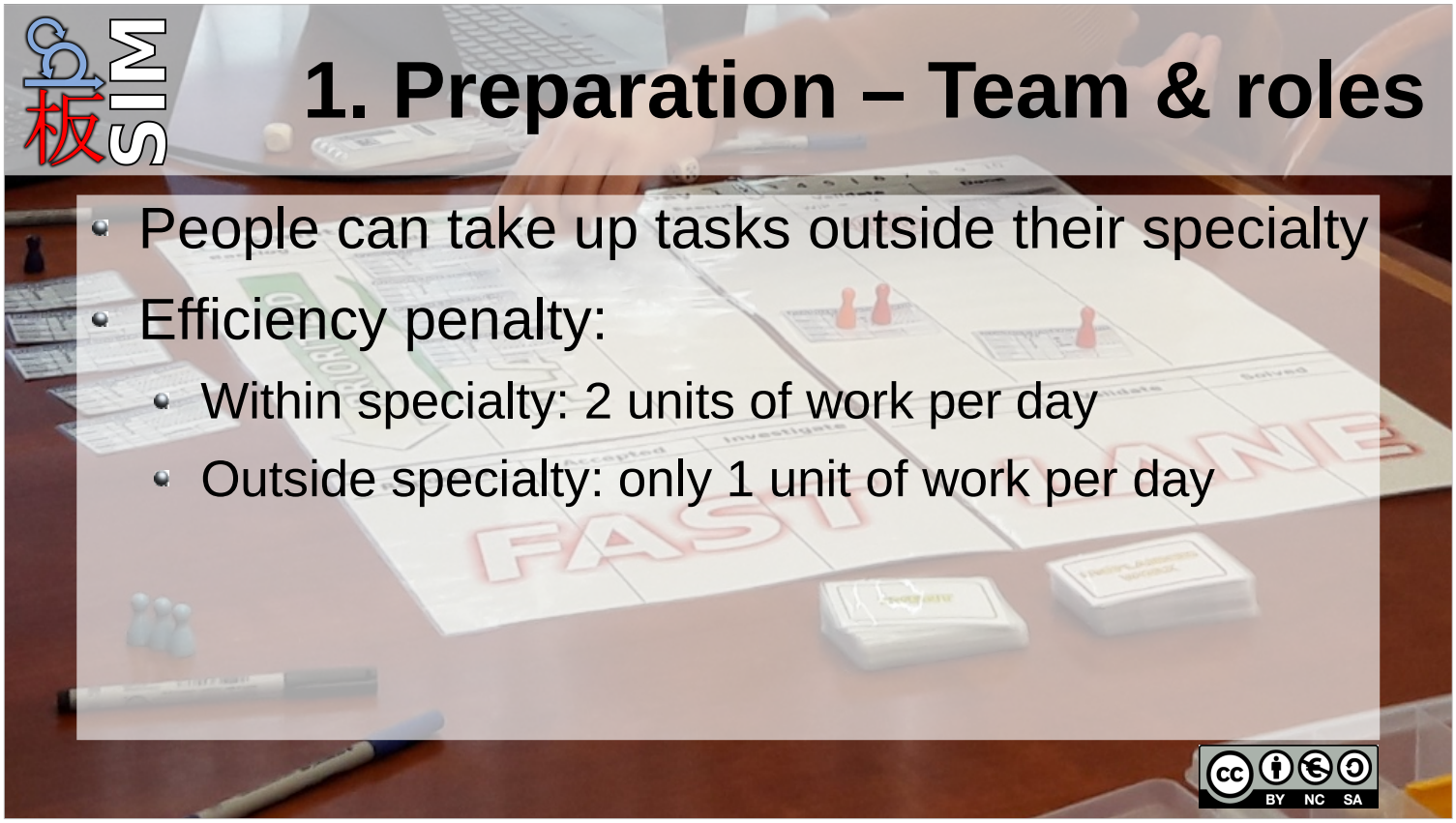
Let’s go through the different steps of the simulation. We will do this step by step together (if there is more than 1 team playing), so that each team can start at the same speed.



First thing to do, is forming a team:
Divided yourselves over the different boards, and assign the roles:
Who will be the product owner?
What role will you pick up? You can either go for a distinction between more function and more technical roles or you assign 3 separate roles for preparation, execution and validation.
In case of functional versus technical: the functional people can do preparation and validation, the technical people can do execution.
The roles will impact the team's capacity when you do the planning. How much time can you spend on:

- Preparation
- Execution
- Validation

1. Preparation – Team & roles



- People can take up tasks outside their specialty
- Efficiency penalty:
  - Within specialty: 2 units of work per day
  - Outside specialty: only 1 unit of work per day

As said, your team consists of generalizing specialists. This means that you can pick up any task, but you are more efficient in your specialty:

- Within your specialty you can do 2 units of work per day
- Outside your specialy you can only do 1 unit of work per day

Product backlog items and unplanned work items have estimations for each activity. These are expressed in units of work, not in days.

1. Preparation – WiP limits

- On activity level

Prepare	Execute	Validate
WiP =	WiP =	WiP =

- On individual level
  3 pawns per team member

We are dealing with a Kanban board. This means that we want to limit work in progress.

On the board, mark for each activity the work in progress limit: how many cards can be in that column at the same time? You can exclude the blocked cards from this number.

Additionally we want to limit work in progress on team member level. You will get 3 pawn per team member.

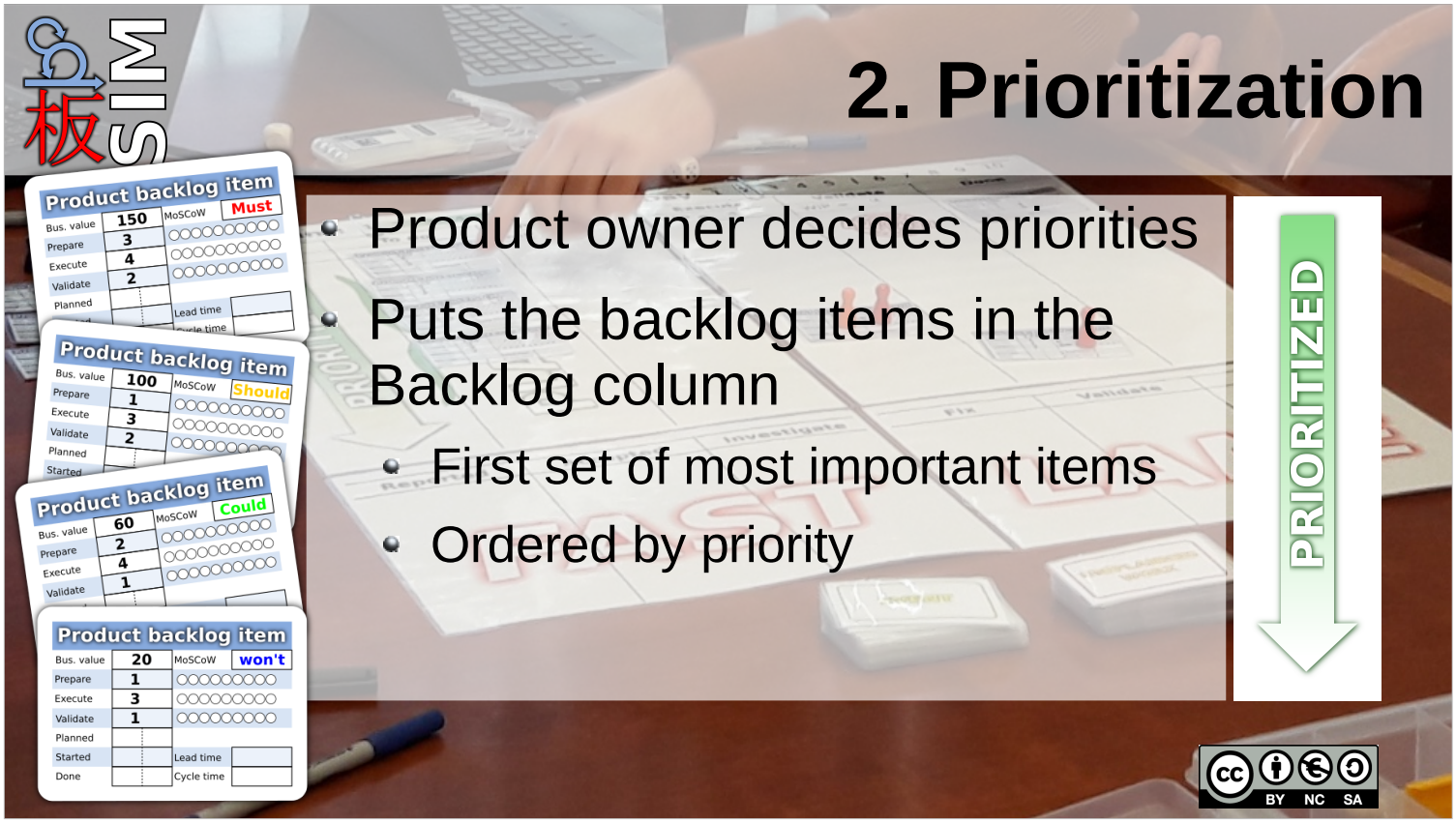
1. Preparation – WiP limits

- Why 3 pawns?
- A pawn is like an avatar
- Assign yourself to a task
- But you can only do 2 units of work per day
  - At most 2 different backlog items
- Extra pawn for e.g. events

3 pawns means that you can be assigned to at most 3 activities at the same time. When you are working on an item, you put a pawn on the card.

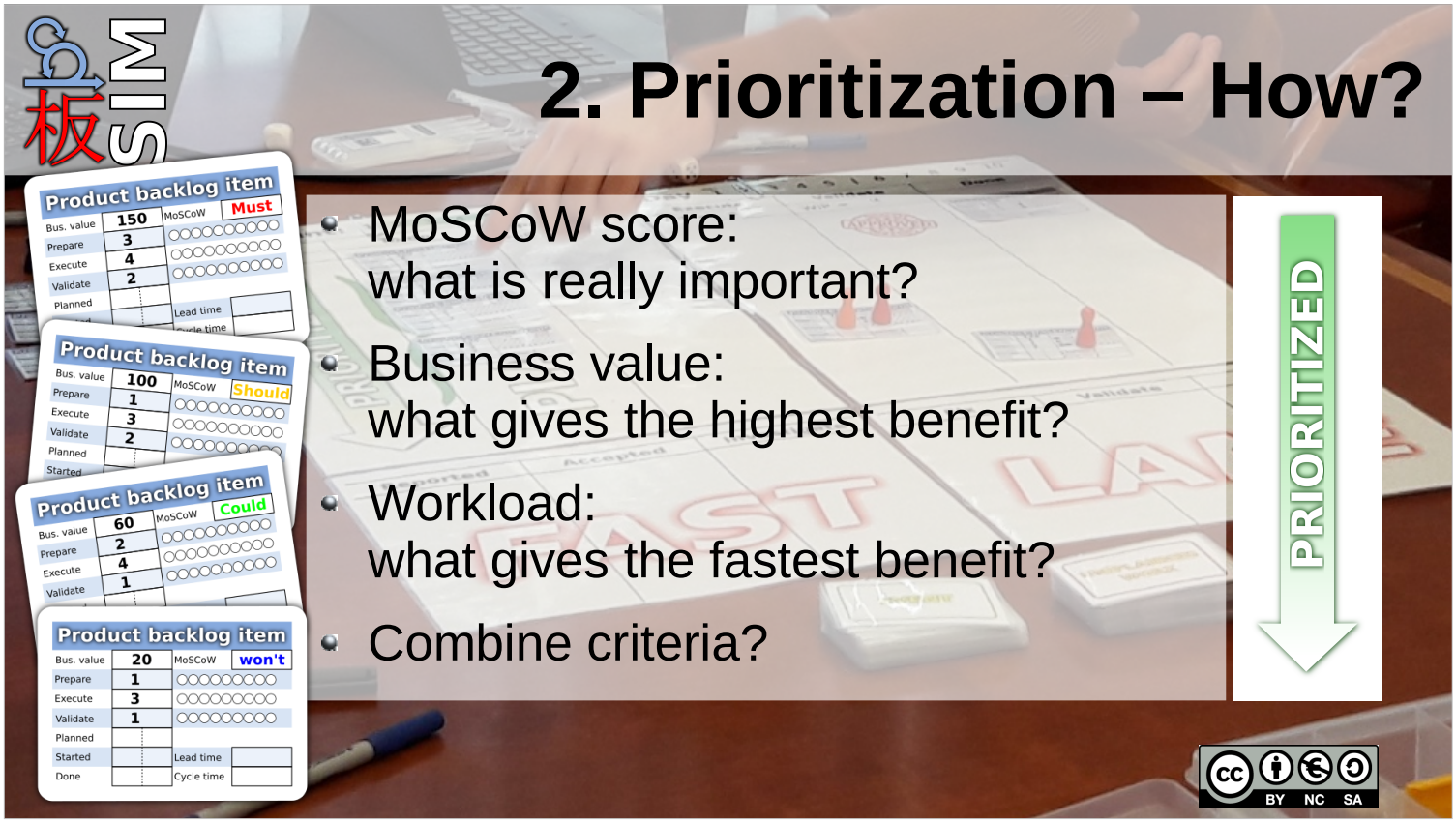
You could argue that this is not logic: 3 pawns and only be able to work 2 units per day. The reason for this is that people tend to assign themselves to a work item, even if they are not doing anything for it at the moment.

So normally there will only be 2 pawns on the board for active tasks. The extra pawn can be used for e.g. events. More on that later.



Now that you have a team and WiP limits, the product owner can prioritize the product backlog. Prioritize the entire product backlog.

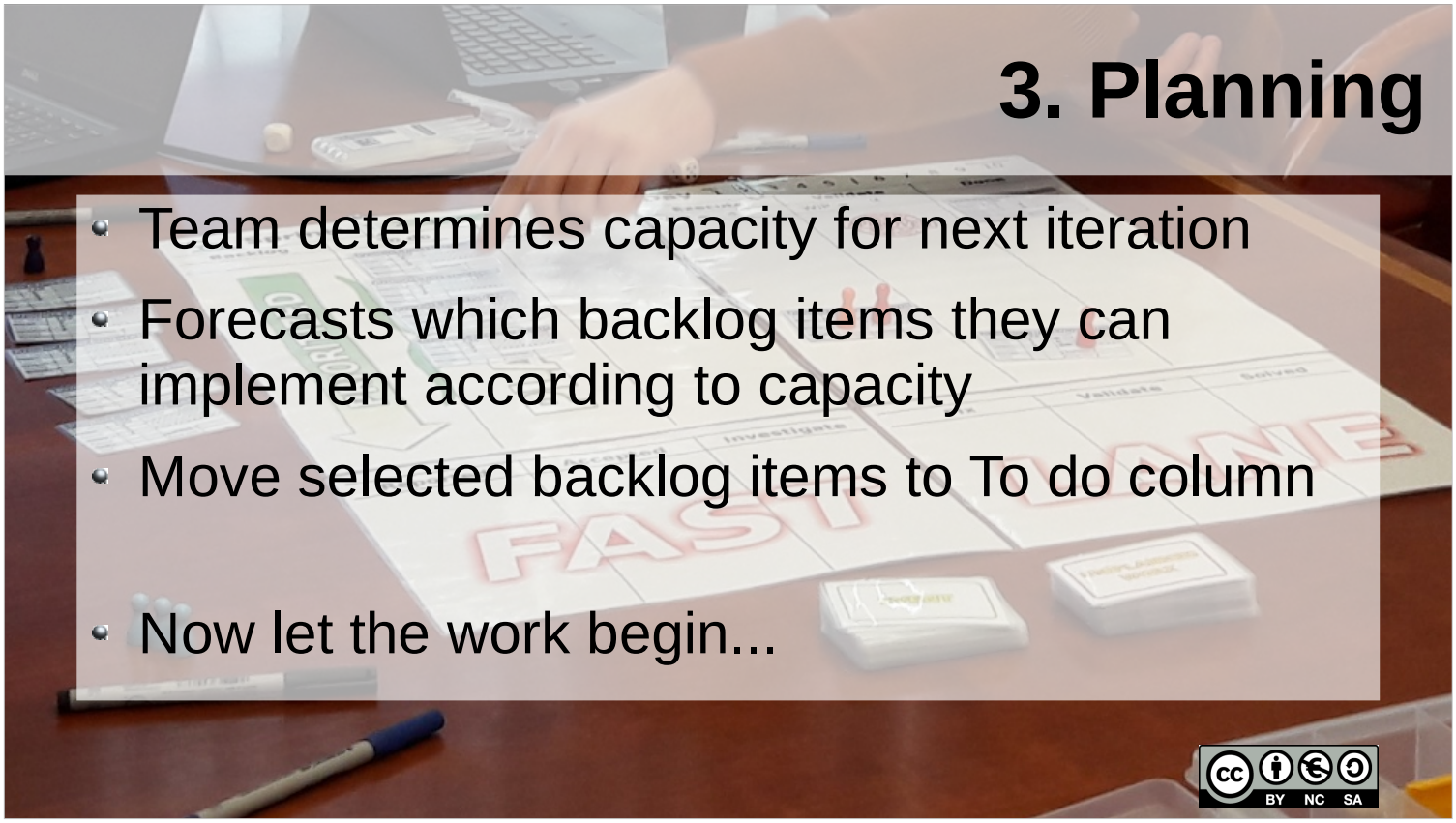
Off course the Backlog column is too small to take all the prioritized cards, so start with the most important ones and put the remaining cards next to the board.



There are several criteria to determine the priorities of the backlog.

- You can use the MoSCoW score on the card, to focus on the really important ones first
- You can take the business value into account: what gives the biggest benefit?
- You can consider the workload: what gives the fastest benefit
- Or you can go for a combination of criteria. Which are the most important items that bring the highest return in the shortest time? This is similar to Weighted Shortest Job First.

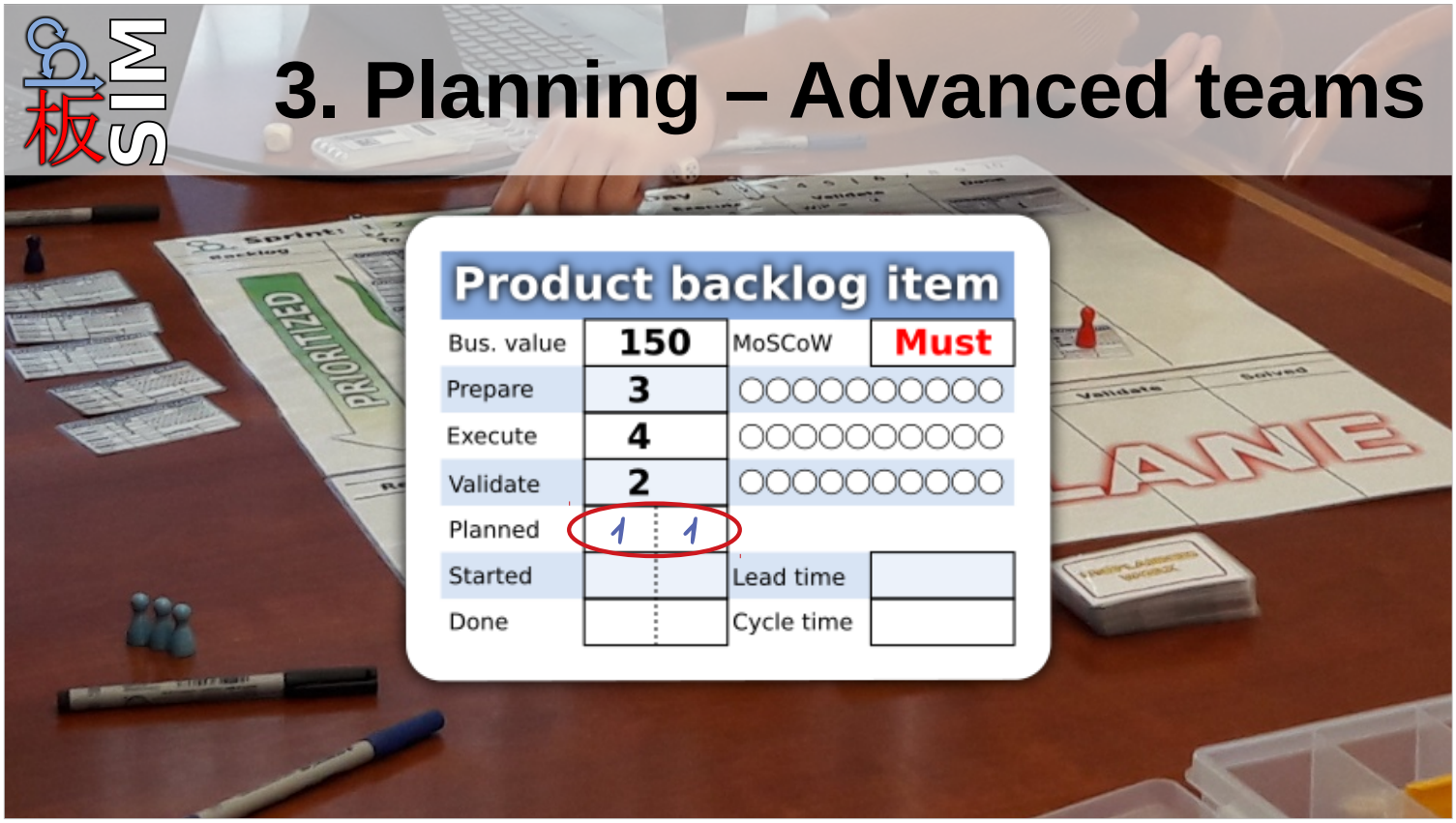
3. Planning



- Team determines capacity for next iteration
- Forecasts which backlog items they can implement according to capacity
- Move selected backlog items to To do column
- Now let the work begin...

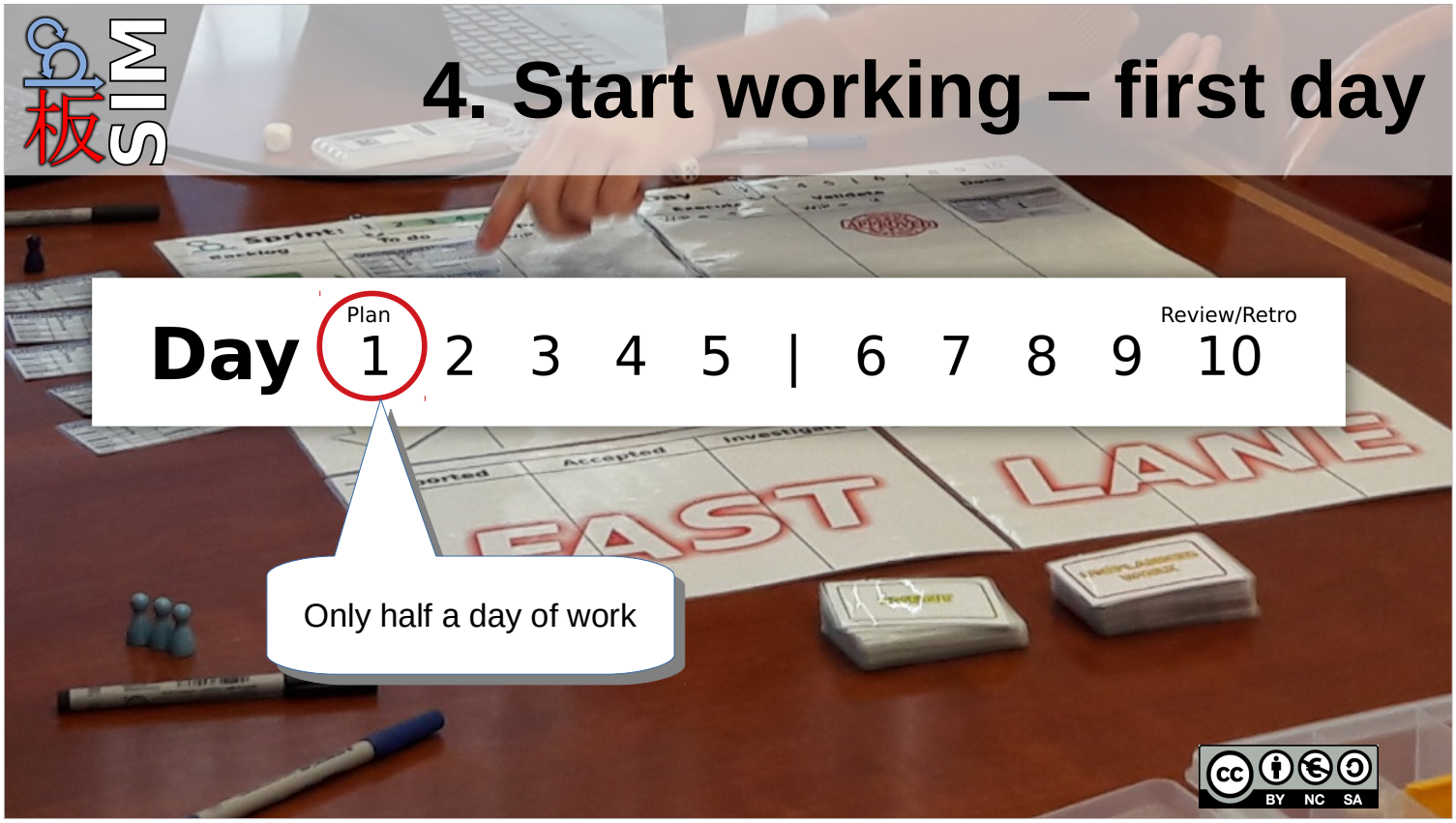
Now that you know your priorities and your capacity, you can start planning: which items are feasible to implement with the known capacity? How much time will you foresee for planned work and how much for unplanned work?
Move these items to the To do column.

3. Planning – Advanced teams



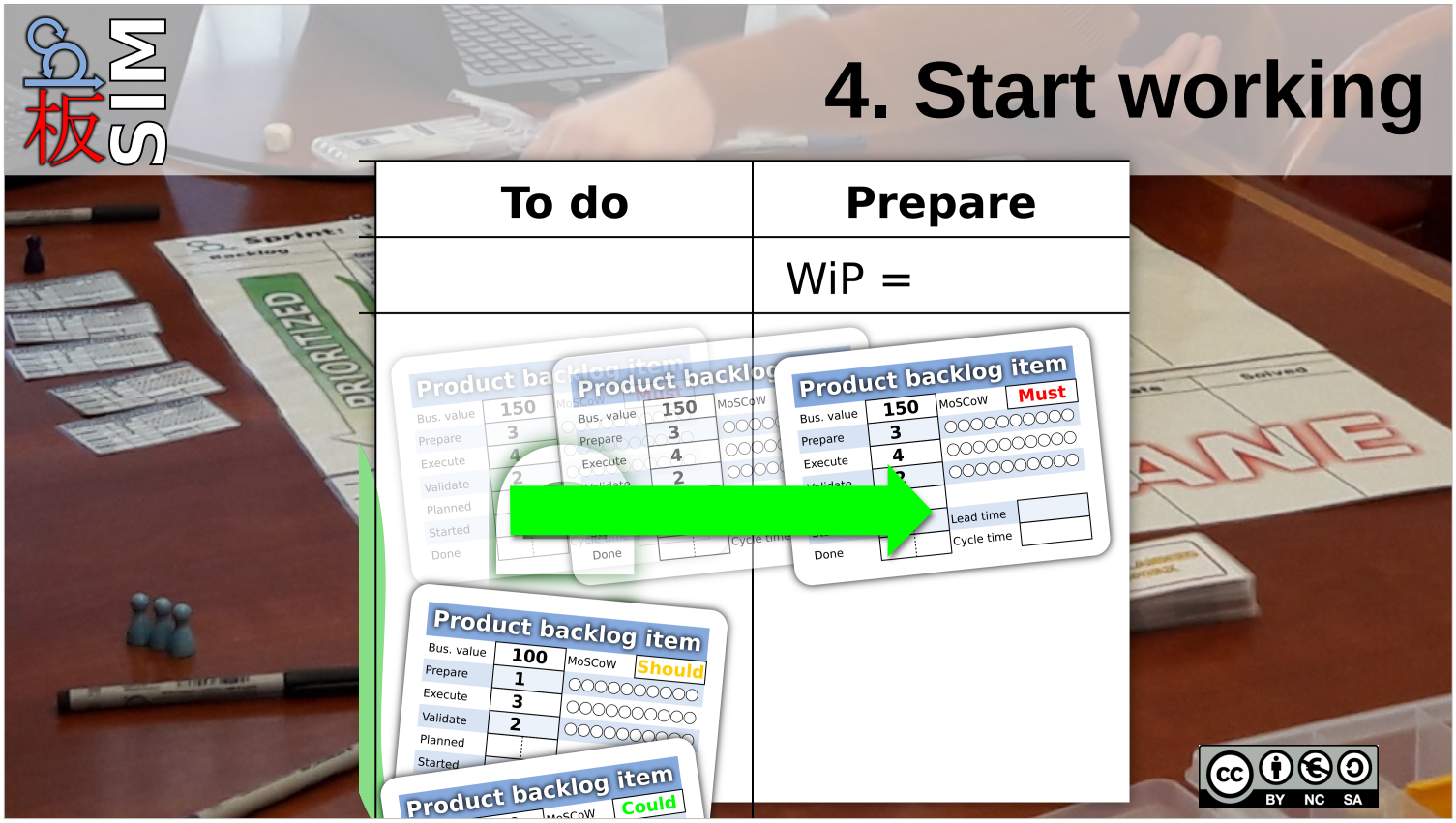
If you are familiar with cycle time and lead time, you can write on the card when the backlog item got planned: which iteration and which day of the iteration.

4. Start working – first day



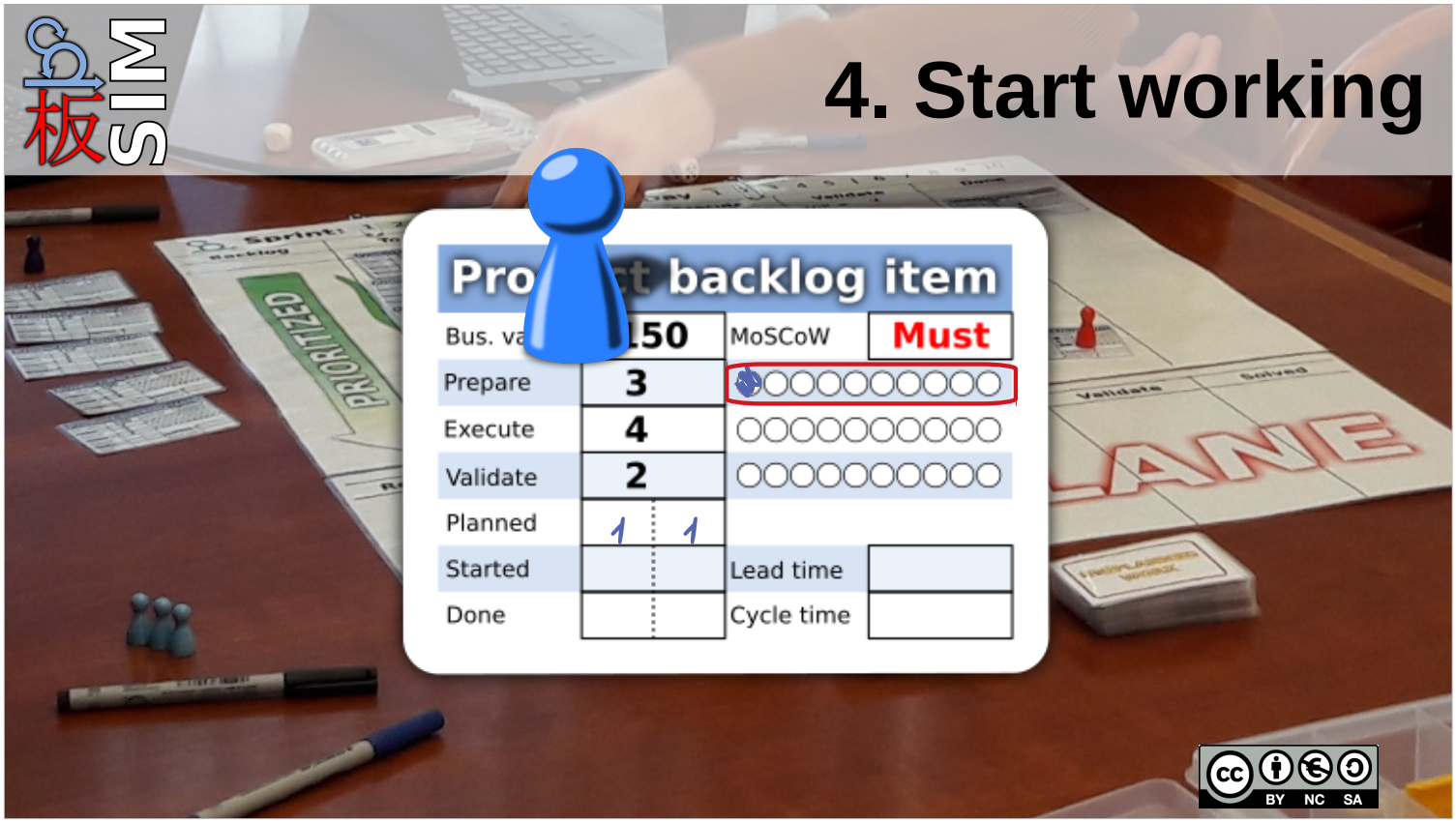
After the planning session you can start working. Mind you that you already spent half a day on the iteration planning, so you only have half a day left to actually work. This means that you can only spend 1 unit time in your specialty. Did you think about having everybody started as of day 1 when planning your iteration?

4. Start working



When you start working on an item you move the card from the To do column to the Prepare column.

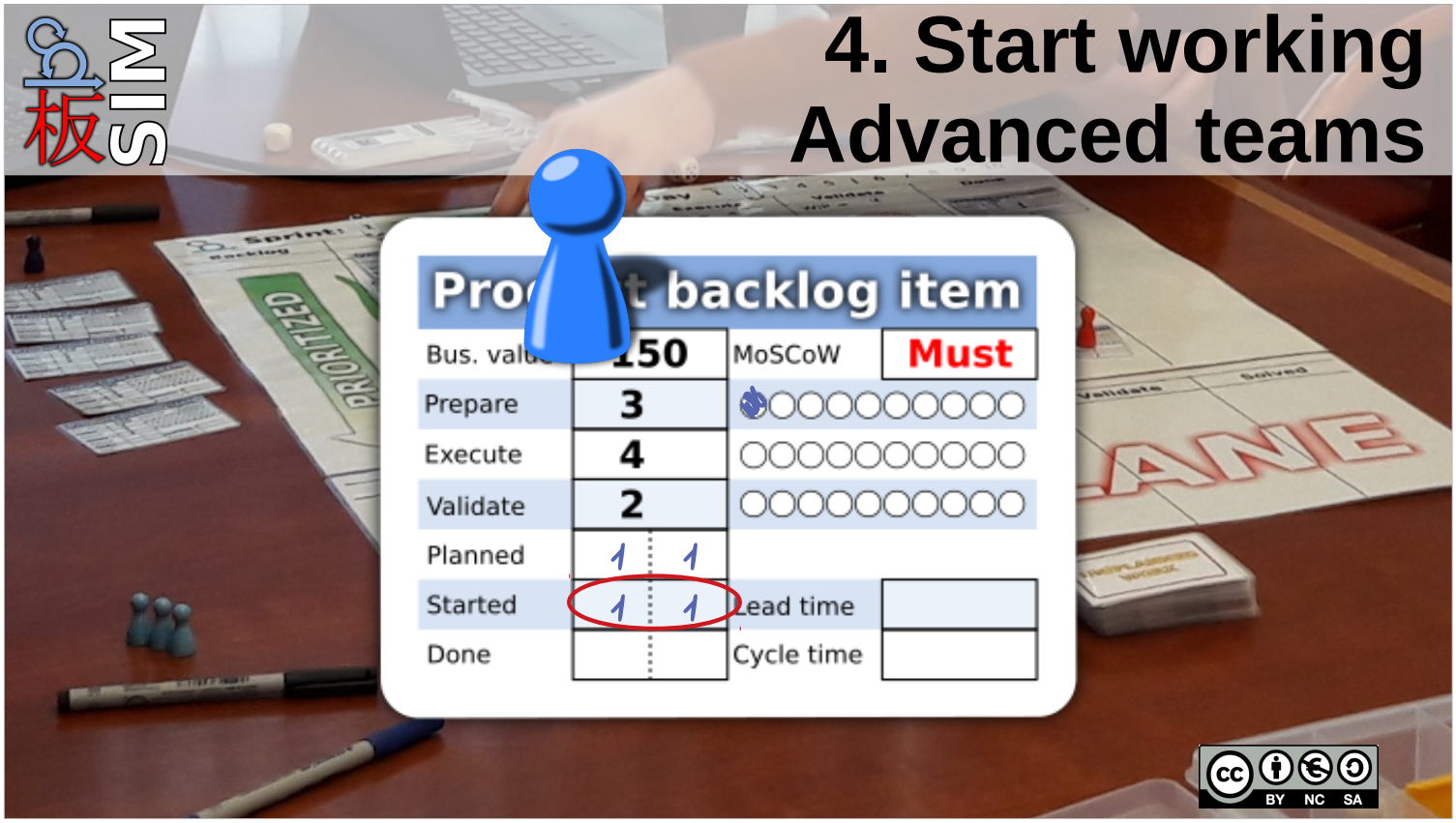
4. Start working



You put a pawn on the card so that it is assigned to you and you mark a dot. As already mentioned, the first day this is only 1 unit of work within your specialty. As of day 2 you can mark 2 dots within your specialty or 1 outside your specialty.

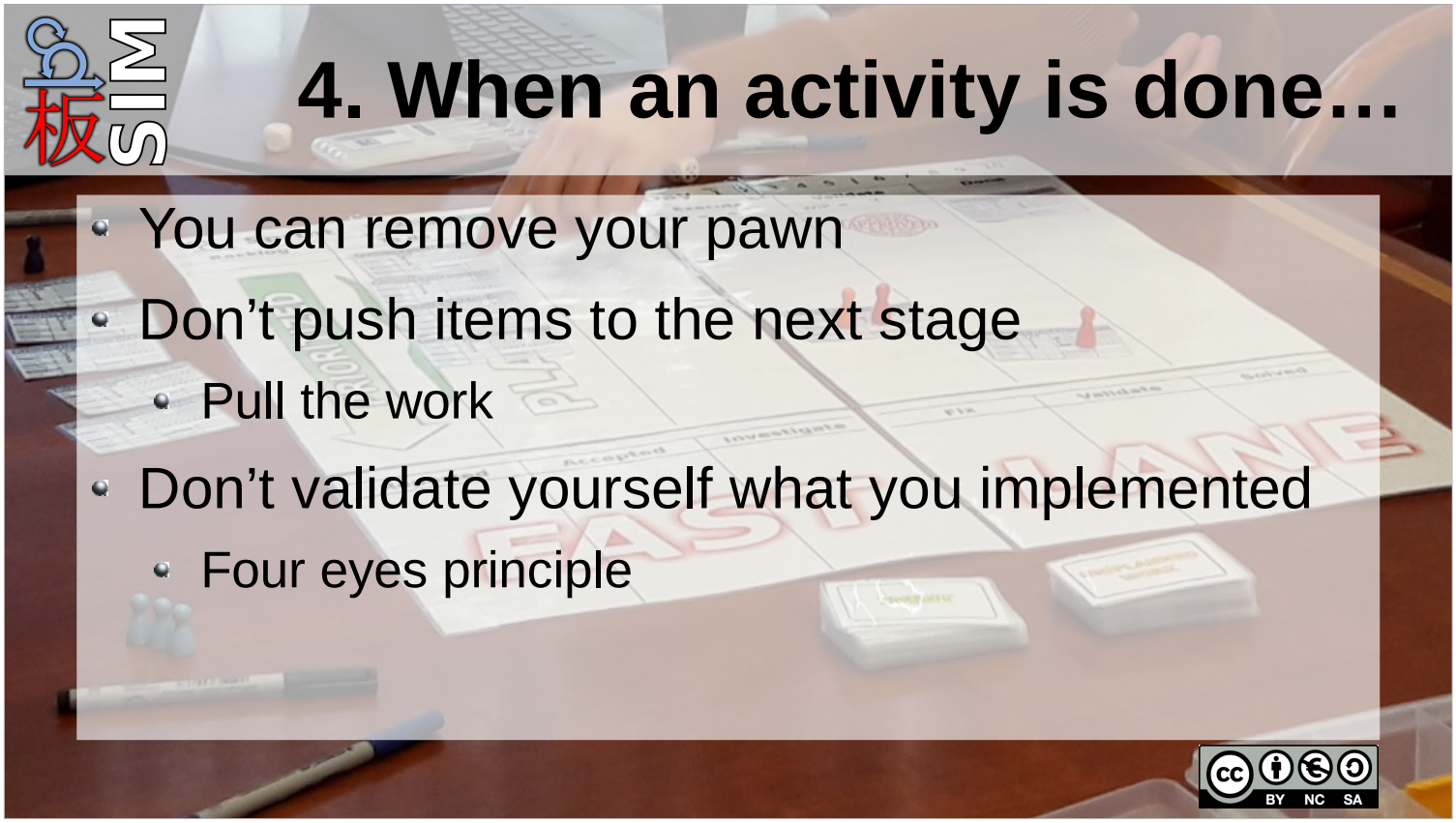
In this example, the preparation time takes 3 units This means that you need to mark 3 dots to get that task done.

You can work with more than 1 team member on the same item. This means that other team members can put their pawn on the same card and mark dots. This especially useful if you want to finish items with more workload faster.



Again, for people familiar with cycle time and lead time, you can indicate which iteration and which day of the iteration the implementation got started.

4. When an activity is done…



- You can remove your pawn
- Don’t push items to the next stage
  - Pull the work
- Don’t validate yourself what you implemented
  - Four eyes principle

When you have finished an activity – when the required number of dots got marked – you can remove your pawn from the card.

You don’t push the card to the next stage. This is a Kanban board, so someone has to pull the card to the next stage.

The four eyes principle is applicable here: you cannot validate yourself the work you have just implemented.

5. Play in rounds

We play in rounds. The team decides who starts pulling the first card and marking the first dot. After that each team member throws the normal dice for evolving insight. More on that later.

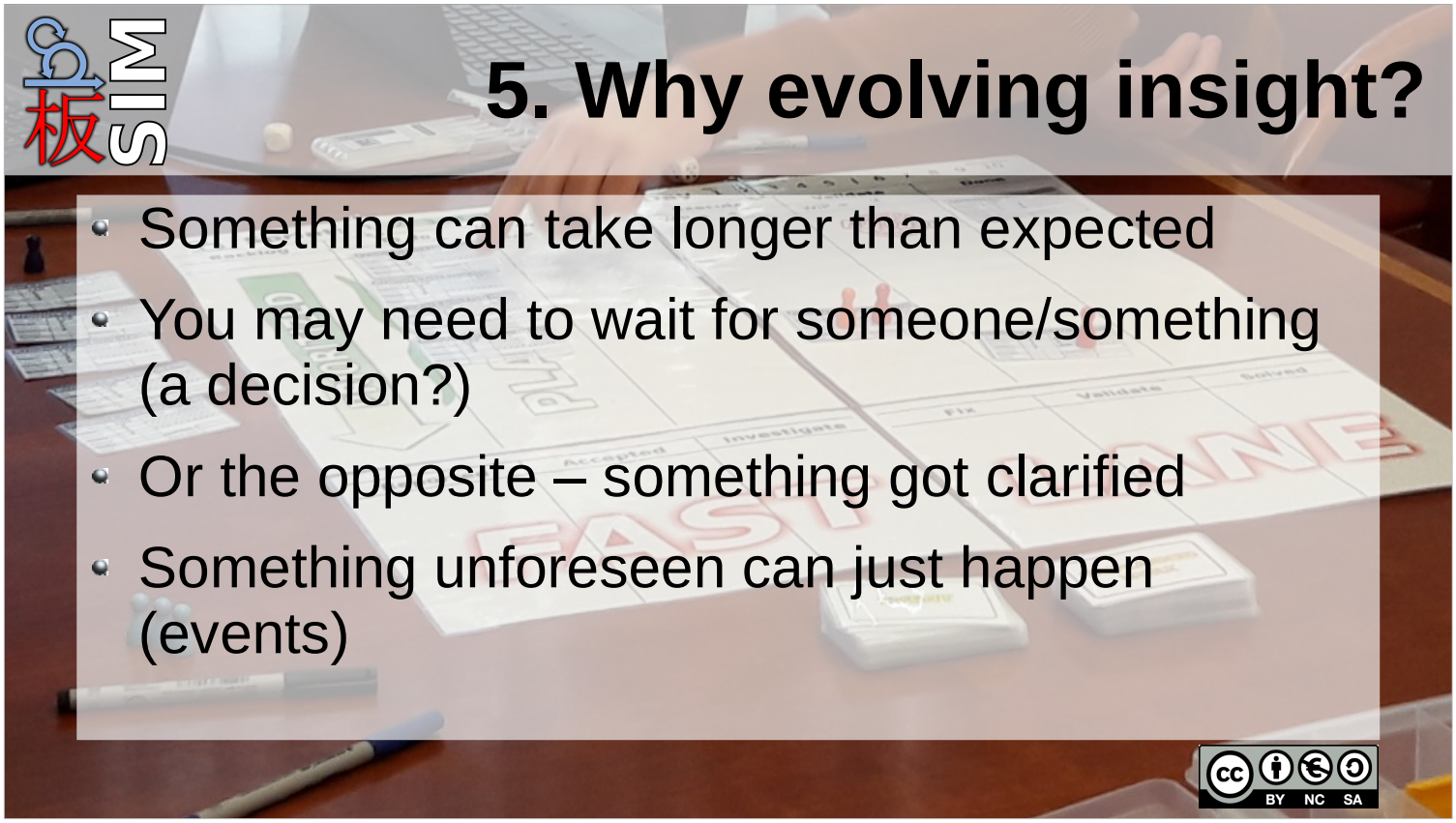
When each team member has played their round, someone throws the dice with 0, 1 and 2 to bring in unplanned work.

5. After each participant's round

- Evolving insight - use the normal dice 
  - 1: increase workload with 1 unit
  - 2: no action
  - 3: no action
  - 4: take an event card
  - 5: block item you last worked on 
  - 6: unblock any blocked item

The normal dice is used for bringing in evolving insight. This is what you have to do with the value you throw.

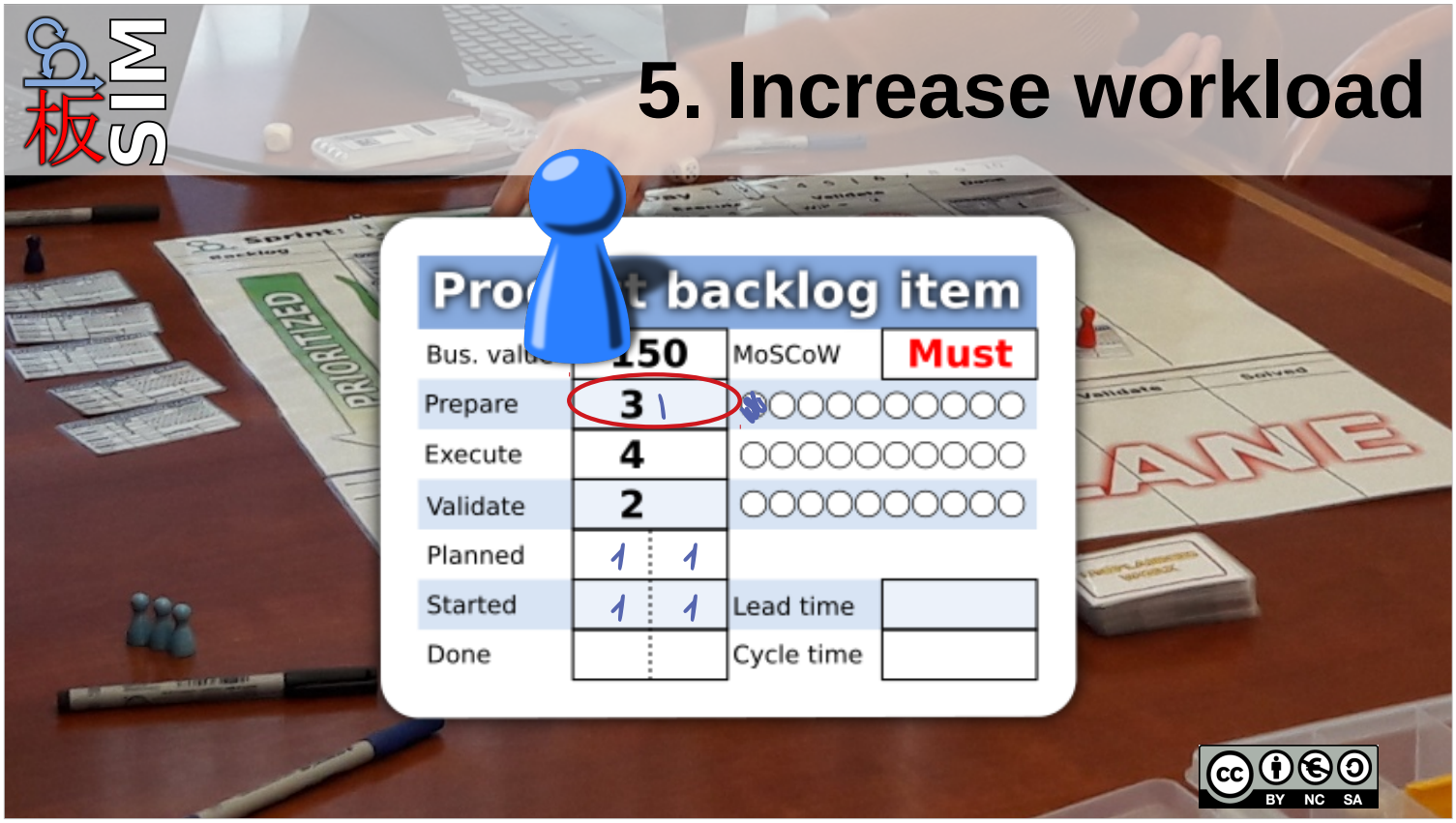
5. Why evolving insight?



Your cards contain an initial estimate but several things can happen that prevent you from finishing an activity in the estimated time.

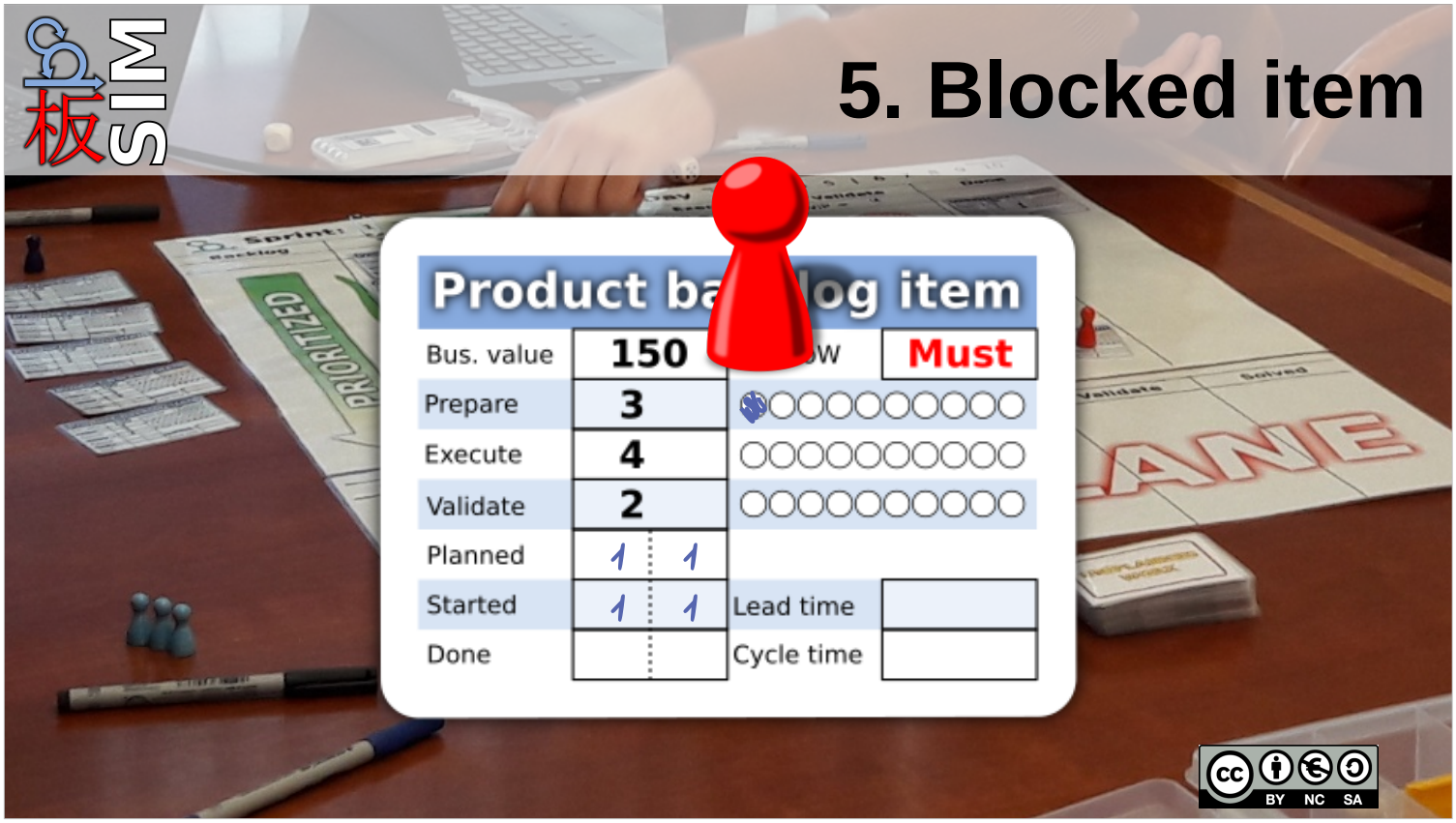
- Your estimation can be wrong
- You get blocked because you have to wait for someone or something (a decision, a deliverable)
- Or finally you can continue working because the blocking issue got solved
- Or something else can occur, that impact your or your team's capacity or availability.

5. Increase workload

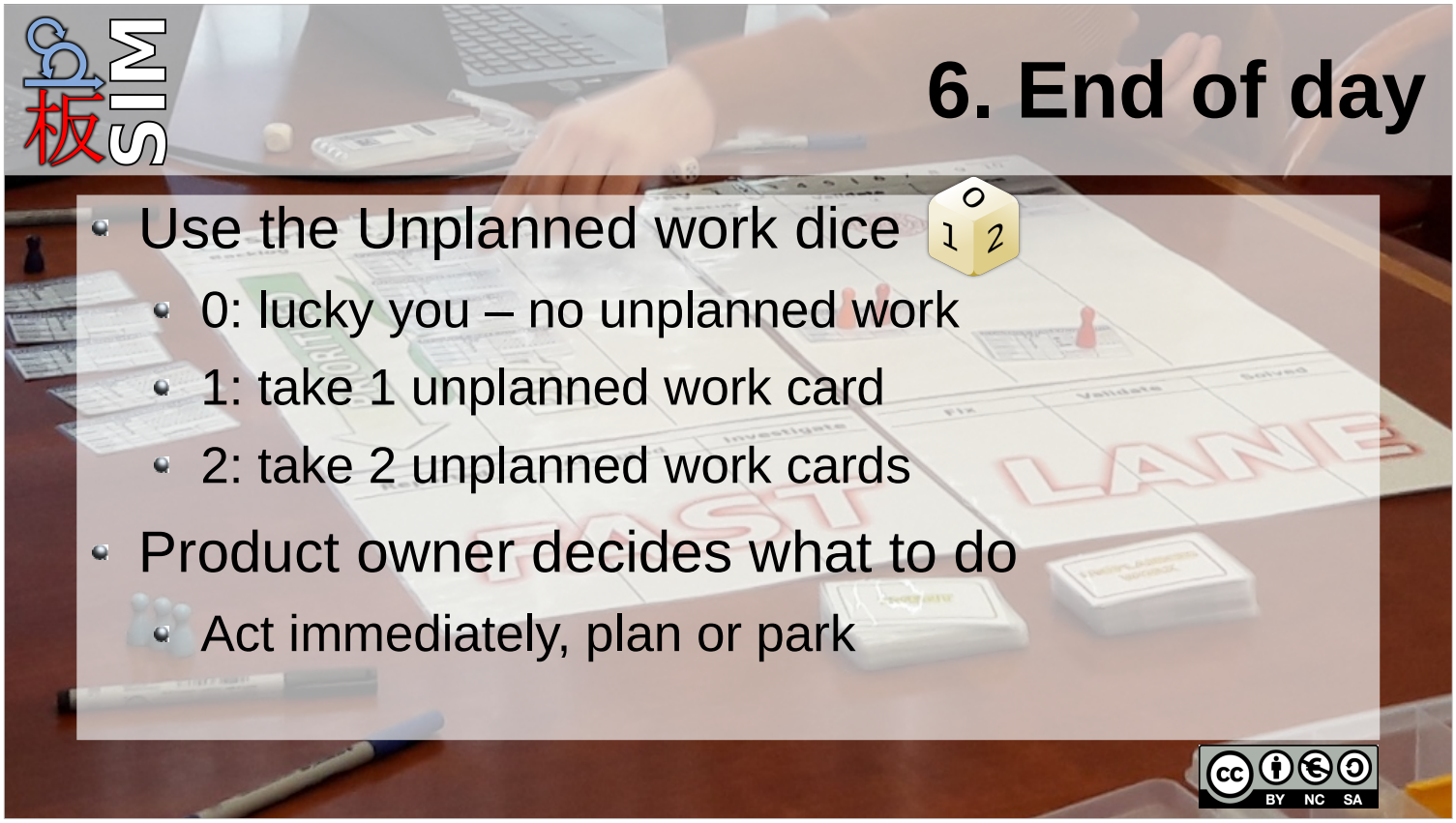


If you need to increase the workload, simply add a little mark next to the initial estimate. That is much easier than writing the new estimate. You might need to extend it more than once...

5. Blocked item



When an item gets blocked, you remove your pawn – because you cannot continue working on it – and you put red pawn on the card to mark it as blocked.



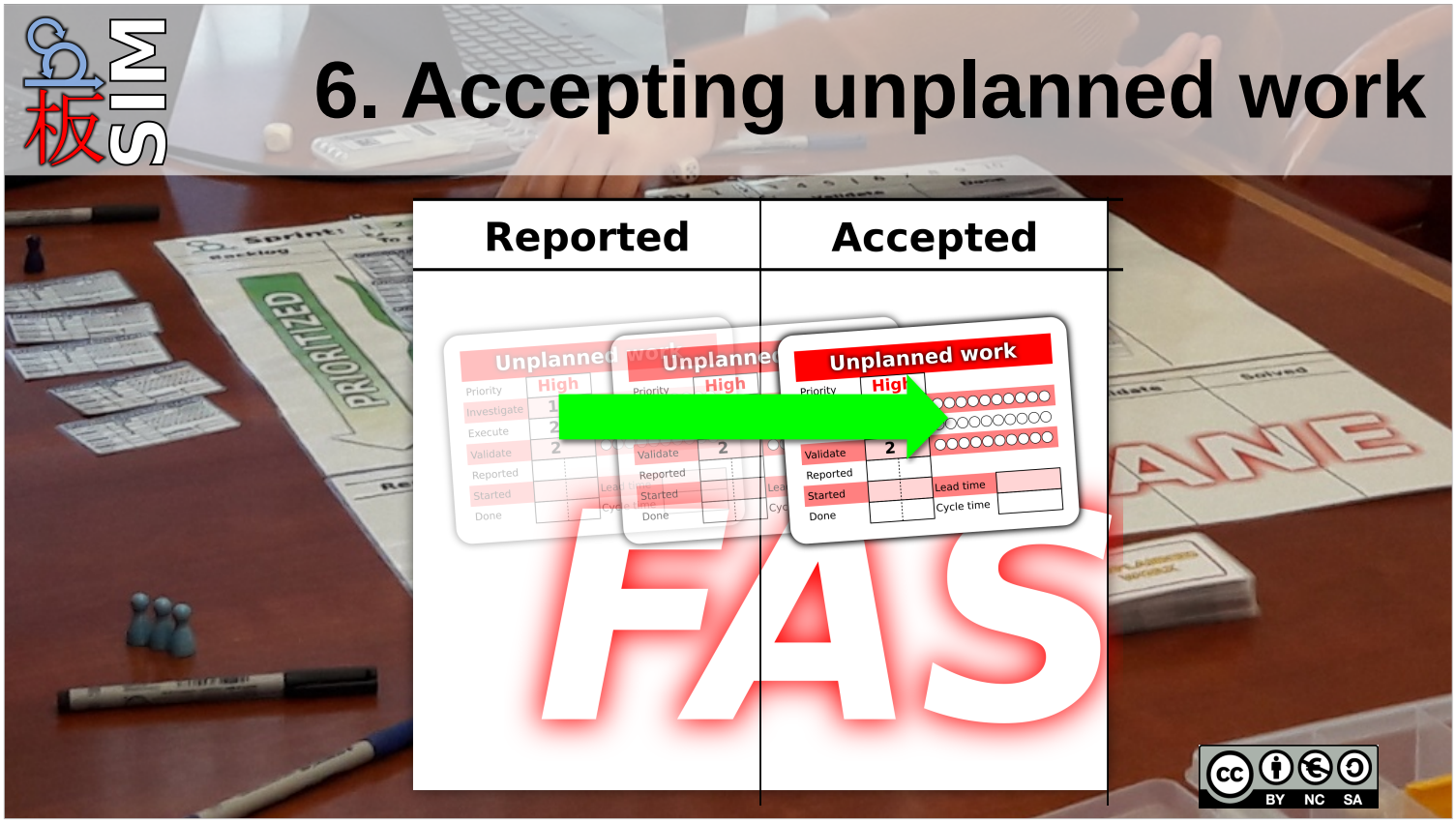
The day ends when all team members have played a round. This is when you throw the dice with the 0, 1 and 2. This will introduce unplanned work.

For simplicity we only introduce unplanned work once a day, but if you work in a context where a lot of unplanned work pops up, you can make sure this dice is thrown more frequently.

The number on the dice indicated the number of unplanned work cards to pull.

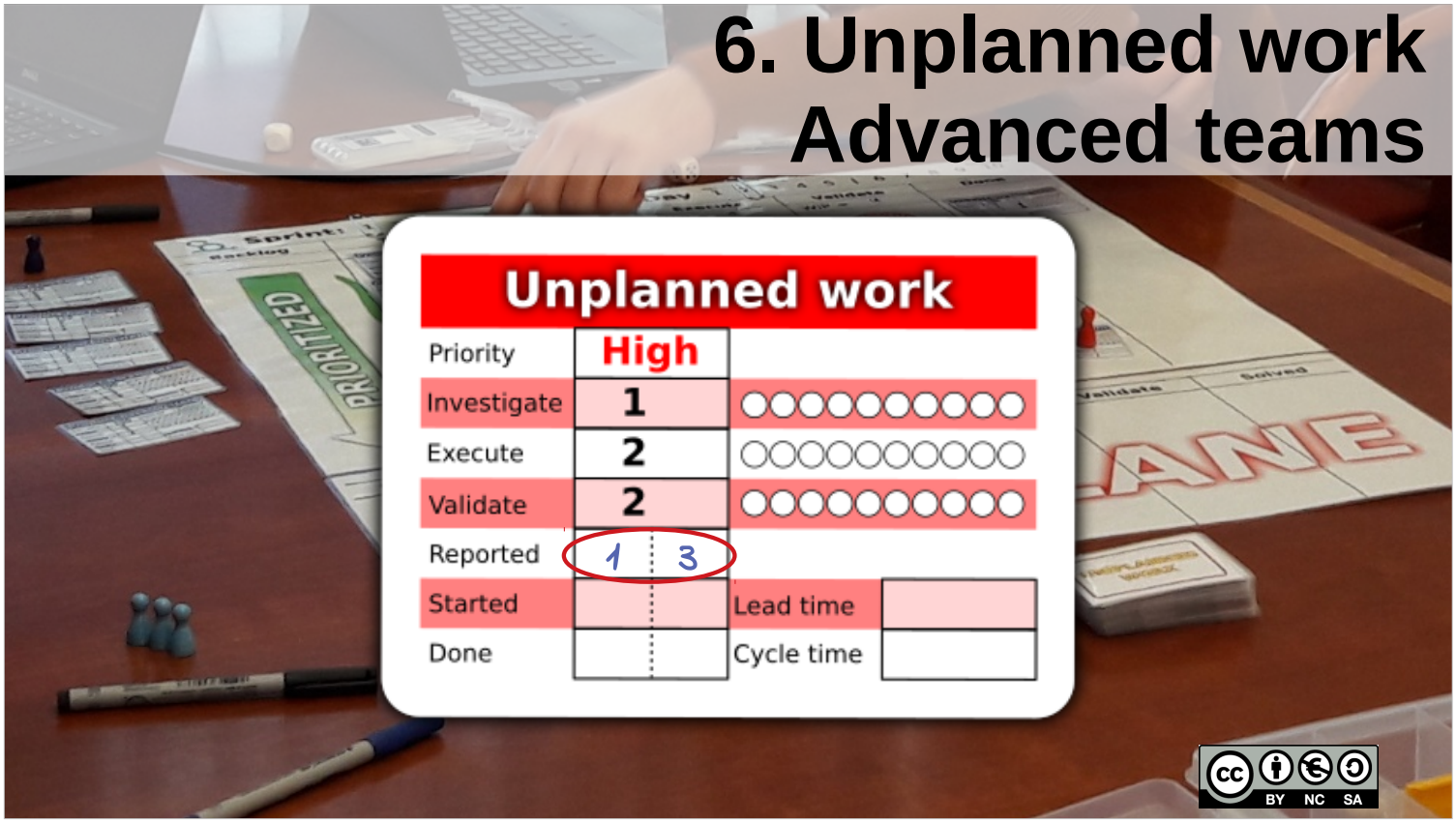
It is up to the product owner to decide what to do with the unplanned work item, based on the priority and the workload. You could e.g. decide to ignore low priority items and plan medium in a next iteration. But I don't think it would be wise to ignore high priority work.

6. Accepting unplanned work

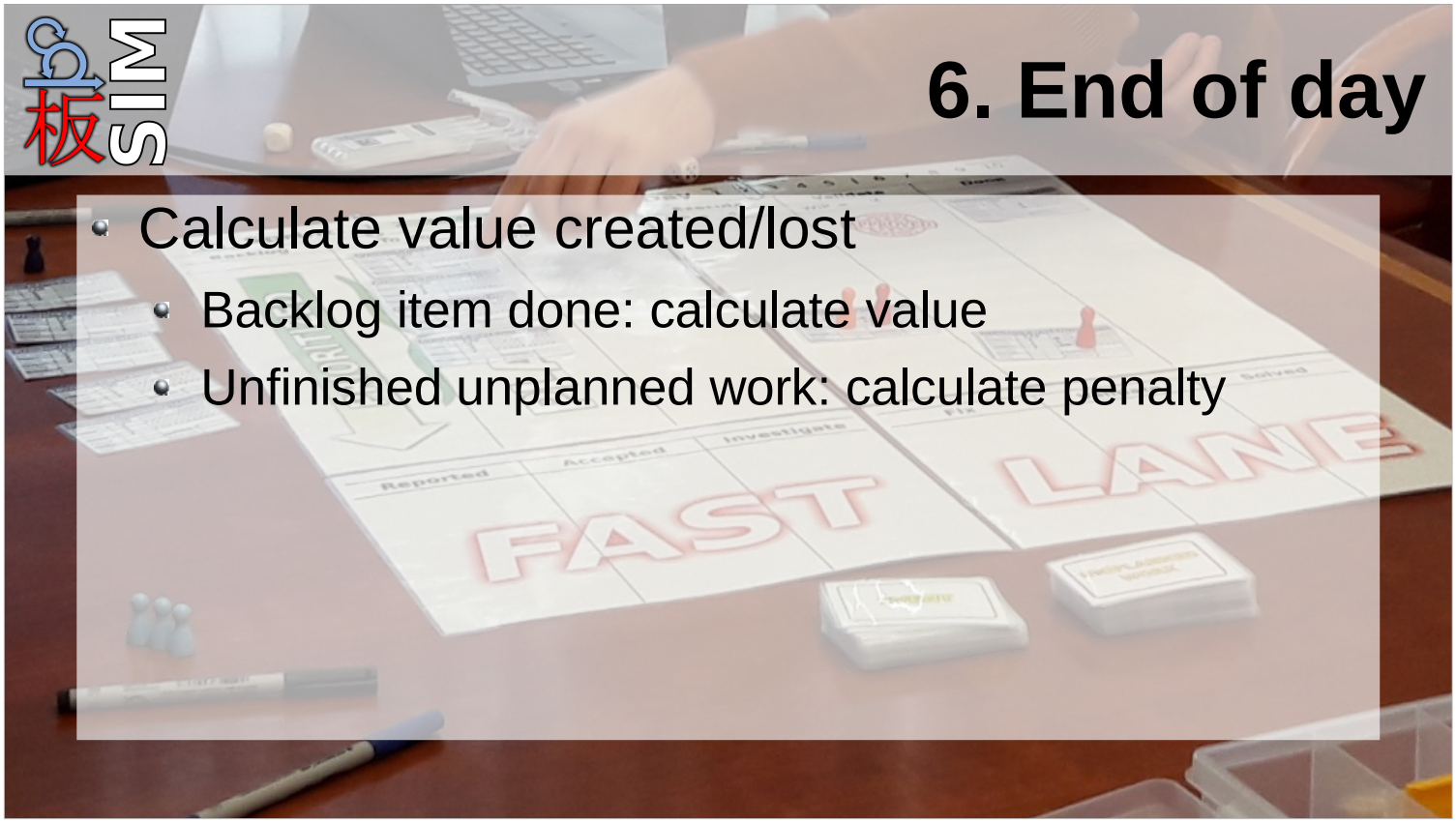


When your product owner decided that the team has to pick up the unplanned work item, you move it to the Accepted column. If not, it can remain in the Reported column.

6. Unplanned work Advanced teams



Accepted or not, if you know what cycle time and lead time are about, you can fill in the iteration number and the day of the iteration in the Reported field, so that you can calculate the cycle time and lead time once this item is done.

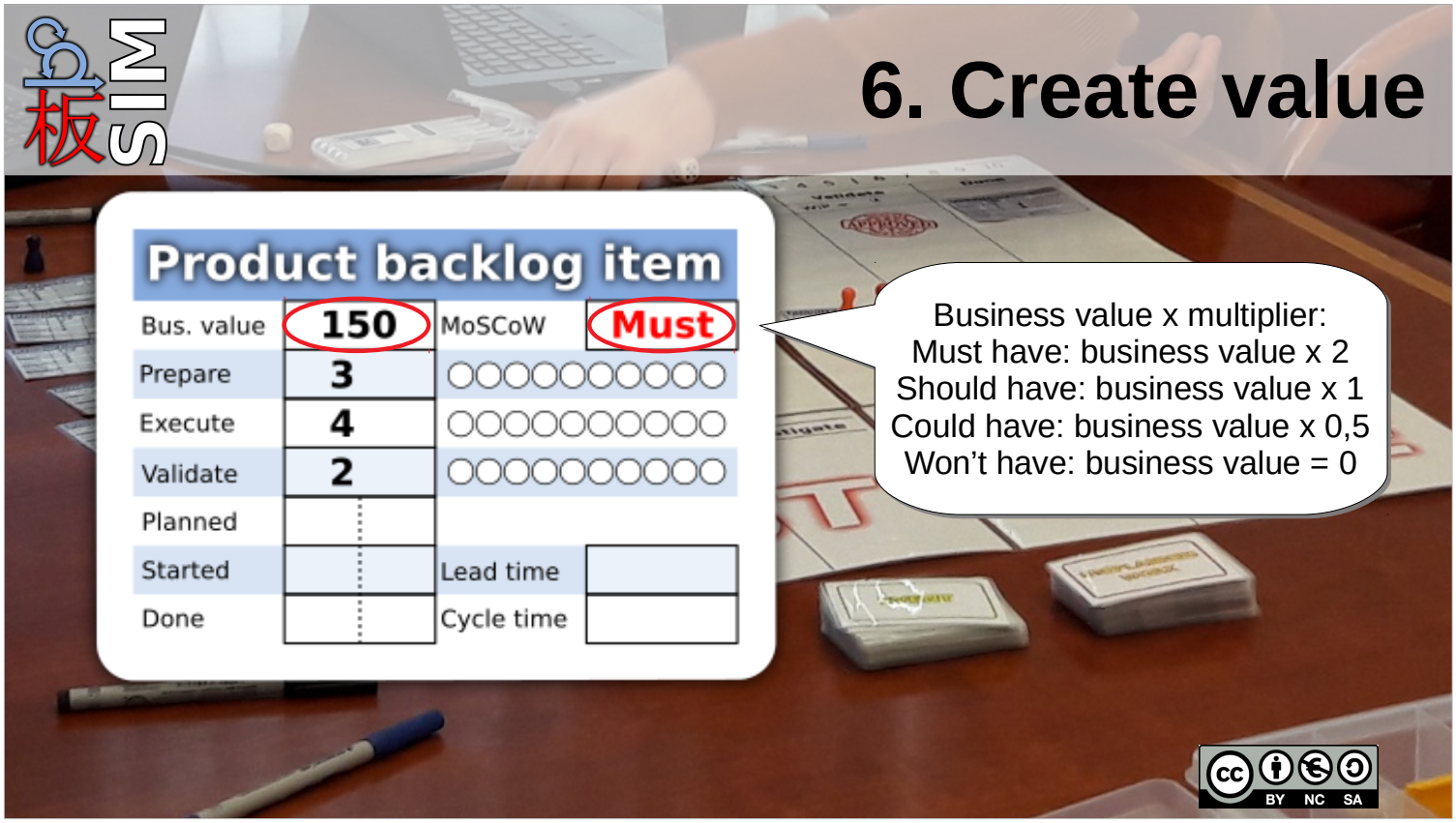


6. End of day

- Calculate value created/lost
  - Backlog item done: calculate value
  - Unfinished unplanned work: calculate penalty

The end of the day is the right time to calculate the value creation or loss.
Backlog items that got done deliver value.
Unplanned work that did not get finished will reduce the value creation for each day it did not get finished. Off course this is not applicable for unplanned work that was just reported. It only starts the next day.

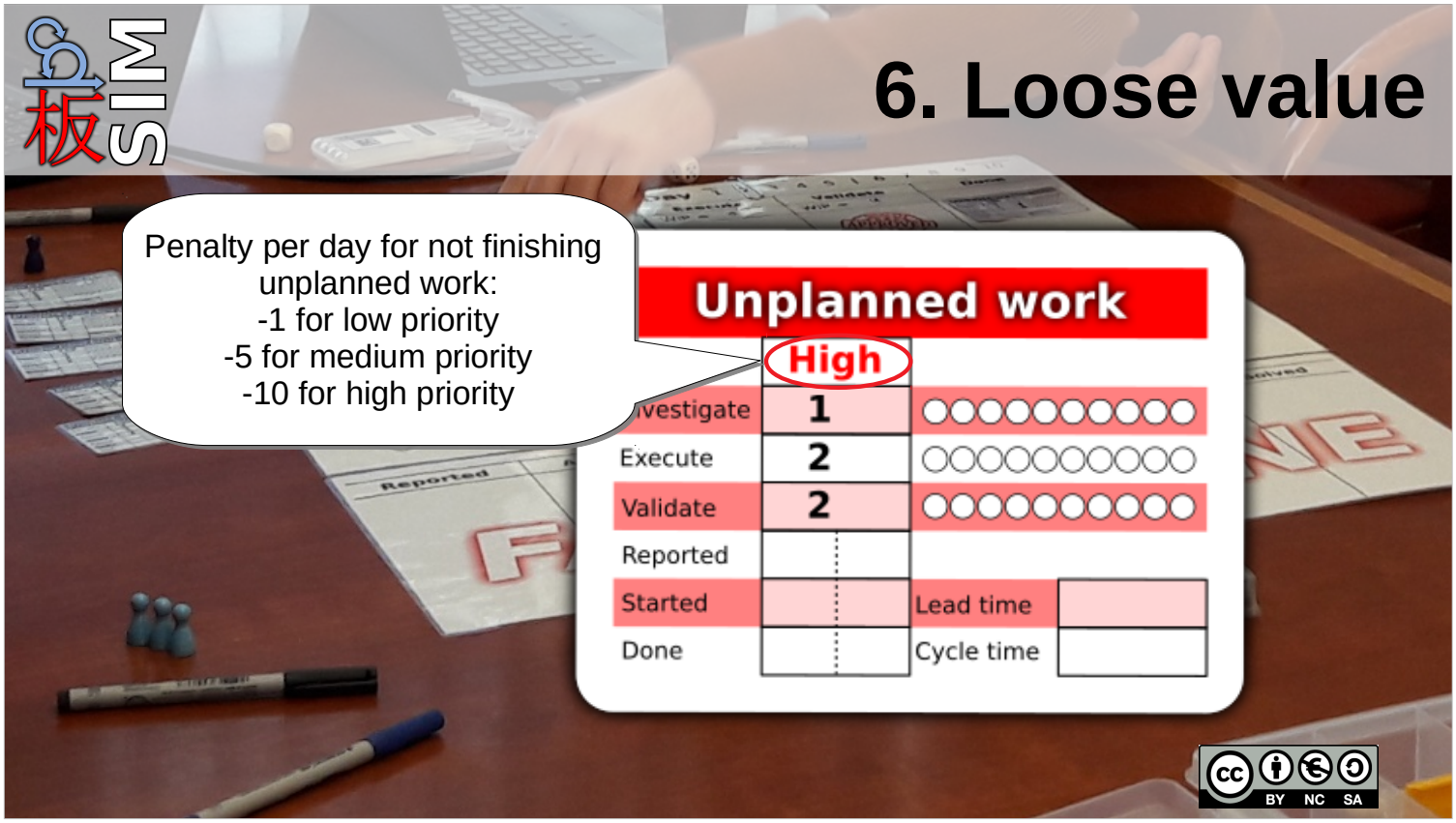
6. Create value



You create value for each backlog item that gets done. The created value depends on the business value of the backlog item and the MoSCoW score. The MoSCoW score acts as a multiplier:

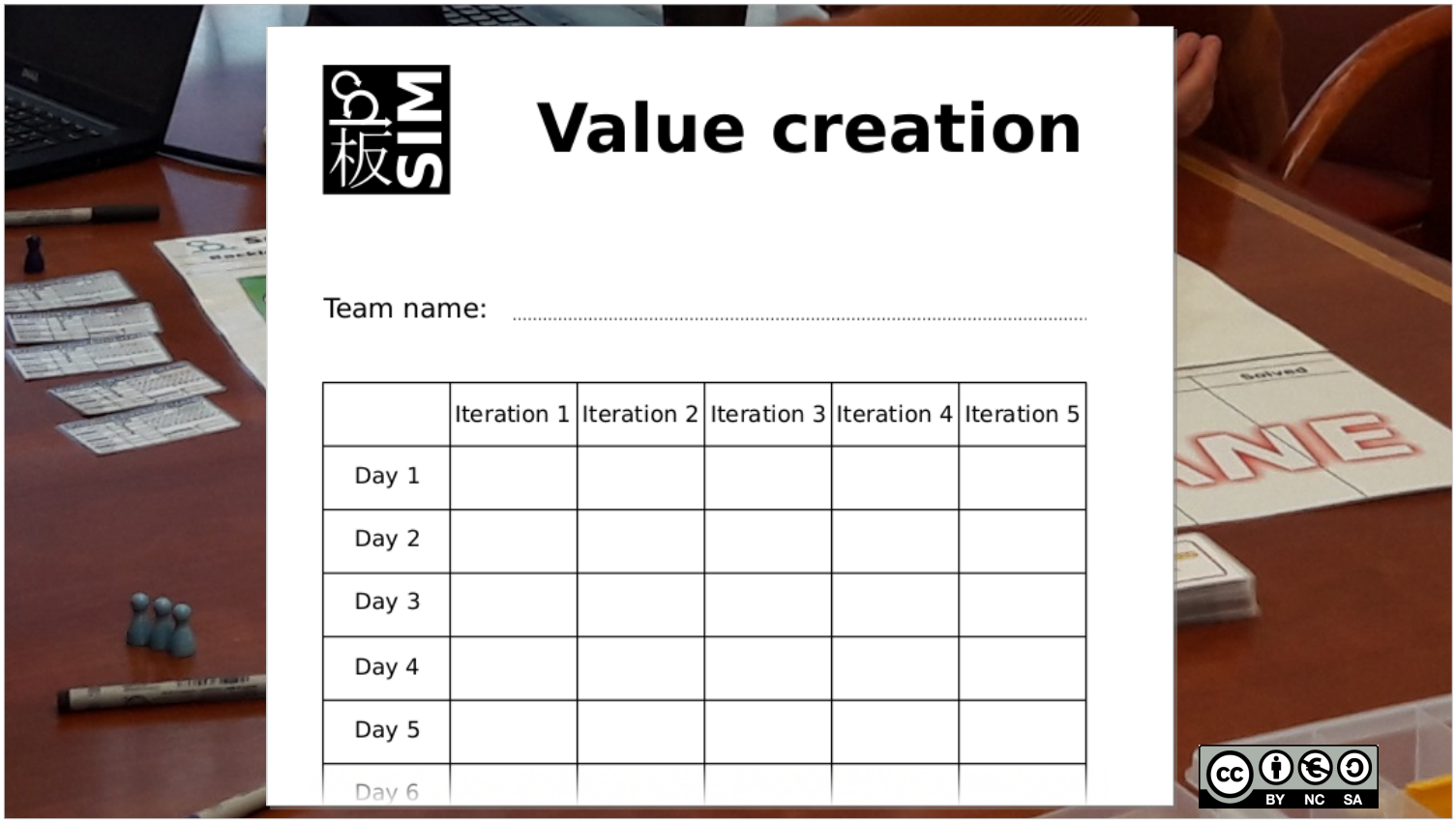
- Double the business value for must have items
- Business value for should have items
- Half of the business value for could have items
- 0 for won't have items

6. Loose value



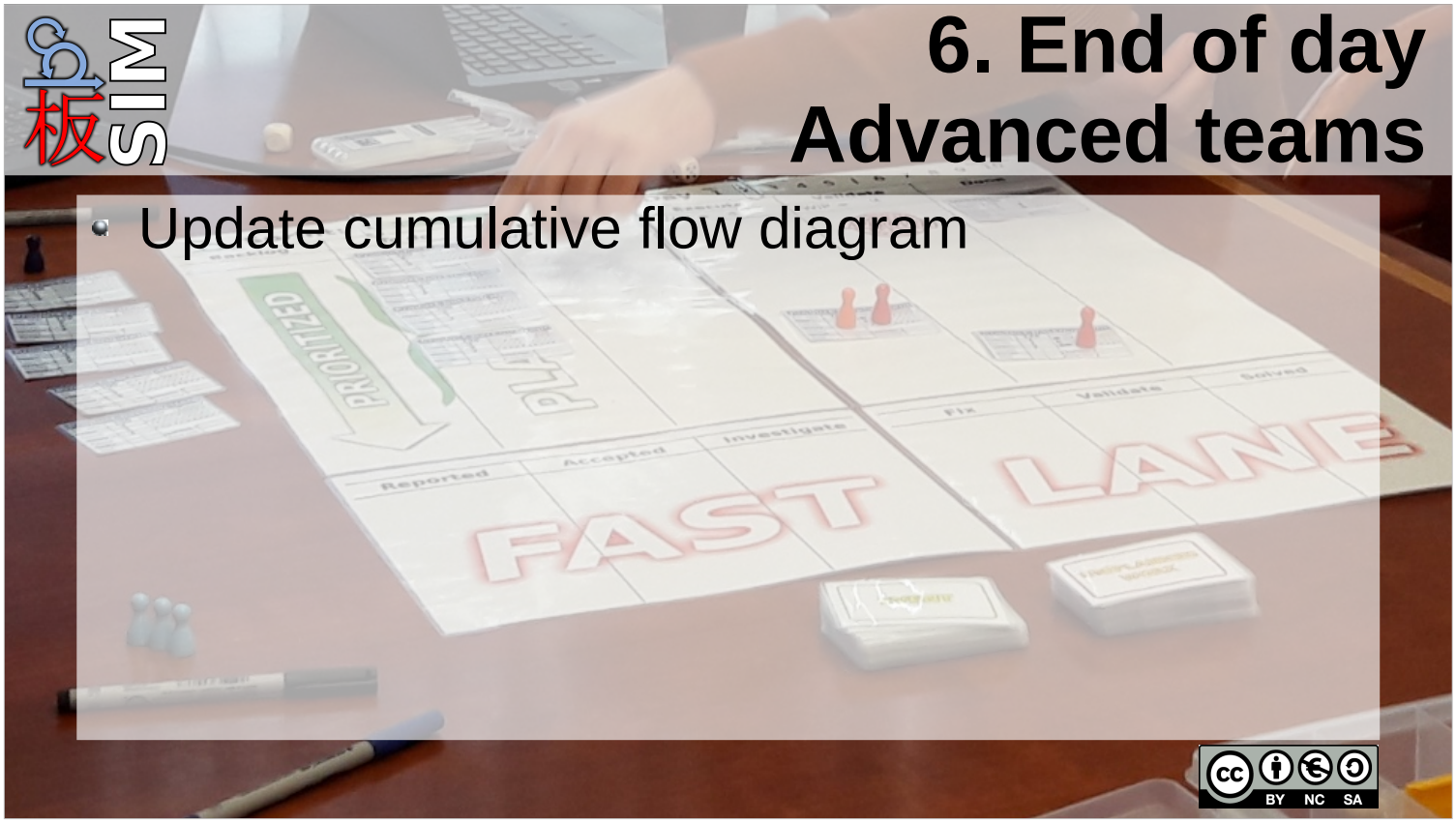
Not finishing unplanned work however has a negative impact on your value creation. Each day an unplanned work is not finished will cost you. The value you loose depends on the priority:

- -1 per day for low priority items
- -5 per day for medium priority items
- -10 per day for high priority items



On a daily basis you can write down you created or lost value on this sheet (separate PDF document available in Github).

6. End of day Advanced teams

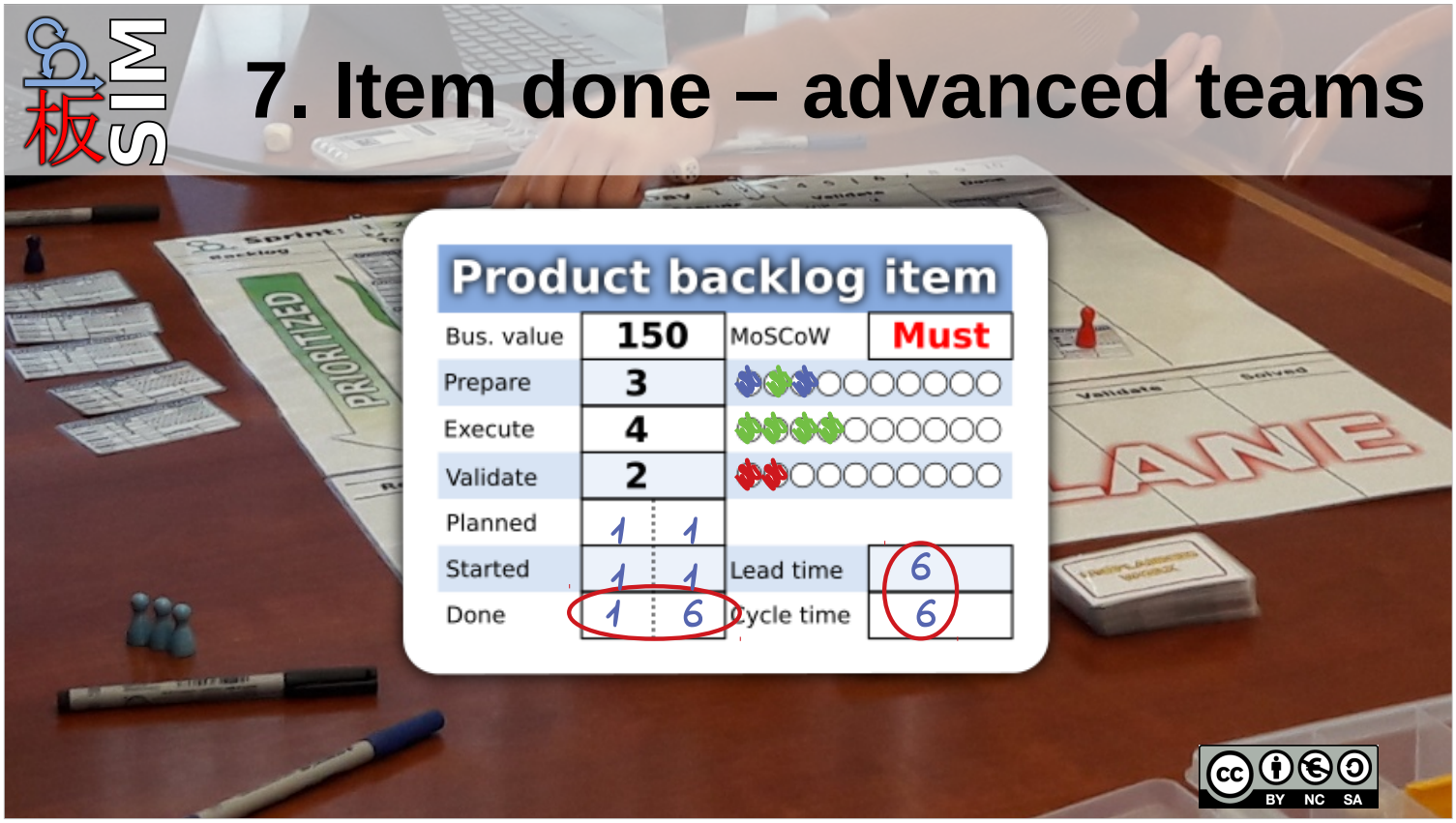


- Update cumulative flow diagram

Teams that are familiar with the cumulative flow diagram can plot how many items are in each stage:

- Planned/Accepted
- Preparation/Investigation
- Execution
- Validation
- Done

7. Item done – advanced teams

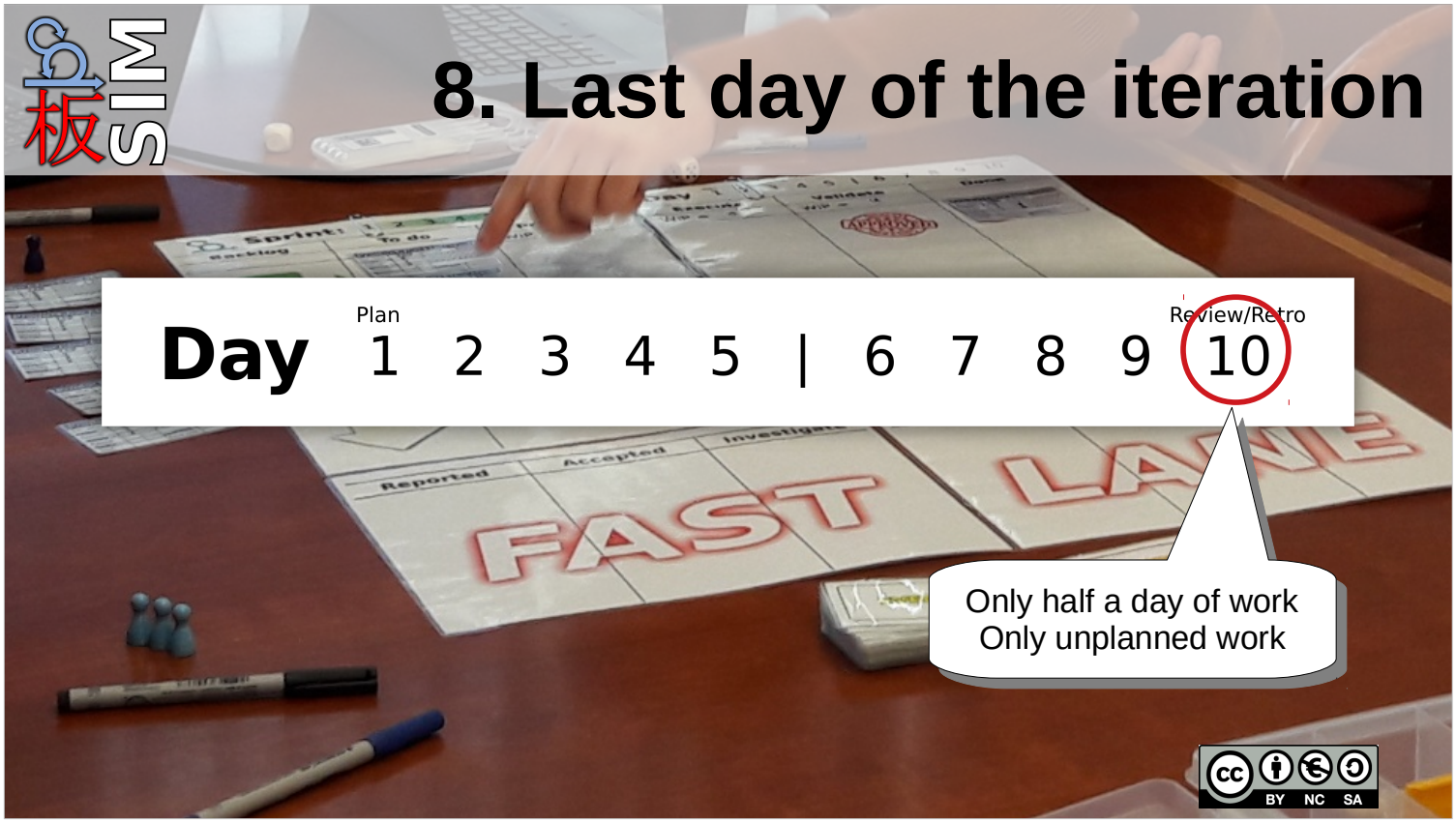


If you are familiar with cycle and lead time you can calculate these metrics for each item that gets done – be it planned or unplanned work – based on when the item got planned (or reported in case of unplanned work), started and done.

Cycle time is time needed to finish an item, counting from the day work has started.

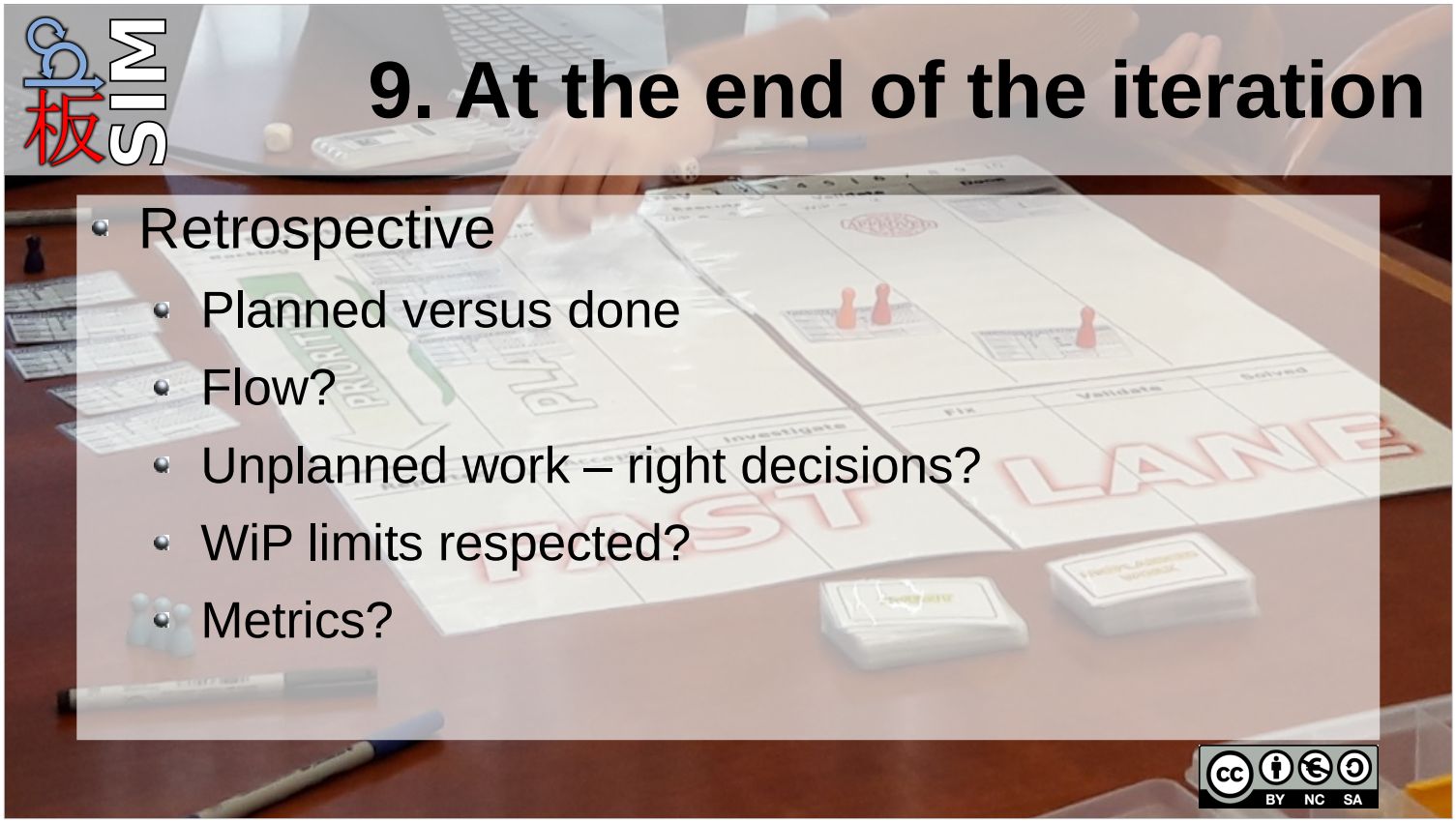
Lead time is the total elapse time of an item, from the day it was planned or reported until the day it was done.

8. Last day of the iteration



Just like the first day of the iteration, also the last day is a special one. The last day of the iteration is typically the day of the review and retrospective meetings. So you already loose halve a day because of these meetings. In practice this means you can only spend 1 unit of work within your specialty.

You also want to make a good impression during the review meeting, so have to properly prepare this review meeting. This means that you cannot work on backlog items, because this could impact your review meeting. Instead you can only work on unplanned items.



At the end of the iteration, you do your review meeting and retrospective. In this simulation there is nothing to review, but you can do a retrospective.

Take your time to evaluate (one or more of) the following items:

- Were you able to deliver what you had planned? If not, why? What can you do about it?
- Was there a good flow of work? Or did work pile up in a certain stage? Did you as a team member stick to your specialty or did you help others to get work done?
- Did you as a team take the right decisions regarding unplanned work: act immediately, plan or park?
- Did you respect the WiP limits you defined? Did they help you manage the flow?
- What metrics did you apply? What did you learn from them?

Enjoy the simulation!