**FireDice** - A game about flow & WIP using cards & dice

*Game Objective and Rules of Play*

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**Game Purpose & Objectives**

FireDice is intended to allow players to explore prioritizing work dynamically and managing an appropriate amount of Work In Progress seeking to promote flow and maximize the value delivered. The game allows players to experience “pull” and challenges participants to prioritize work using economic and value-based criteria. Players are incentivized to complete work quickly as the value each completed task provides decreases as the cycle time to complete the task increases – if a committed task takes too long to complete, players will lose value so as to simulate a penalty after a key deadline is missed. Work capacity in the game is determined at random by rolling dice to allow players to gain experience in reprioritizing frequently seeking to deliver value even if capacity becomes limited.

In advanced levels of the game, players can experiment with investing some of their winnings to increase capacity and/or have greater flexibility in how capacity is allocated – while investment will reduce short-term earnings, it may allow for greater long-term value to be achieved.

As the game is played, teams have the option to create a Cumulative Flow Diagram, Control Chart and Earned Value Chart to gain experience tracking recommended flow metrics to assess the impact of changes made.

**Simulating Work & Pull**

In FireDice, work is simulated by pulling cards blindly from a shuffled deck – sorting the deck (backlog grooming) to maximize value is not allowed as the intent is to simulate a scenario where teams do not have the ability to control the work they commit to (aka a service or help desk); however, once a card is pulled, it can be prioritized in relation to other committed work seeking to maximize the value delivered & avoid penalty. The value of a completed work item is based upon the face value of the card (11 points for face cards and 20 points for jokers) and several other factors noted below - cards with higher face value could provide greater value. As the game does not have set WIP limits (unless players choose to create them) players can explore expediting high value cards over low value cards, etc.

A card is completed by pulling it through a 5 step workflow (Design, Code, Review, UAT, Deploy) – the capacity to pull a card into a station is determined by rolling the die or dice allocated to that station in accordance with the following rules:

- **White Dice** – Single Station Pull – when a white die is assigned to a station and rolled, players pull the number of cards rolled into that station. Players should allocate the die to a station BEFORE rolling it, then pull in the number of cards rolled into the station. If the prior station has fewer cards than what was rolled, players will pull in all cards (leaving the prior station empty) – should the prior station be exhausted with pull capacity remaining on the die in play, additional pulls on the die in play are LOST. Players may roll another white die on the station later during the day if the prior station is replenished and an addition die is available.

  Example: A player rolls a 6 for Station 2 (to pull cards from Station 1 to Station 2) but Station 1 only has 4 cards – player pulls in all 4 cards from Station 1 (leaving it empty), the ability to pull 2 more cards from Station 1 is immediately LOST immediately.

- **Red Fire Dice** – Multi-Station Pull (Generalizing Specialist) – once Fire Dice enter into game play (Level 3 – see below), rolling a Red Fire Die allows cards to be pulled into any station in the workflow. Players are allowed to roll a Fire Die and then decide where to pull cards based on what was rolled.

A game of Fire Dice simulates a time-boxed period of work (such as a sprint in Scrum), teams are allowed to roll each of their dice ONCE per day. Players may roll their dice in any order desired. Once all dice have been rolled once, it’s time to move on to the next day – at the end of the day, players update their score sheets. Charts would also be updated at the end of each day for groups charting metrics for work in progress, flow and earned value while playing.
Game Progression & Levels
It is recommended for groups to through the 3 levels of FireDice to experience different schemes for prioritizing effort and investment while seeking to maximize flow and value – most players enjoy playing several rounds at each level of the game so they can explore different strategies. Each round consists of a fixed number of days so gameplay is intended to simulate a short period of work on a software project. Each round begins with no work in progress and a penalty is assessed against the final score for any committed work that has not been completed by the last day. Each level adds additional complexity and choices for players to consider so it is recommended to begin at Level 1 and then progress to higher levels to promote learning.

**Level 1** – Fixed work capacity with no additional investment allowed (focus on flow) – Teams are limited to 4 white dice and are challenged to determine/adjust WIP limits to maximize flow and value using the 4 white dice available. Teams are not allowed to invest in additional white dice or trade white dice for Fire Dice.

**Level 2** – Opportunity to invest in additional work capacity (focus on capacity) – Teams begin with 4 white dice, but are allowed to invest in additional white dice at an expense of 25 points per additional die. The points to obtain additional white dice will initially reduce a team's earned value; however, increased capacity may allow for a team to gain value faster as the game progresses.

**Level 3** – Investment & Flexibility in work capacity (dynamic prioritization) – Level 3 begins with the same rules as Level 2 (ability to invest in additional capacity – 25 points for each additional white die), but allows teams to explore the pros/cons of having greater flexibility in how they allocate their work. As soon as a team has completed 1 card, at the end of each day in the game, the team may trade in 2 white dice for a single Red Fire Die; however, no more than half of a team’s total dice can be Fire Dice at anytime.

Example: A team has 8 white dice, they can swap 4 white dice for 2 Fire Dice resulting in 4 white dice and 2 Fire Dice, but the team cannot swap 6 white dice for 3 Fire Dice, as that would leave them with 2 white dice and 3 Fire Dice, where the number of Fire Dice would exceed half of the team’s total dice count of 5.

Once a team swaps 2 regular white dice for a Fire Die, they may not swap back.

**Earning and Losing Points (Improved for Agile2015)**
The points earned for each completed task / card are determined as follows:

**Committed Tasks completed with POSITIVE VALUE:**

\[ \text{(Card Face Value)} \text{ MINUS } \text{(Cycle Time in Days)} \times 2 \]

---- Face Cards (Jacks, Queens, Kings, Aces) = 11 base points

---- Jokers = 20 base points

**NEW – Committed Tasks completed with NEGATIVE VALUE (Completed BUT you missed a key deadline):**

OUCH

Come find out on Friday, August 7 at 9 AM at Agile2015 (Chesapeake 10/11/12) - [http://sched.co/36R3](http://sched.co/36R3)

Yes, 9 AM the morning AFTER the conference party – FireDice = Fun – You will not fall asleep!

Scoring Examples:
- 9 of Hearts completed in 3 days \| (9 - 3) \times 2 = 12 points
- King of Diamonds completed in 4 days \| (11 - 4) \times 2 = 14 points
- 3 of Spades completed in 6 days \| (3 - 6) = -3 \times 2 = -6 \text{ (OUCH – Find out more at Agile2015)}

**Winning the Game (however EVERYONE wins by learning while playing the game regardless of your team’s score)**
The points earned for work completed each day will be tallied on the score sheet, including subtracting points that were lost due to negative point values. On the last day of the game, a penalty is assessed for any card not completed – the total penalty is subtracted from each team’s final score to determine the winner.