The Kanban Game

Kanban, Pull and Organizational Change Management



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# Introducing the Game

The purpose of the game is to teach the mechanics of a pull system, the benefits of limited WIP and getting things done, the importance of managing queues correctly, the metrics that should be captured in a pull system, how to use those metrics to enact effective change, and how a team can effectively self-organize to accomplish the goals

# Setting Up The Game

## The Facilitator

The job of the facilitator is to keep the game going, help the participants see and understand the principles and practices of a Kanban system, and offer insight through questions and comments about the current state of the game in relation to the goals of the participants.

The facilitator should have a strong understanding of Kanban and Pull systems, the metrics being captured, and how those metrics should facilitate improvements in the system. The facilitator should also have some experience as a team coach and engaging team members in Socratic dialogue to enable learning.

## The Participants

To keep the game moving and prevent interest from waning, I recommend no more than 5 to 7 participants in addition to the facilitator. As the team grows in size, it takes more and more time to complete a round, which may cause interest to drop over time.

Prior to playing the game, the participants should have a least a cursory understanding of what a Kanban system is – how to visualize a process and identify queues, why limited WIP is important, and the basic mechanics of a pull system. This can be done just prior to the game being played, or can be done via other presentations and discussions at an earlier time. Once the participants have such an understanding, you can set up the basic playing area for the game.

## The Game Board

A very large whiteboard is the optimal playing area for the game. I recommend at least 8 to 10 feet wide and 3 to 4 feet tall. If you can get a larger area, you should. If no whiteboard of sufficient size is available, a large sheet of paper should suffice.

The game play area should be set up to represent a simple system that work will flow through, as a visual task board with queues and areas to notate the work in process limits. The steps in the process that will be drawn onto the game play area should include:

* **Ideation**: the area where work items first appear in the game. Represents some initial ideas about what the system may need to do. This is a queue of items that are ready to be worked through the system
* **Problem Definition**: the first ‘work’ step of the game. Represents anything from requirements gathering to analysis, and any other task that may be involved in understanding the problem to be solved. There should be a ‘Done’ queue attached to this step, to hold work that has been completed and is ready for the next step
* **Solution Definition**: the second ‘work’ step of the game. Represents the design and implementation of a solution to the problem, including UI design, software development, and any other tasks involved in creating a solution for the defined problems. There should be a ‘Done’ queue attached to this step, to hold work that has been completed and is ready for the next step
* **Demo and Delivery**: the final ‘work’ step of the game. Represents the process of demoing the working solution to the customer, obtaining any needed feedback, and making final delivery of the solution into the production environment
* **Delivered**: the ‘output’ of the game. All work items should eventually end up in this holding tank. Final metrics for work items will be calculated when work items reach this step.

I recommend that no more than three ‘work’ steps be included in the process, once again to facilitate the continued movement of the game and keep interest of the participants.

The Kanban board, when drawn on the game play area, should resemble the following:

## Tracking Round and Roll Order

Beside the Kanban board, an area should be marked off to keep track of the round number and the order of dice rolls for the participants.

The dice roll order is arbitrary. It does not matter who goes first and who goes last and the order is not tied to the specific functions (steps in the process) or activities that a given person may participate in during the game.

Round # is used to calculate how long a work item has been in the system as a whole, as well as the individual steps. A round is started when the first person in the dice roll order is ready to roll the dice. A round ends when the last person in the dice roll order has rolled their dice and performed the appropriate actions.

## Tracking Metrics

An area should also be marked off to track to the metrics for the game, including average lead time, average time in queues, process cycle efficiency, etc. The list of metrics that should be captured and why, will be detailed later in **Playing The Game**.

## The Work Item Cards

To simulate work in the system, work item cards should be created. These cards will contain information about how much work needs to be done for each step of the process, as well as metrics to show the performance of the team in each of the steps and for the system as a whole, concerning the individual work item.

The work item cards should be laid out on 5x7 index cards, horizontally, and should contain a column for each of the steps in the overall system process. Additionally, a final column for tallying the metrics for the card, after the card has completed its processing through the system, should be present.

# Playing the Game

## The Goals of the Team

The primary goal of the team is to complete the work items with the lowest possible lead time per work item. The team should focus on preventing bottlenecks from building up high WIP.

Additionally, the team should prevent resources from being starved for work as this causes unnecessary overhead on the team.

## The Rules of the Game

The basic rules of the game are fairly simple:

1. The team of participants decides how to organize to get work done and can reorganize at any given time, to facilitate getting work done more efficiently. Try to be ‘realistic’ about how the team is organized
2. The team of participants decides on the WIP limits of each step and can change the WIP limits at any time, provided they can state reasons for the change. Try to be reasonable about the WIP limits.
3. Don’t exceed the WIP limits of any given step

## Playing the Game in Rounds

The game is played in rounds. The purpose of the rounds is to keep the game orderly and also to help generate the needed metrics. A round of the game is started when the first person on the Dice Roll Order is ready to roll the dice. A round of the game ends when the last person on the Dice Roll Order has rolled their dice and performed the necessary actions.

### The Round Begins

At the beginning of each round, mark the current round number in the Round # area.

### Decide What to Work on

The first person on the Dice Roll Order will decide which work item to work on, if any are available and if they have the capacity to do the work. If there are multiple work items available for the person to work on, the person should decide which item they are going to work on before rolling the dice.

### Pulling In Work

If no work items are currently available for the person, they may pull in a work item from the previous step’s ‘Done’ queue (or the ‘Ideation’ queue if the person is working on the first ‘Problem Definition’ step).

If work is available for the person, and the current step in the process that they are intending to work is at its WIP limit, the person is not allowed to pull work into that step.

If no work is available for the person, after examining all options, they lose their turn.

### The Dice Rolls

If the person has work to do, the person then rolls the dice and performs the appropriate actions.

There are multiple possible outcomes for any given dice roll, including ‘successful’ rolls, ‘failure’ rolls, and ‘Draw A Card’ rolls. Each of these outcomes has specific actions that need to be taken.

The following is the list of possible rolls, based on standard 6 sided dice:

**1 – 4: Successful Role**. The work item that was chosen is marked with a ‘Successful’ tick

**5: Draw A Card**. The person doing the work draws a card and performs the actions stated on the card, including any potential benefits or detriment to the system and team. The ‘Draw A Card’ actions may or may not have an impact on the work item that was chosen.

**6: Failure Role**. The work item that was chosen is not updated with any tick marks and no additional action is taken.

Completing A Task

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