

Golf Round Management

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Overview: Managing a golf round during a tournament can be quite a difficult and overwhelming task. Golf is one of the oldest sports still being played in the modern times, where players use a collection of golf clubs and other assisting tools, such as markers and tees, to hit one ball into a series of holes on a golf course with a goal of minimizing the number of strokes. While the sport has been around for a few centuries, the game itself and its associated resources have also evolved over time. The collection of golf clubs is constructed and personalized for each individual player, in which the clubs range from different lengths, weight, and loft angles. The clubs are utilized under situations specifically needed by the golfer, such that the distance, position of the ball or lies, course landscape, and weather requirements are all evaluated. A standard golf round in a tournament for PGA Tour, a nonprofit that organizes professional golf tours in the United States and North America, consists of 18 holes while the game is oftentimes played on a golf course with par values of 72, which accounts for holes with values of par 3, par 4, and par 5. The system is managed under a shot-by-shot basis, where players strategize their game by focusing on each individual shot.

What is being organized? A golf round, as an organizing system, involves interaction with many resources, ranging from digital to physical form on a complex level. For example, the player often encounters golf carts or rangefinders that calculate and display the distance in yardage from the current position of the player to the position of the flagstick; the player could also be simply examining the distances with his or her eyes with reference to different colors of fairway yardage markers that serve as distance measurement bins to inform distance to the green (a delicate area at the destination of each hole where the flagstick and the hole are located). The green is where the putting game takes place, where golfers use putters to precisely send the ball into the hole in order to complete the current hole. Moreover, in association with the green, there is another different set of resources to interact with. For instance, golfers are required to use markers to identify the placement of the golf ball on the green if it is in the way of another golfer's putt. Additionally, golfers usually carry with them divot tools to repair the divots around the putting greens, that may have resulted from the landing of an approach shot or other external factors. Divot tool is an important resource in terms of helping the turf recover at a faster rate as well as helping to restore a smooth surface for good playability. It is also important to note that another resource that stimulates much interactions during a round is the caddie. A golf caddie is a person with a decent amount of expertise in golf who carries the golf bag and is also capable of giving advice to the player during a golf round. The caddie as well as his or her advice are important resources that professional golfers interact with on a daily basis.

However, the most important resource in a game of golf would be the set of golf clubs. The player is constantly making small and big decisions on which clubs to use as they analyze the ball position as well as other environmental resources. The number of clubs being used in a

round is then dependent on the player's preference and needs, like the majority of this organizing system. At PGA tournaments, golfers are only permitted to have a maximum of 14 clubs in their golf bag with no minimum requirement. A full standard set of golf clubs consists of one driver, two fairway woods, one hybrid or utility club, a pitching wedge and a sand wedge, one putter, and six irons. Clubs of longer length carry further distance while clubs of shorter length can better target shots of precision. The golfer is in charge of his or her own set of golf clubs in a round by making every final decision on when to use which club.



Source: <http://blog.vootygolfcounty.com/an-introduction-to-different-types-of-golf-clubs-and-their-respective-uses/>

Club Type	Distance (yard) for PGA Tour Players	Launch Angle* (degrees) for PGA Tour Players	Conventional Use
Driver	270 and above	10.9	It is usually used for the primary hit of long par 3's, par 4's, and par 5's from the tee to provide a maximum travel distance
Fairway Woods	230 to 310	9.2 to 9.4	They are used for target distances that are beyond the range of irons on the fairway. They can also be a good substitute for drivers if golfers desire for more control of the ball.
Hybrids	200 to 260	Around 10.2	Hybrids are designed to have both the

			characteristics of irons and fairway woods for golfers who struggle with long irons or fairway woods. It provides high precision while keeping a long carry distance.
Long Irons	180 to 250	10.4 to 14.1	Long irons, such as 3-iron and 4-iron, are typically harder to hit compared to short irons though they are still used for more precise shots from the fairway to the green. Shots of long irons have lower trajectories and longer rolls.
Short Irons	140 to 170	16.3 to 20.4	Short irons, such as 9-iron and 8-iron, are typically easier to master as they provide even more precision than long irons for an approach shot. Trajectories of short irons are much higher.
Wedges	80 to 140	24.2 and above	Wedges are typically used near the greens or in the sand traps depending on the type of the wedge.
Putters	30 and below	N/A	Putters are the final club used in each hole where golfers use them to send the ball into the hole.

* Launch angle is the initial angle of ascending of the ball immediately after impact.

Sources:

<https://thegolfnewsnet.com/golfnewsnetteam/2020/02/21/how-far-pga-tour-players-hit-ball-average-distance-102775/>

<https://blog.trackmangolf.com/trackman-average-tour-stats/>

On top of the digital/informational and physical resources that were previously mentioned, golfers also have to interact with situational resources, which is oftentimes the most difficult part of the game due to its unpredictability. When studying a golf course and strategizing each shot, golfers stay highly aware of the hazards and the obstacles around the fairway, such as sandtraps and waters. Different factors surrounding the ball situation are also situational resources, where the grass texture and length can affect golfer's decisions. When approaching a shot, golfers not only examine the location of the ball but also get into a habit of observing other factors, such as the wind speed and direction. In conclusion, golfers bring with them their skills and physical resources to a round of golf to interact with the situational resources.

Why is it being organized? Golfers engage in a round of golf with the ultimate goal of minimizing the number of strokes. In order to achieve this goal, they must first be well familiar

with their own collection of internal resources on top of obtaining enough experience and expertise to deal with unpredictable external resources, such as the weather and course conditions. Organizing external situational factors is the hardest type of interaction for professional players because it requires flexibility in their expertise. Not only do golfers need to be able to organize their own collection of golf tools and how they decide to use each of the tools, but also will they need to apply their skillful interaction with those tools to situations or circumstances on the golf course during a real-time setting. The better the quality of the operation of this organizing system, the more prepared and accomplished the golfer is on a well-rounded level of assessment. The purpose of this organizing system greatly revolves around the characteristic of this game, which is the ability to manage complexity under a competitive environment. It is important to acknowledge that golfers are not just competing with other participants but also with him or herself as it oftentimes turns into a mental game of torture. They will only succeed if the organizing system is under well management and operation.

How is it being organized? Golfers accumulate their experience in order to well manage and organize objects and situations during a golf round. While the physical resources, such as golf clubs, remain as the backbone of the organizing system, the situational resources that golfers encounter and interact with on the course are indeed the most challenging part of the game. Golfers organize their use of the golf equipments by identifying the strengths and weaknesses of each, such that longer irons are extremely helpful for a low shot in the trees due to their lower launch angles and loft angles and that wedges are useful for an accurate approach or lay-up shots to the green with the least amount of rolling. Each golfer needs to obtain a well-rounded knowledge of how they interact with each of the golf clubs in the bag. For example, they always keep track of the updated carry distance of each club. During a round, golfers bring with them their knowledge and expertise on their own set of golf equipment to deal with the different situations on the course. Before hitting each shot, it is important to identify the goal of the shot, which includes the estimated travel path of the golf ball as well as the final destination of the travel. With a driving goal in mind, golfers are also trained to analyze all factors that can possibly affect the travel of the ball, such as wind direction, grass length, weather, the location of hazards, and the hills. Each of these mentioned resources serves to help the golfers determine their strategy and which golf club to use. A change in wind speed or grass length can lead to adding or deducting the needed carry distance, thus causing a change in the use of clubs.

Situational Resource	Context	Modifications in Strategized Interactions
Wind	Wind speed and direction	When dealing with strong wind blowing a certain direction, it is important to take that into consideration when aiming before taking a shot and adjust the stance accordingly.

Grass	Long grass length (the rough)	A ball position in the rough on a golf course is typically a much more difficult situation because the player is dealing with longer grass length. Players usually need to club up (selecting a longer club or club of a smaller number) in cases like this in order to successfully hit out of the rough.
Ground Texture	Wet fairways as a result of heavy rains	Wet conditions usually lead to difficult shots, such as hitting behind the ball and resulting in significantly shorter travel distance.
Hazards	Man-made and natural hazards (vegetation)	Players should avoid hazards by clubbing up, clubbing down, or aiming elsewhere.
Obstacles	Man-made objects (sprinkler head, electric box, yardage sticks)	Players should avoid obstacles by clubbing up, clubbing down, or changing the target of the shot.

How much is it being organized? While golf is a highly personalized sport, the associated resources being organized are determined by the golfer's preference and routines as well. A round of golf is made up of many strokes, where each stroke is carefully planned beforehand and then executed. Within each stroke, the environmental and situational factors that are taken into consideration by the golfer are of high granularity, in which the information perceived and organized is never to the same extent for two different golf players. Through years of practice and experience, professional golfers adopt a specific set of routines for different shots taken; they shape their routines by constantly identifying and interacting with factors that appear most important to them on the course. For instance, on a putting green, professional golfers may check the direction the grain of the grass grows towards to help their putting game while amateurs may dedicate all of their attention only to reading the slopes. Since each golf course obtains its own unique landscape patterns, the golfers are to be dealing with different levels of difficulty, which is highly correlated with required levels of precision of golf shots. The granularity with which environmental factors are organized is dependent on the ball situation before each shot. While a player's ball may lie in the middle of the open fairway, another player may be busy dealing with a disastrous situation in the woods or the sand traps. In this scenario, the players are each dealing with their own sets of resources that vary in their granularity level.