Cricket Case Study:
How to improve an organization's preparation for matches

I have given myself the business task to determine how to improve a team's preparation for a match and increase the chances of beating a team on the field by giving them the proper tools to do so. This is to fill a gap where there is a lack of visual preparation. This will also change the boring analysis, where you just watch a few videos of a player and work out your own analysis, to one where players get as much detailed information about players and teams as possible and they can then create the game plan to combat it. For the sake of this project we will be analyzing our own team from 2022/23 and will be focusing on the 50 over season. The analysis will be as follows:

- Analyzing a team's most possible team selection.
- Analyzing the players in the team
  - Their strengths & weaknesses
    - Bowlers:
      - What type of bowler
      - Common delivery pattern
      - Different type of deliveries
      - Their economy rate
      - Their strike rate
      - Their bowling average
    - Batsman
      - Average
      - Strike rate
      - Boundary percentage
      - Position they bat
      - Average & runs against different types of bowlers
      - Shot selection preference
- Performance benchmarks - past games at venue
- Players Stats

Stakeholders: Limpopo Impala First Class Union
Audience: Limpopo Impalas Mens Professional Team

Prepare:

Our data is located in two places espncricinfo and pitchvision. We will gather the data from these two sites and create our own spreadsheets and clean, analyze and share the data to achieve the desired goal. We will store it all on google drive and on our local computer as a backup. We will categorize the storing by Division, Team and Players. There are no problems concerning the bias and ROCCC of this data as it comes from accredited sites. This data that I acquire will be secure and accessible to Cricket South Africa. This all helps as it will be accurate and up to date information. Our cleaning process will be done in SQL to remove any human error. We will also analyze our data in SQL and create our visuals in Tableau.

The list of players from our 2022/23 squad is as follows:

- Morne Venter
- Louren Steenkamp
- Nyiko Shikwambana
- Liam Peters
- Sizwe Masondo
- Sithembile Langa
- Ntokozo Mahlaba
- Ludwig Kaestner
- Thomas Hobson
- Ruan Haasbroek
- Zakhele Qwabe
- Sahil Patel

Process:

I have created a database that has collected all the players stats from bowling and batting through their career. I will combine that data into one sheet where all players and their stats for both roles in the game are. Once it is combined I will then proceed to cleaning the data from any human errors that may have occurred during the process. I will also document my cleaning process in order for you to see what has been done to the data so that the integrity stays intact. I will also collect video footage of each player to analyze as stated in the analysis breakdown in the introduction. Once all the collection and cleaning has been completed, I will present my insights and recommend what the next steps should be in terms of achieving this consistently throughout the season.

Cleaning Process:

1. Combining the tables to show 50 over cricket stats for all the 12 players
    1.1.   There will be batting and bowling tables separately.

2. When it comes to cleaning the data we have gone through all the data that we have entered into our table and correlated it with the statistics that we have gotten from CricInfo and PitchVision and can confirm that the data is clean from any human error, there are no duplicates, different formats, extra spaces in each cell, no NULL values as they have been replaced in 0 and all characteristics in each column are the same.

<u>Analysis:</u>

In this stage we will now analyze the statistics of the 2022/23 season for bowlers and batsmen and rank the players on performance in the 50 over One Day Cup. This does not state the players season performance but just an indication of the goal of this case study and how they did in the One Day Cup.
What we will be focusing on will be:

Batsmen:
1. Most runs scored in the team and their Average - this will show us who the best contributors are to the teams run tally.

2. Most boundaries hit & their Strike Rates - this will show us who the aggressive players are and who the accumulating players are. This will also show us their boundary percentage for their accumulated runs.

3. We need to see that everyone has been given a fair chance to showcase their abilities - for this we will have to look at matches played and anything under half of the games being 3 then they have not been given the best chance.

Bowlers:

1. Most wickets and their strike rate - this will help us indicate who was the most impactful bowler.

2. Economy Rate - this will show us who the most economical bowlers are.

3. Overs bowled and Average - this will help us see who has bowled the most, this could indicate why some got more wickets than others but it can also show us how many balls our bowlers take to get a wicket.

4. We need to see that everyone has been given a fair chance to showcase their abilities - for this we will have to look at matches played and anything under half of the games being 3 then they have not been given the best chance.

Past Performances:

Here we will be looking at past performances at, for the sake of this study, our home ground Polokwane Cricket Club. To do so we will look at:

1. Average runs scored
2. Average wickets taken
3. What type of bowlers dominated in terms of wickets taken

Video Analysis:

Here we will be looking at each batsmen and bowler's footage. For the Purpose of this study will take one player and analyze their batting and bowling for the season.

Batsmen:
1. Preferred bowler type to face
2. Preferred Scoring Area
3. Faults in Technique

Bowlers:
1. What type of bowler they are.
2. What is there stock delivery
3. What variations they have
4. What type of batsmen they are more effective against

Analysis Findings:

I will be starting with the team stats and give you an indication of who were the most consistent players in the team. I will then move over to a player analysis and show you the type of information one can expect on a player analysis.

Ground	Polokwane Cricket Club
Highest_score_batting_1st	307
Highest_score_batting_2nd	249
Avg_score_batting_1st	260
Avg_score_batting_2nd	235
Avg_wkts_taken_bowling_1st	7
Avg_wkts_taken_bowling_2nd	7
Avg_wks_taken_by_spin	6
Avg_wkts_taken_by_seam	7

Here we have a table giving you information on the average totals and wickets taken at Polokwane Cricket Club Ground. The data was collected from all the games played at PCC in the last 2 years. As you can see it is more beneficial batting first at this ground and spin and seam are almost equally effective here.

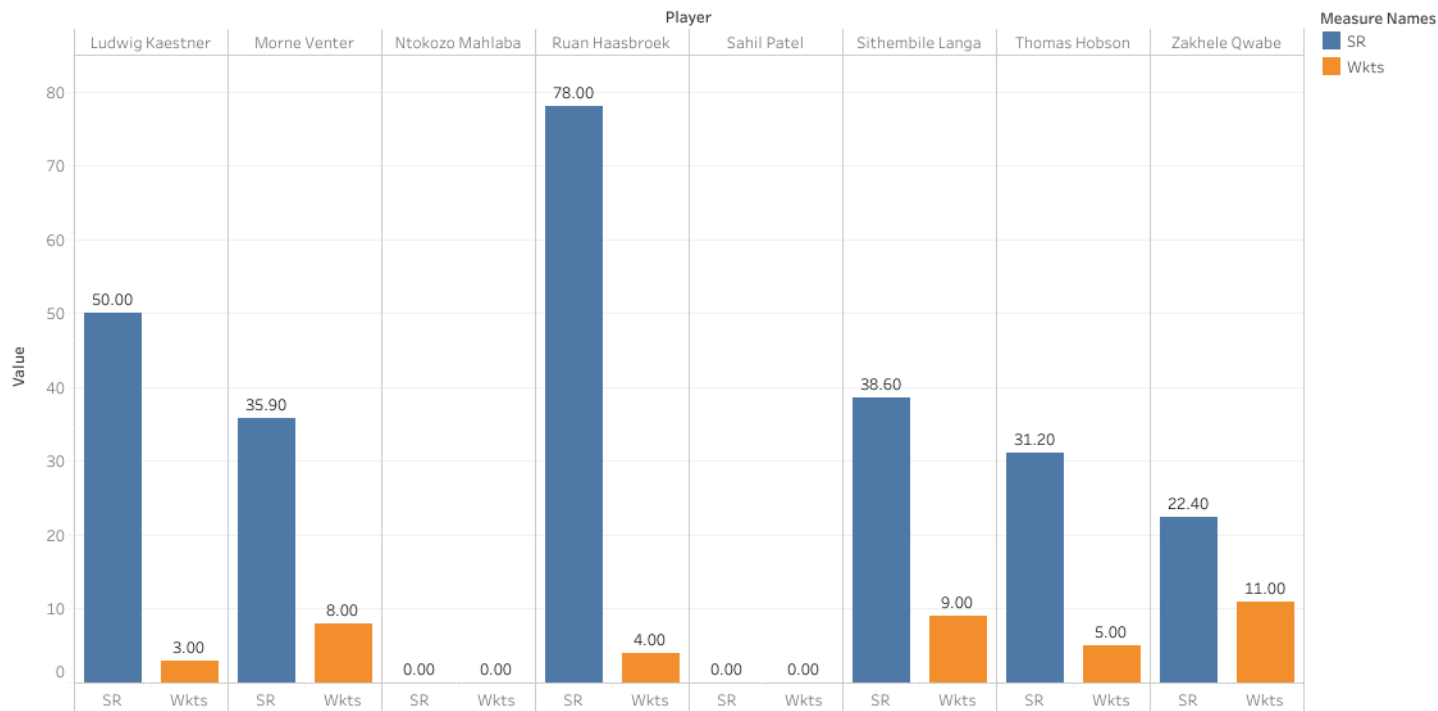## Amount of overs bowled and average amount of runs per wicket
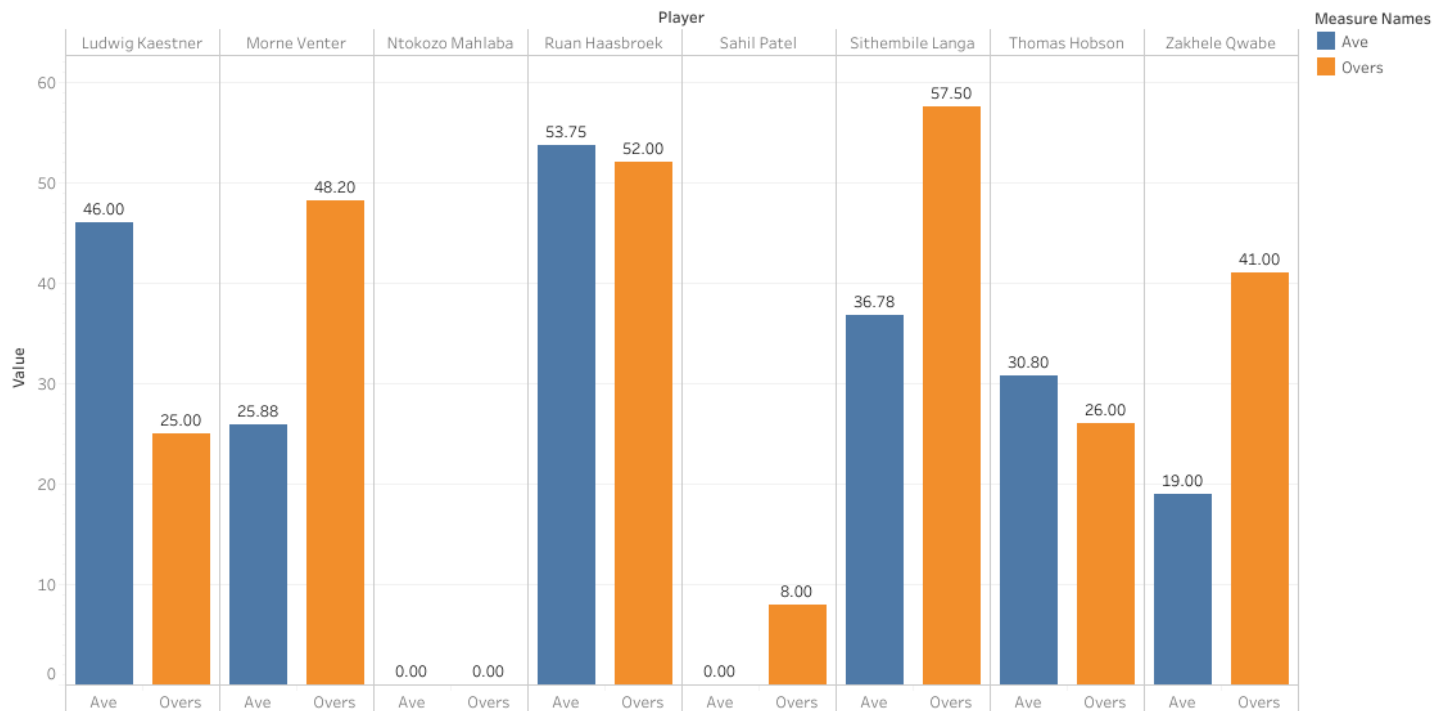
Here we can see the amount of overs each bowler has bowled and the amount of runs they conceded on average before they take a wicket.

Of the bowlers Zac and Morne are your two bowlers who concede the least amount of runs for the amount of wickets they return with Zac being the pick among the bowlers with 19 Average after bowling 41 overs for the white ball campaign..

Ntokozo and Sahil have not got sufficient data as they have played less than 3 games each, with Ntokozo playing none and Sahil 2. This indicates that they were not given a sufficient amount of playing opportunity to show what they can bring to the table in terms of their skills.

Amount of wickets and the amount of balls per wicket per bowler

Player

| | Ludwig Kaestner | Morne Venter | Ntokozo Mahlaba | Ruan Haasbroek | Sahil Patel | Sithembile Langa | Thomas Hobson | Zakhele Qwabe |

Measure Names
- SR
- Wkts

Here we have a graph that states the leading wicket takers and the amount of ball takes them to take a wicket. Our top 3 wicket takers are, in order, Zac, Langa, Morne. These 3 were our most dangerous bowlers with Zac being the most dangerous as he tends to pick up a wicket every 22.4 balls. Again Ntokozo has not played a game in white ball cricket and no data could be gathered for him. Sahil played 2 games but did not pick up a wicket in any of the games he bowled.

Economy
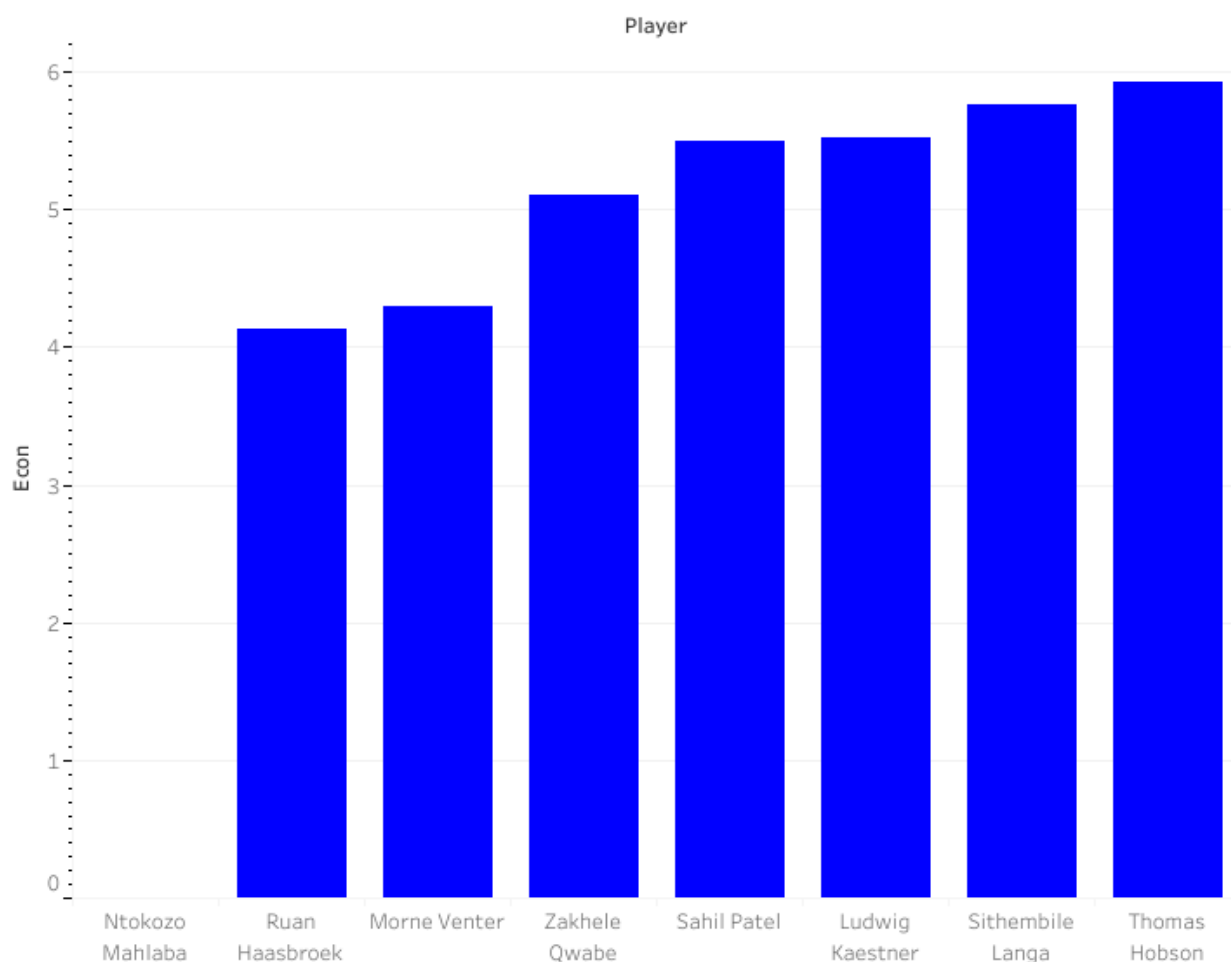
Here we can see who are our most economical bowlers by conceding the least amount of runs through their white ball campaign. Ntokozo yet again to have data as he did not play any games. If you look at the table you will notice that not a single bowler in our team went for more than 6 an over. In saying that our bowlers who kept it the most quiet throughout the season would be,in order, Ruan, Morne and Zac.

Amount of runs and average per batsmen
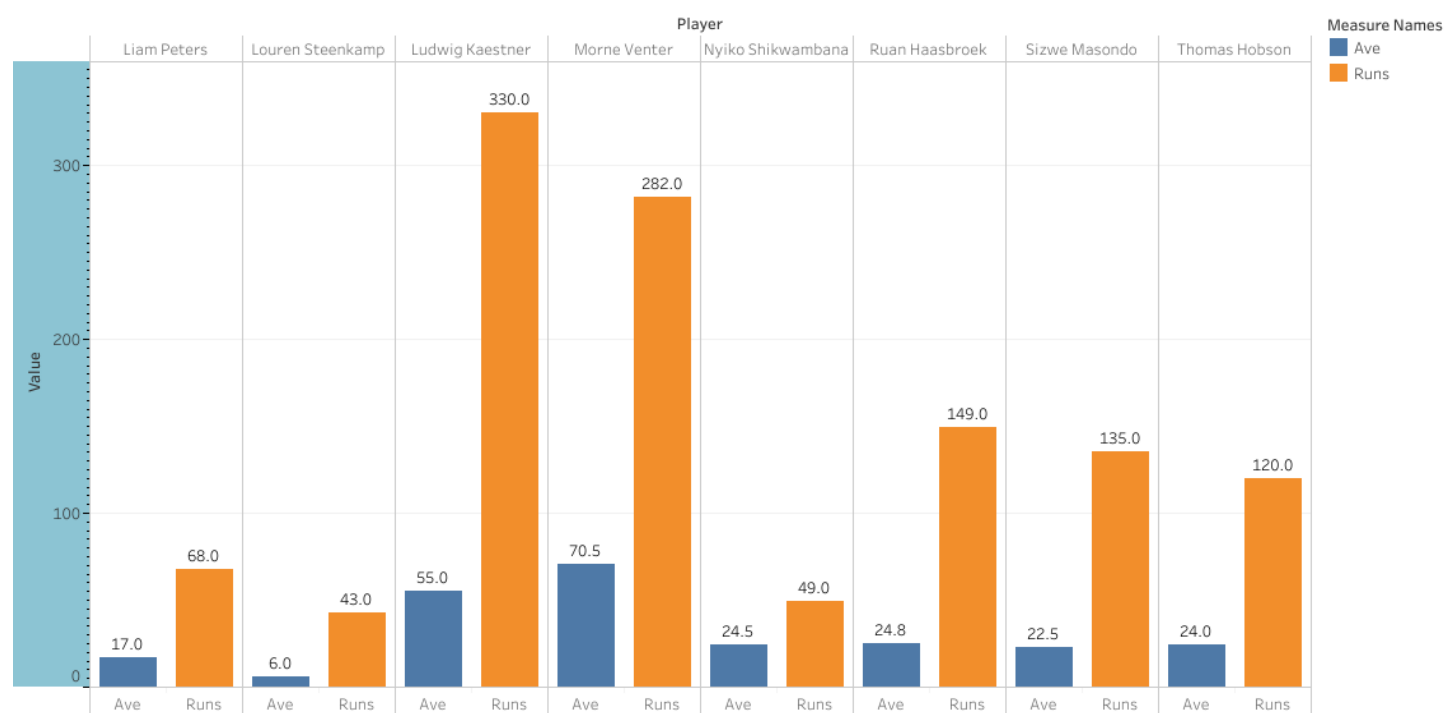
Moving onto the batsmen we can see here that Morne and Luwig were our most consistent with the bat in the white ball campaign. Ludwig accumulated 330 runs and Morne 282 at a strike rate of 55 and 70.5 respectively. This is evident in the amount of games that we had won and lost showing that more contribution from the other batsmen was needed. Nyiko had only played the two games so there may not be sufficient data in terms of whether or not he had been given a fair run.

Percentage of runs in boundaries
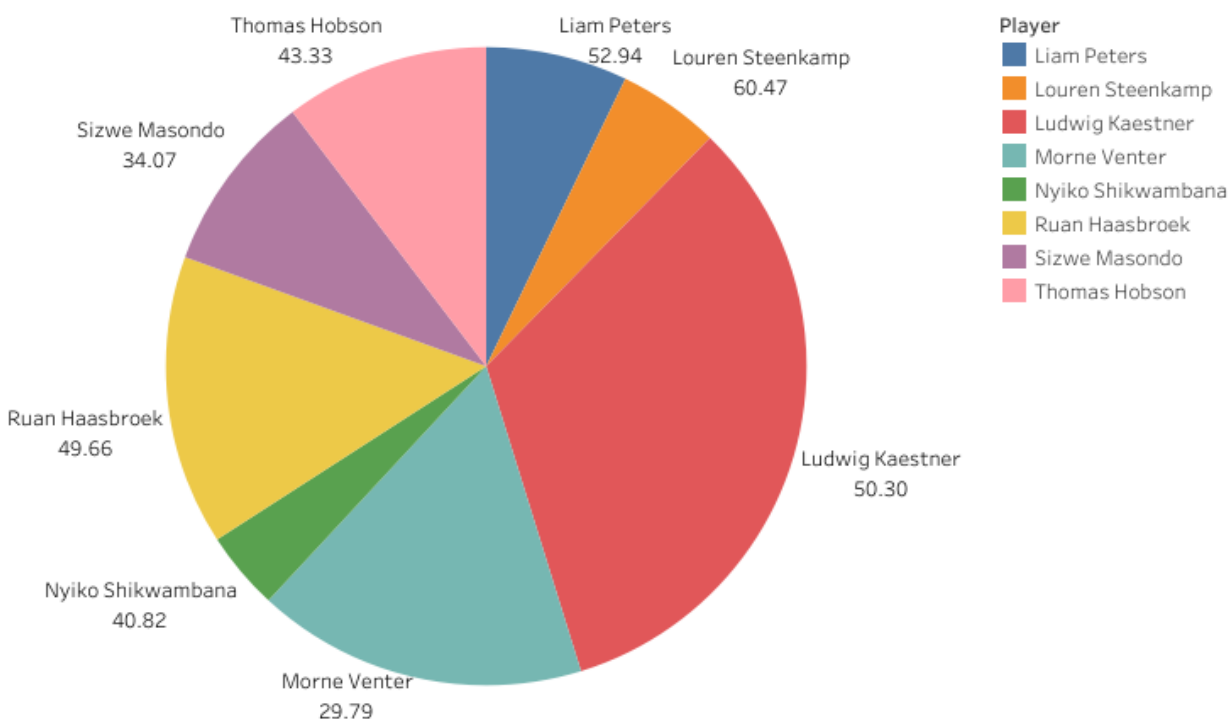
Here we analyzed each players 'aggression' to see who are the players that tend to score quicker through boundaries and who might be an accumulator.

Louren is scoring 60.47% of his runs in boundaries whereas Liam, Ludwig and Ruan score 52.94, 50.30 and 49.66% of their runs in boundaries. This gives us an indication that these guys are the more aggressive players in the team. This chart is only a representation of the boundaries in their whole campaign and not directed towards death hitting / finishing. Again without a sufficient amount of playing time I could not gather enough data on Nyiko.

Now I will be giving you a brief look at the analysis of an individual to give you an indication of what I will be availing to the players. For the record we will be using Ruan Haasbroek as our player.
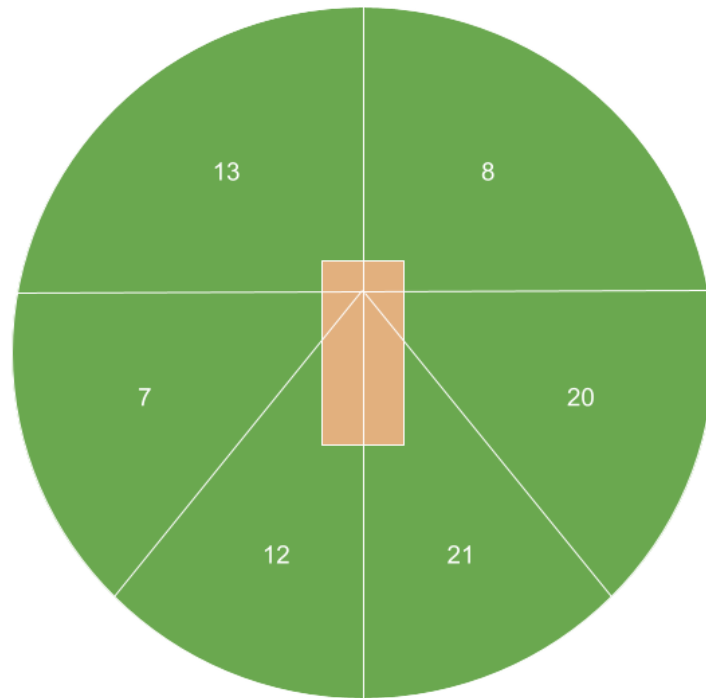
This wagon wheel gives you an indication of where Ruan tends to score the majority of his runs throughout his white ball campaign. Looking at the chart we can notice that he prefers to score legs side straight and square. Looking at the video footage I noticed that those were release shots and boundary options for Ruan.
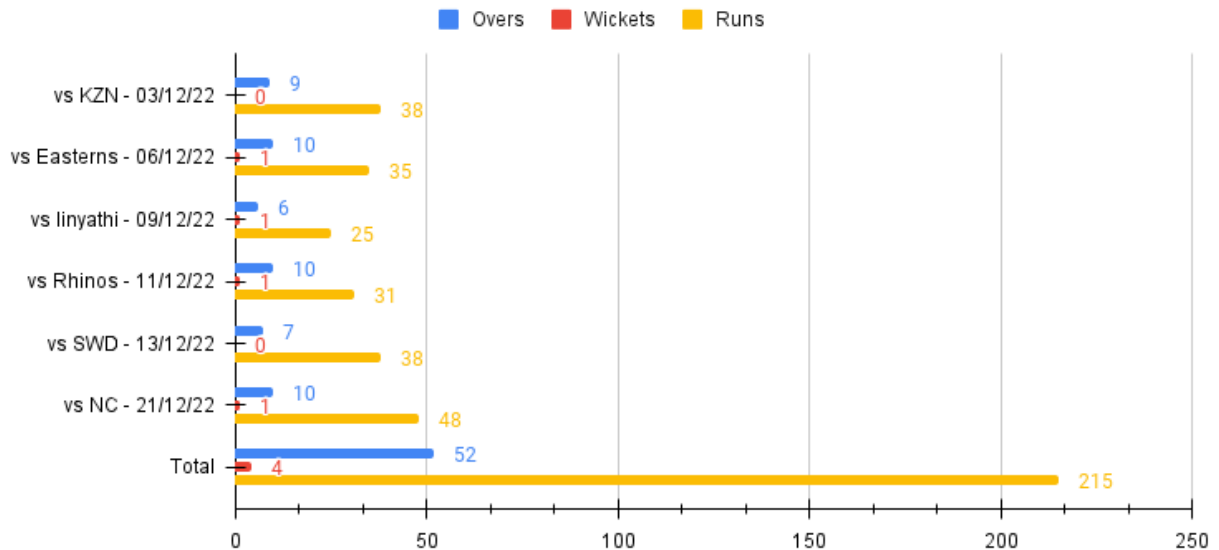
Runs and Balls Faced
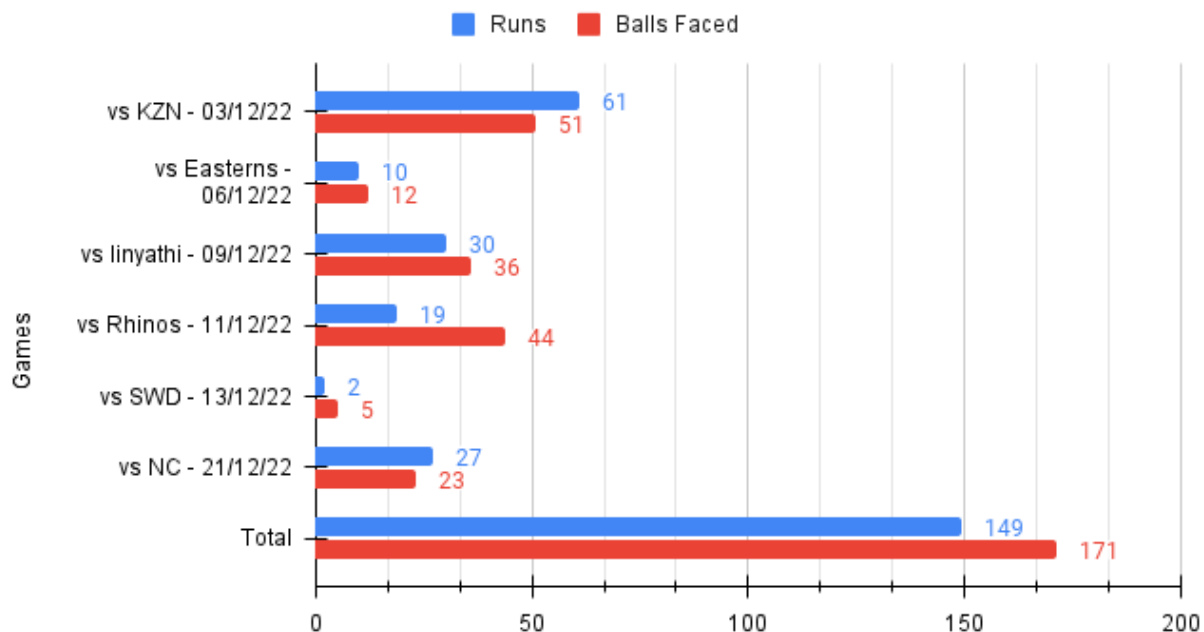
This graph just shows us his performances throughout the season with him accumulating 149 runs in 171 balls with a top score of 61 of 51 vs KZN Tuskers.
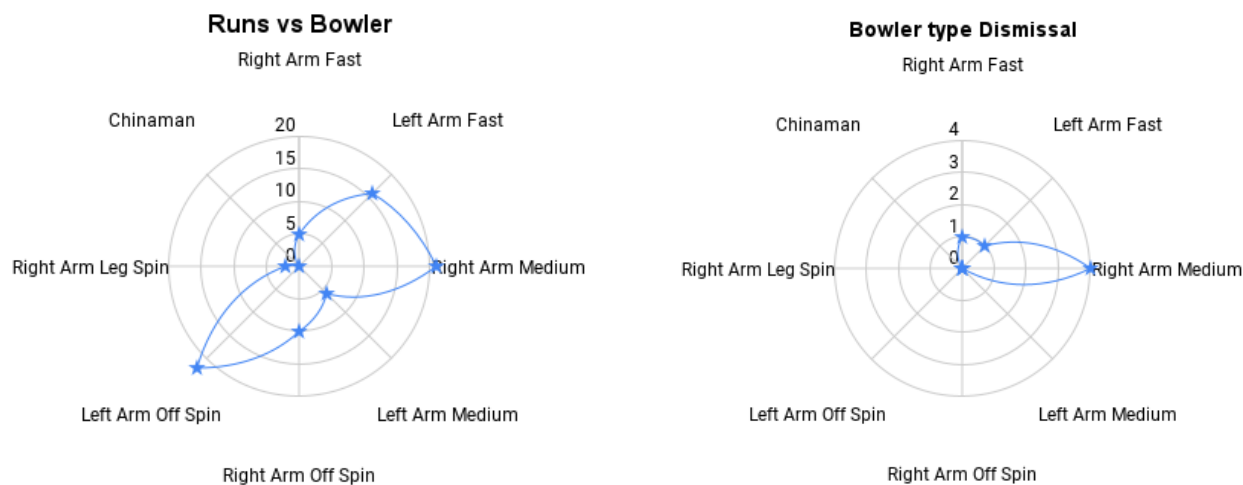

This Radar diagram shows us the type of bowler who he went out to the most and who he wanted to attack more often. This information is unfortunately incomplete as some of the footage was not available from some of the games. By the data that we do have we can see that he fell victim more times to the right arm medium pace bowlers but tended to want to attack them more along with left arm off spinners.

Statistics

Legend: ■ Overs ■ Wickets ■ Runs

Match	Overs	Wickets	Runs
vs KZN - 03/12/22	9	0	38
vs Easterns - 06/12/22	10	1	35
vs linyathi - 09/12/22	6	1	25
vs Rhinos - 11/12/22	10	1	31
vs SWD - 13/12/22	7	0	38
vs NC - 21/12/22	10	1	48
Total	52	4	215

Moving onto bowling we notice that ruan didn't pick up a lot of wickets but in return looking at data we presented earlier he was the most economical bowler in the team. His figures tally up to 52 over 4 wickets and 215 runs with a best of 6 overs 1 for 25 vs linyathi.

Pitch Map - Right Hand Batsmen Around The Wicket
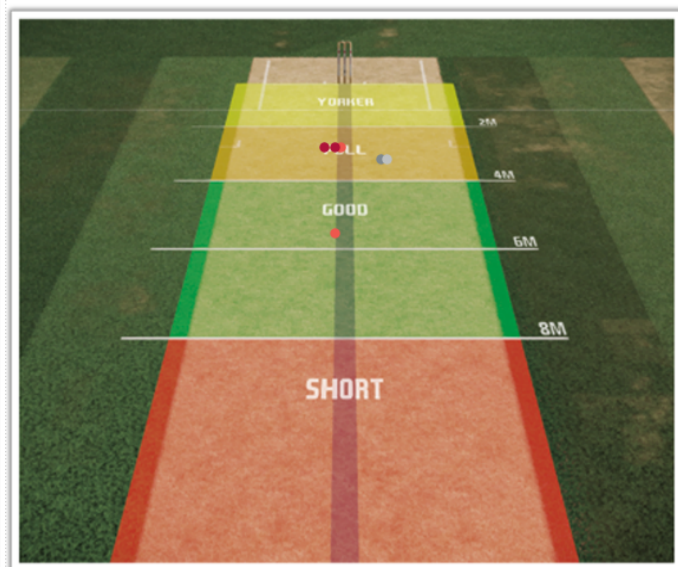
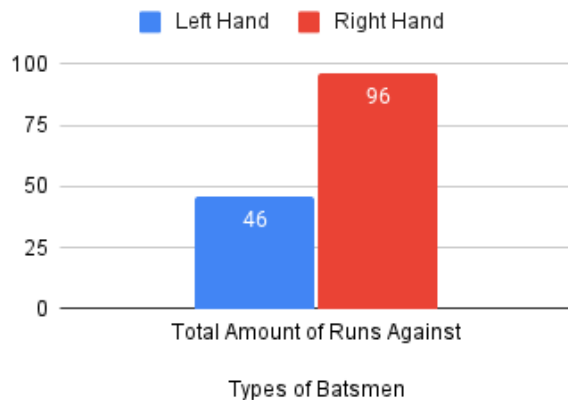Pitch Map - Left Hand Batsmen Around The Wicket
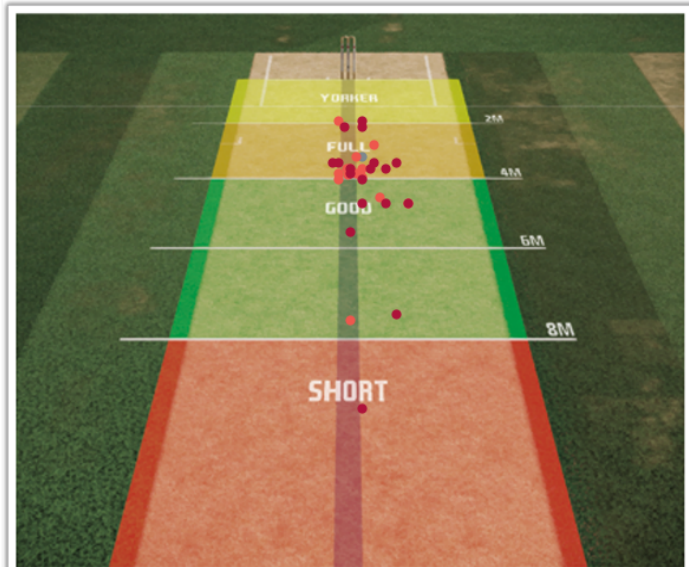
Runs Scored From ..
0   6

This is a pitch map of Ruan's bowling innings vs KZN. On the left we have to the right handed batsmen and on the right we have it for the left handed batsmen. Looking at this you can see that Ruan is very consistent with his areas and is very economical.
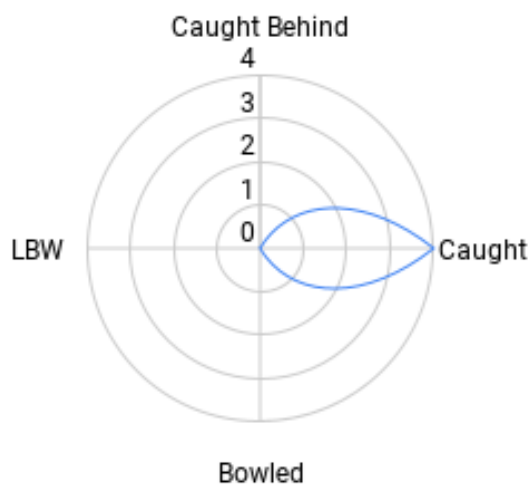
Left Hand and Right Hand
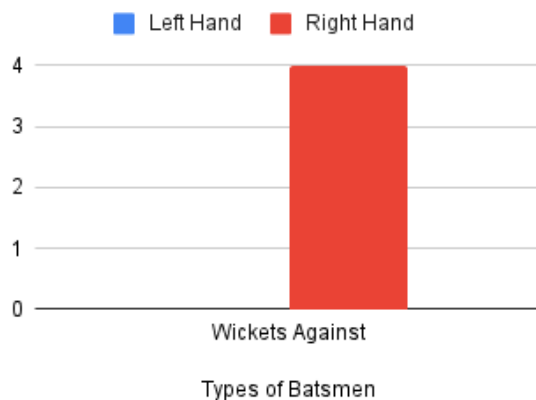
Left Hand and Right Hand

We can see in these two bar graphs that Ruan took all his wickets against the right handed batsmen as that will be a favorable matchup for them. Equally he went for less runs against left handers as that confirms to us that that will be a better matchup for him.

Wickets Taken

This last radar graph gives us an indication how Ruan took his 4 wickets in the season. They are all caught giving us an indication that the right handers wanted to attack him.

<u>Recommendations:</u>

I feel that as a professional union and as professional players you need the best preparation in order to be the most ready. Gone are the days where one only watches videos and only focuses on technique as we can see in all of world cricket that technique means very little these days. You need to be able to know where the batsman or bowler's strengths and weaknesses lie and with enough data on players, the team will be able to prepare even better than before and know what is coming their way.

I recommend that a person with cricket knowledge and the skills to do the analyst job for LIC be appointed. This will be not only beneficial to the players and they can focus on the main job which is their skills but also beneficial to the union as they will have a more adequate team.

Thank you for taking the time to read my Case Study on the necessity of a Analyst.