**Final Report: How Sports Analytics Affect Modern Basketball Strategies**

**-Subhanjan Baral**

**Thesis Statement:**

Analytics development and application have been significant inputs for a change in the strategic paradigm in basketball, whereby the team applying analytics started to outcompete those reliant on traditional means. Indeed, the GSW is likely one of the best examples of how modern basketball was transformed with the help of data-driven approaches-from three-point shot optimization up to managing the health of the players-which further created the winning franchise.

**Observations supporting the thesis:**

It was among the first sets of analytics inclusions into game strategies, player performance appraisals, and health optimization for the Golden State Warriors, starting as early as 2015. Analytics thus lay right at the very heart of its strategy and went on to help shape modern basketball tactics.

**The Three-Point Revolution:** GSW revolutionized how three-point shots were used. Other than the GSW, other teams utilized three-point shooting as part of their offenses; GSW optimized that part of the game since they use analytics to select the most efficient shot opportunities. Throughout the period, their success with three-point shooting has been so incredibly high, well above league averages, to allow them to be ahead in points per game, especially during their 2015-2019 championship run.

**Health and Recovery:** The use of wearables, such as WHOOP by GSW, helped them learn about the exhaustion of their players in instances of optimal recovery against their roster. This investment in players' health paid off on the court, but more importantly, kept their stars at their best through an arduous NBA schedule. This has now become an important area within analytics, used to continue elite performances.

**Player Development:** Other than gameplay plans, the GSW used analytics for player development. Measuring player productivity with data, in fact, allowed management to find out undervalued talent and upgrade their current roster. In such a data-driven way of team building, the overall depth of the squad got supplemented by focused enhancements, including the players Draymond Green and Klay Thompson.

**Introduce Data:**

The successful working of GSW can be related not only to shooting skills but also to an integrated approach in the use of analytics. Several data pieces shall help in understanding the influence of this. The sources of data are all provided below:

https://www.basketball-reference.com/

<https://www.statmuse.com/nba>

https://www.teamrankings.com/nba/stat/three-pointers-attempted-per-game?date=2017-06-13

https://www.statmuse.com/nba/ask/warriors-record-over-last-10-seasons

Win percentage data: GSW had one of the highest win percentages in the league during the 2016-2022 period, never missing a playoff spot and simultaneously holding championship wins.

Three-point attempt data: GSW's three-point attempt accounts for an overall league-wide increase in three-point shots taken, suggesting how GSW's three-point attempt rate goes up higher than those from a traditional-playstyle team.

Comparing the performance of GSWs considering other elite shooters such as Ray Allen, Kyle Korver, Steph Curry, and JJ Redick, it can be easily identified that it was not about the shooting; it was all about how analytics was used to make shots. What comes out of this data is that the success of GSW was related to analytics-driven shot selection, which has consequences on higher efficiency and exploitation of most of the scoring opportunities.

**How I Plan to Convince the Reader:**

These are used to support my thesis:

**Win-Loss Data:** GSW's outstanding performance in regular seasons and playoffs between the years 2016-2022.

**Three-Point Data Analysis:** When comparing three-point attempts against the NBA average and against elite shooters, it is obtained from GSW. It was all about the strategy rather than shooting itself.

**Review Analytics in Health and Recovery:** Discuss how investment in wearables and recovery analytics keeps the players in top shape to perform at a high level consistently over long seasons.

**Win Percentage and Team Success:** GSW is consistently posting good winning percentages from 2016 to 2022, but the dominant period was from 2015 to 2019 since this also covered three championships in 2015, 2017, and 2018. We can deduce this from their win-loss data and thereby relate it to their interest in analytics.

**Three-Point Attempts:** Considering league-wide trends of three-point attempts, it most definitely does feel like the love of the GSW with increased three-point shooting correlates well with their on-court success. Yes, GSW has led the league in three-pointers attempted per game through a really optimized strategy that focuses on efficiency and spacing. Their analytics-informed shot selection was well superior compared to traditional teams with a heavier focus on mid-range shooting.

**Player Health:** GSW has contributed highly to wearables, continuing with its successes with WHOOP for monitoring player fatigue and recovery. Monitoring health metrics through data, including heart rate variability, enabled the GSW to keep big guns up until deep in the NBA season and well through the playoffs, including Steph Curry and Klay Thompson.

**Player Development and Scouting:** The analytic-based approach of GSW continues further to the evaluation and development of the talent. The focus was toward using player efficiency metrics to find the undervalued players and develop them into stars. Such data-driven scouting was instrumental in boosting their roster depth, hence contributing to their success at both ends.

**Figures and Visual Analysis:**

The data is represented by use of different figures below.

**Three-Point Attempts:** A line graph comparing GSW three-point attempts against the league average from 2015 to 2022 will reveal the increased reliance on the three-point shot.

A graph of lines with different colors

Description automatically generated with medium confidence

**Win Percentage and Championship Titles:** A bar graph with their playoff success included in the win percentage of the GSW will now let the analytics indeed result in successful, sustainable team success.

A graph of a graph showing the number of different points

Description automatically generated with medium confidence

Elite 3-Point Shooters Comparison: A graph of three-point attempts versus efficiency for GSW and other elite shooters including Steph Curry and Ray Allen will explain how it is not all about the shooting skills that led to success for GSW, but how it was all about analytics put to work in their favor. Counterarguments and Gaps:

**Counterargument-Analytics Embraced by Other Teams:** One can always counter that analytics have similarly been embraced by other NBA teams. The difference was, though, in the timing and perpetuation that GSW utilized in concert with a more all-encompassing approach: player health and development, and long-term team sustainability.

**Counter-Argument - Not Only Analytics Lead to Success**: While analytics is huge, one cannot look away from the indications of star players like Curry, Thompson, and Green. But the way analytics was being used strategically to realize their full potential proved that data-driven applications could merge with individual talents in pursuit of success.

**Conclusion:**

Success for the Golden State Warriors between 2016 and 2022 points toward the transformational power of using sports analytics in modern basketball. By embracing data-driven approaches, shooting efficiency, and incorporating player health and development, GSW developed a new identity, really changing the complexion of the game, and thus developing a model to be emulated by future organizations within the NBA. Those analytics, in combination with elite performance, can keep a player at the top of his game furthers the case for the place and presence of sports analytics in today's basketball strategy.