

# Futuristic accession of Test Cricket: A Statistical Tour

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**Abstract-** With a statistical overview of data over the past 30 years, i.e., b/w 1990-2019, it can be easily said that people caught up with Test Cricket feel the bliss of the moment, or may even feel the soreness as if they lose the match. Test Match format is habitually regarded as a work of fiction because there is sort of an intense enthusiasm attached to it. Cricket fanatics have this conviction that test-match cricket can impact the daily lively hood of people associated with this format of the game, be it directly or indirectly, and possibly in so many other ways which we as a common-man can never fathom. Test-Match Cricket has come a long way into shaping the type of *digitized cricket* we are witnessing or about to witness in the years to come. Calming the stress over questions that have been provoked for the further nourishment of Test-Match format, with a base of *billions+ fans* in various parts of the world, seems to be a primary objective of the International Governing Body. By means of this statistical analysis of International Test-Matches, we are enlightening the overall performance(s) of Test-Match playing nations in the past three decades (1990-2019). It is an investigative study to present the progressive accession of 1st and 2nd innings performances of both Team A & Team B, with a specific focus on runs scored, overs bowled, run-rate in different capacities.

**Index Terms-** Cricket, ICC, Test Match, Statistics, Rejuvenation.

## I. INTRODUCTION

Test Match Cricket is the primogenital format of the sport (Das, P, 2008), and cricket fanatics do believe that, if a cricket playing nation is aiming to be on the top spot of the ICC Team Rankings (Tests) of the year, they will have to perform unswervingly, not just at the domestic venues, but in exotic conditions too (Allsopp & Clarke, 2004).

The sporting dimension has been growing significantly, and it is not stopping anytime soon, exclusively with the technology (Thakur & Kumar, 2010) to boost the broadcasting enhancements (Noorbhai & Noakes, 2015) to cater to the needs & wants of the sports, who's major stakeholder from a business point of view is the, viewers aka fans, followers or enthusiasts (Mangtani H, 2020). The evolving aspect wasn't just limited to the sport, but the viewers/fans evolved too. They now know the jargons and procedures of the operations taking place to run the business side of Sports, and also analyzed which format better complements their way of life. Such accession(s) in terms of increasing the wakefulness and prominence of the game of cricket amongst the people in different parts of the world would have actually, led to conceptualization of relatively shorter formats, i.e., One-Day International and Twenty20 International.

T20 International, undoubtedly has been the elephant in the room (sarcastically speaking), with the significantly impact on the acknowledgement, tolerance, and magnetism of cricket lovers across different age groups, populations and socio-economic characters. With that kind of recognition from the International Sporting Community, it has also raised a bit of concerns too. Particularly, hesitations over existence of the Test-Match Cricket format at the International podium.

Numerically, there are more T20I matches in a year, as compared to Test-Matches, which is supposed to be the decider among all the matches in any given series. The real "*test*". Every sports fanatic (cricket in this case), wants their national team to win. Nobody likes to lose, be it Australia, India, England, South Africa, New Zealand, Bangladesh, Sri Lanka, Pakistan, West Indies, or the usual test playing nations (Allsopp & Clarke, 2004). Most importantly, it is a matter of pride (Das, P, 2008).

The momentum (Chatterjee & Raizada, 2020) just shifted from being known as a Test-Match playing dominant nation to being a T20 proficient squad. Of course there are a set of questions for International Cricket Council (ICC) to answer on monetary factors about existence of other formats of the game. Curiously, there is still a lot to be known of Test-Match Cricket. We are yet to discover its true potential by looking into the past performance (The Print, 2021), which can give us answers for the future.

## II. THE GIST

Occasionally to know what rests ahead of us, we repeatedly refer to what has happened in the past (The Print, 2021). Peeking into the history of things that have been happening around in the current era, or we might like to refer to it as the Pre-T20 Era (1990-2004) & the Post-T20 Era (2005-2019) (Mangtani H, 2021) of world cricket, the data has so many stories which may or may not help us to rejuvenate the longest format of the game, but it might help us find some relevant answers.

Test-Match Cricket, has a history of its own. Maybe a language of its own (in some ways), in different parts of the world. It has all helped the *digitized cricket* we know today to, playing a significant role in overall remembrance of the game. Most importantly, it has worked its way out in establishing a strong relationship with the champions, for the future generations to look-up-to. In-fact, *1.2 billion+* fans (ICC Media, 2018) already do. We are no longer living in the era, where the businesses were to choose consumption pattern of a product, or a service, or an entity (Test-Match in this case). It's the other way around. The consumers, aka the fans, followers or enthusiasts (Banerjee S,

2018) get to choose what they wish to view via broadcasting (TV, OTT, Streaming) platforms, or In-Stadia performances. Evolution, Innovation and Robustness have a challenge of their own. Relatively speaking it takes 20x, 30x or maybe 50x more time, energy and intensity to hold the top position, than it takes to be the 1st time champion. From a participation point of view, ICC Global Market Research results suggests that, Cricket has **300+ Million active participants** <16-years of age (ICC Media, 2019). The remaining approx. **160 Million participants** are quote **“occasional social players to the elite level”** (ICC Media, 2018).

Cricket Australia's Annual Report 2019-2020 suggests that they engaged **one-million+ fans** via TV broadcast during a Non-Ashes Test Series in **36 sessions** (Cricket Australia, 2020). Board of Control of Cricket in India's (BCCI) Annual Report 2016-2017, gives a hint of **953** domestic tournaments in four-categories respectively, Junior Men's: **326** tournaments, Junior Women's: **158** tournaments, Senior Men's: **307** tournaments and Senior Women's: **162** tournaments (BCCI, 2017). New Zealand Cricket's Annual Report shared substantial growth in terms of **3500** coaches registering on NZC's coach-development initiative, with **1500** junior/youth coaches, and another **600** who partly completed the course (NZC, 2019).

Furthermore, in the Pre-T20 Era **5,90,906** test-runs have been scored, i.e., an average of **2,95,453** runs per year (1990-2004). In the Post-T20 Era **6,87,488** test-runs have been scored, i.e., an average of **3,43,744** runs per year (2005-2019).

Now if we combined both Pre-T20 & Post-T20 Era's, we have a sum of **12,78,394** test-runs in 30-years (figure 2 & figure 3). As a matter of fact, Test-Match Cricket on occasion is also referred to as a batsman(s) game (Christie C, 2012) because of the skill, spirit and the focus vital to be able to face all types of balls with a possibility of swing and spin depending on the climatic conditions, structure of the venue (Mangtani H, 2019) and the pitch conditions on that day of the match.

Many of us might consider Test-Match Cricket, a bowler(s) format (Christie C, 2012) probably because of strategy, power, consistency coupled with the sheer strength required to be able to bowl continuously over a long periods of time. Of-course, some of us take a neutral stand on this, so called *factual debate* because it's an equally challenging format for everyone involved in the sport, be it players, officials (Sacheti, Gregory-Smith & Paton, 2015), administrators, and ground staff, etc.

Catching up with the Test Match *bowling figures*, in the Pre-T20 Era **1,99,175** overs have been bowled, i.e., an average of approx. **6,639** overs per year and, in the Post-T20 Era **2,10,592** overs have been bowled, i.e., an average of **7020** overs per year. Therefore, in 30 years **4,09,767** overs have been bowled so far (figure 4 & figure 5).

### III. STATISTICAL JOURNEY & DATA COLLECTION

If we try and further connect the dots to investigate, how we got to a point to get a load of a globally digitized era of cricketing extravaganza. For that, the world has watched **1250** Test Matches since 1990 till 2019, an avg. of **42** matches per year (figure 1).

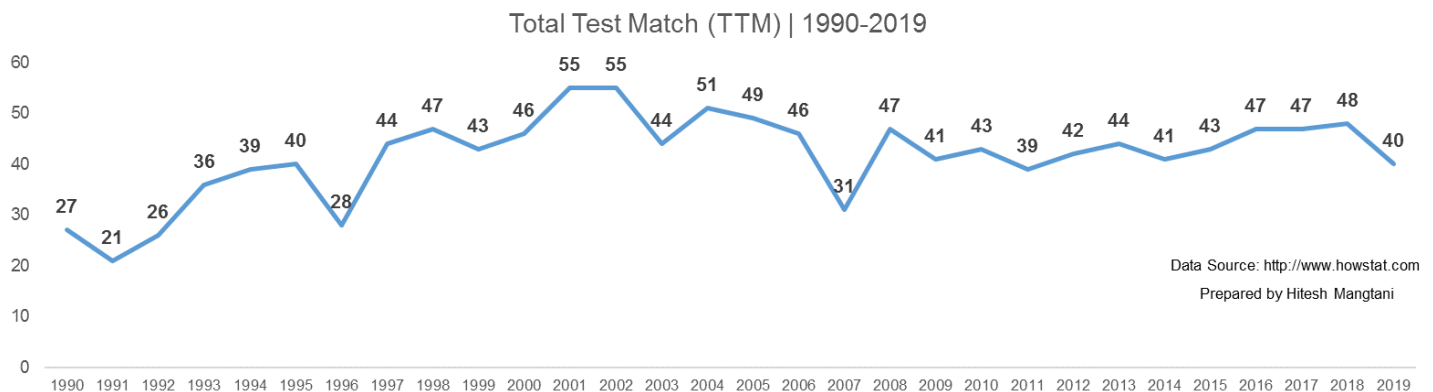


Figure 1. Total Test Matches (TTM) | 1990-2019

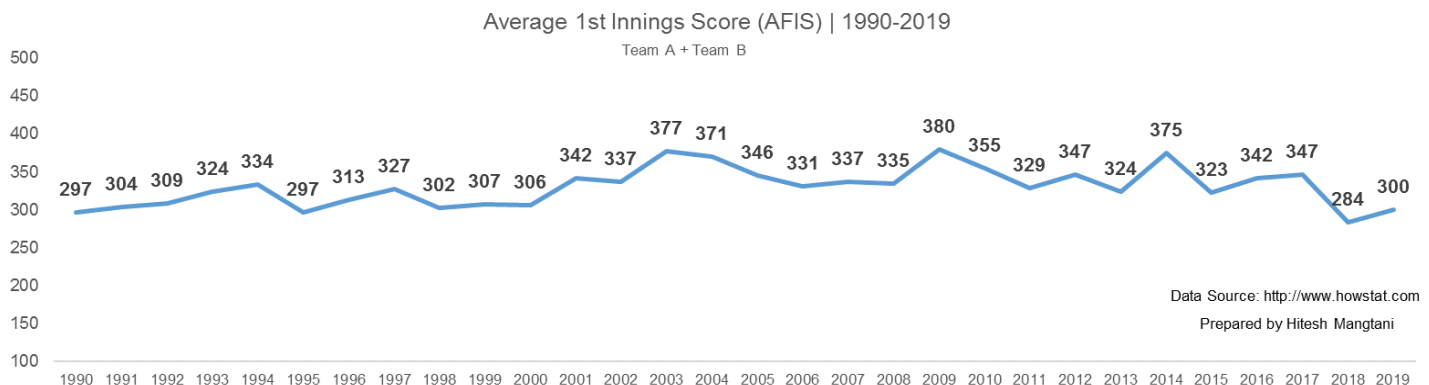


Figure 2. Average 1st Innings Score (AFIS) | 1990-2019

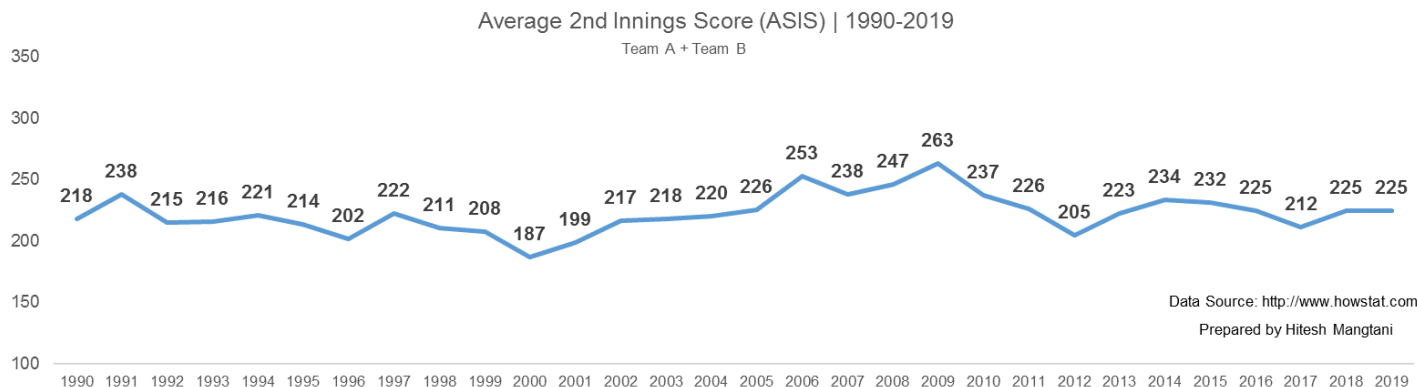


Figure 3. Average 2<sup>nd</sup> Innings Score (ASIS) | 1990-2019

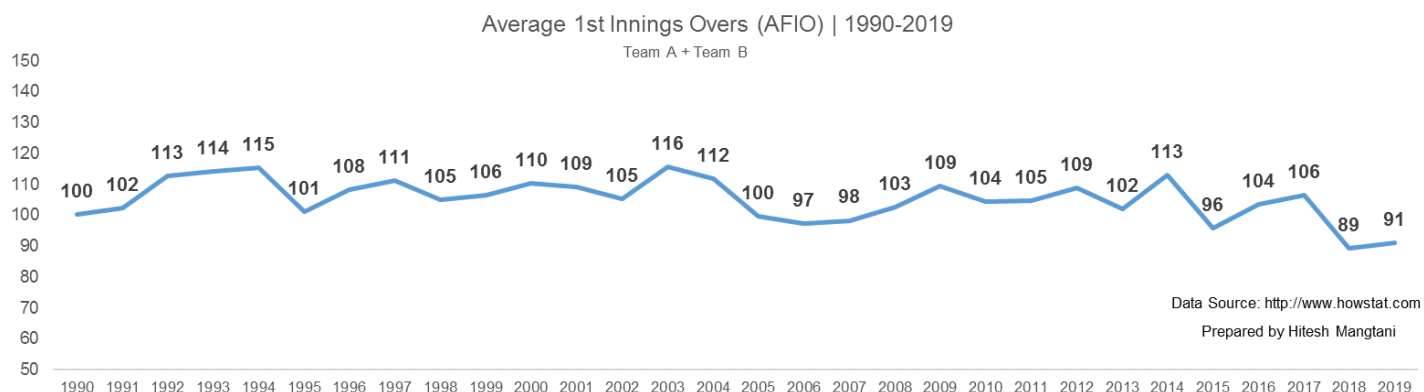


Figure 4. Average 1st Innings Overs (AFIS) | 1990-2019

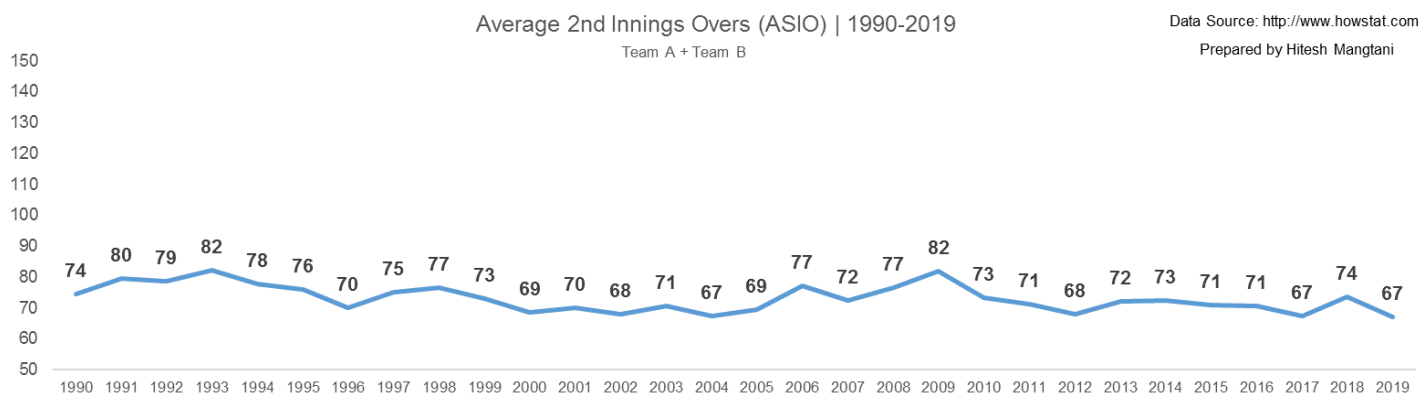


Figure 5. Average 2<sup>nd</sup> Innings Overs (ASIO) | 1990-2019

Watching the sheer numbers, which definitely won't stop increasing, we are also looking at dramatic *run-rate (RR)* in Test-Matches in between 1990-2019, or informally referred to as the *scoring rate*. It is often a very **crucial factor** when the results are hanging b/w overs-remaining and wickets in hand.

In the Pre-T20 era, i.e., 1990-2004 Test-Match playing nations were scoring runs at an average *run-rate (RR)* of **3.06** (figure 6 & figure 7), whereas in the Post-T20 era, i.e., 2005-2019 the test-matches had a scoring rate aka average *run-rate (RR)* of **3.33** (figure 8 & figure 9). In the past three decades, i.e., 1990-2019 the matches have had an average *run-rate (RR)* of **3.19**.

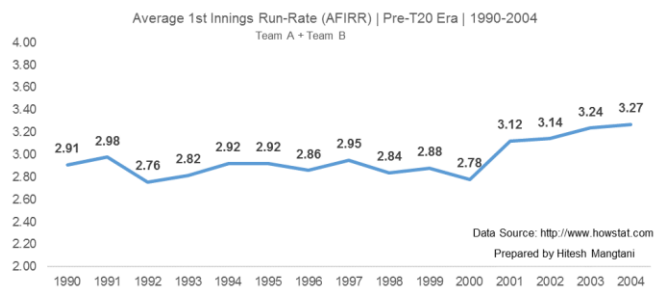


Figure 6. Average 1<sup>st</sup> Innings Run-Rate (AFIRR) | Pre-T20 Era | 1990-2004

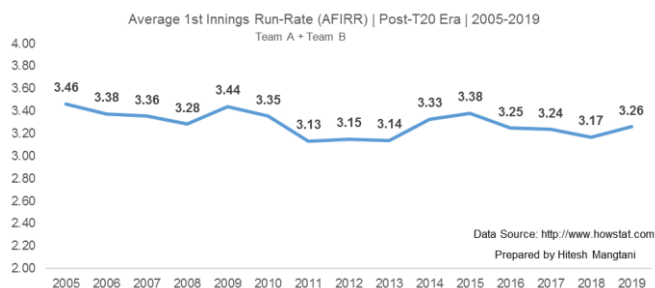


Figure 7. Average 1<sup>st</sup> Innings Run-Rate (AFIRR) | Post-T20 Era | 2005-2019

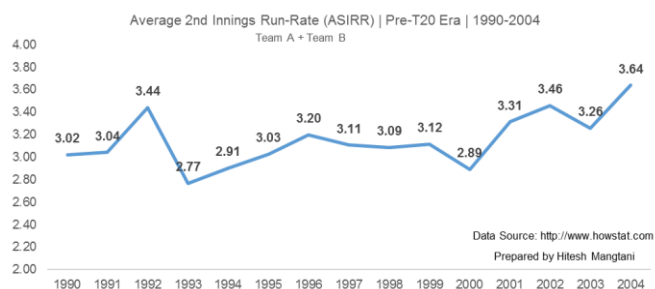


Figure 8. Average 2<sup>nd</sup> Innings Run-Rate (ASIRR) | Pre-T20 Era | 1990-2004

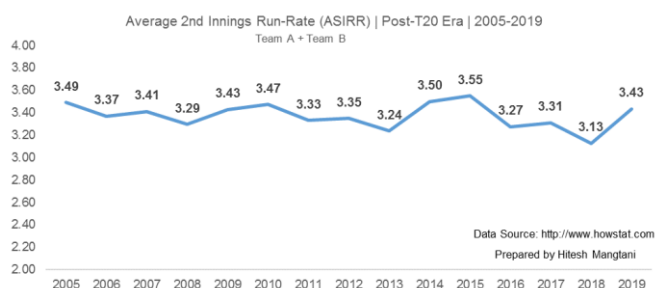


Figure 9. Average 2<sup>nd</sup> Innings Run-Rate (ASIRR) | Post-T20 Era | 2005-2019

ICC has been working on new innovative ideas to make test matches interesting enough, hence ICC Test Championship was announced with a point system to make things a bit for competitive. Through the Future Tour Program (FTP) 2018-2023 (ICC Media, 2018) significant importance has been given to test matches. Furthermore, to accommodate the lack of opportunity to play their respective scheduled matches because of the pandemic (WHO, 2020), the International Sports Federation(s) (IOC, 2020) & (IPC, 2020), i.e., ICC, announced an altered points system for the World Test Championship (ICC Media, 2020).

Furthermore, looking at the average(s) across different parameter for the last 30-years, we also observed the overall runs scored by **Team-A** who scored **8598** runs in total with an **average** of **287** runs per year. Interestingly, **4139** runs were scored by Team-A in the Pre-T20 Era, i.e., 1990-2004 with an average of **276** per year. In the Post-T20 Era, **4459** runs were scored by Team-A, i.e., 2005-2019 with an average of **297** per year (figure 10 & figure 11). The **Team-B** perspective is a bit different though. A sum of **7976** runs were scored with an average of **266** runs per year, since 1990-2019. In Pre-T20 Era i.e., 1990-2004, **3913** runs have been scored with an average of **261** runs per year, and in the Post-T20 Era i.e., 2005-2019, **4063** runs have been scored with an average of **271** runs per year (figure 12 & figure 13).

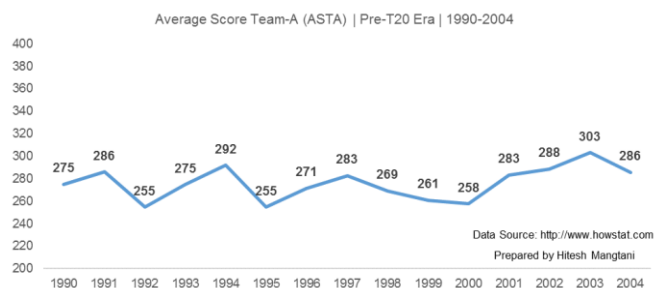


Figure 10. Average Score Team-A (ASTA) | Pre-T20 Era | 1990-2004

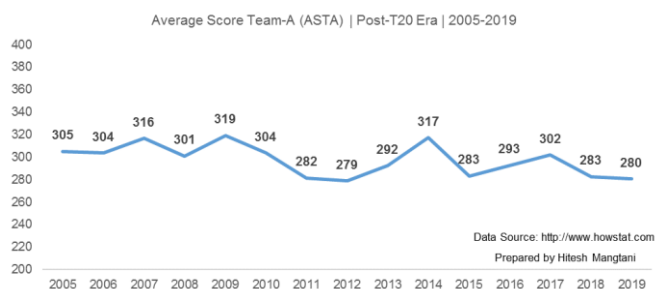


Figure 11. Average Score Team-A (ASTA) | Post-T20 Era | 2005-2019

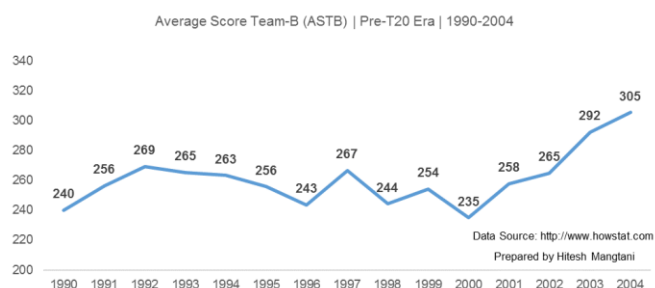


Figure 12. Average Score Team-B (ASTB) | Pre-T20 Era | 1990-2004

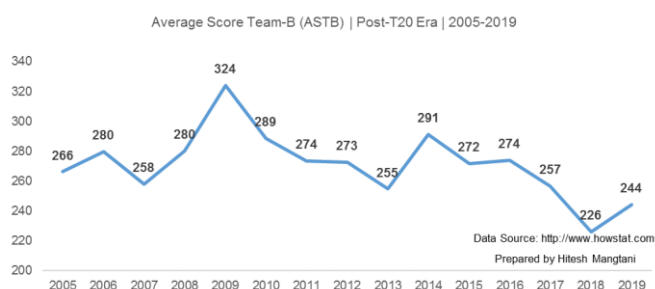


Figure 13. Average Score Team-B (ASTB) | Post-T20 Era | 2005-2019

To score some runs, we need tactically & physically strong bowlers under our hood so they can keep the innings tight and win the matches regularly for the team, be it Team A, or Team B.

With that, keeping our focus on **Team A** we observed that in the last 30-years, on average **2712** overs have been bowled with an average of **90** overs per year.

Therefore, in the Pre-T20 Era, i.e., 1990-2004 **1383** were bowled with an average of **92** per years, and in the Post-T20 Era, i.e., 2005-2019 **1329** have been bowled with an average of **89** per year (figure 14 & figure 15).



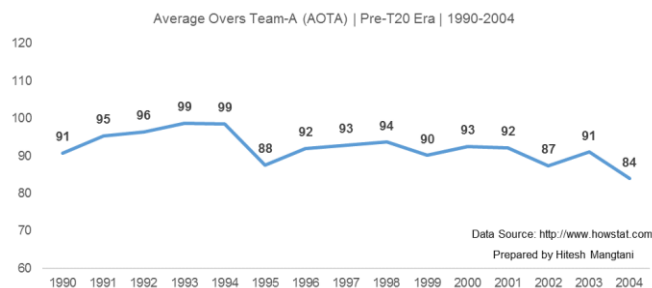


Figure 14. Average Overs Team-A (AOTA) | Pre-T20 Era | 1990-2004

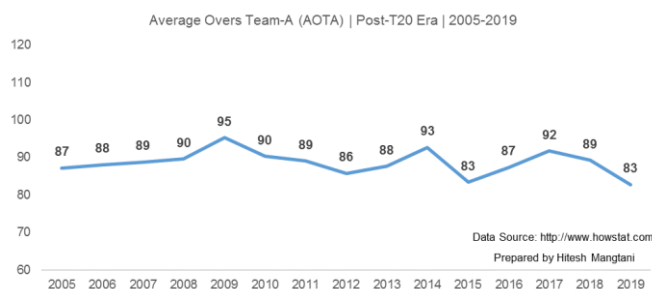


Figure 15. Average Overs Team-A (AOTA) | Post-T20 Era | 2005-2019

Shifting our focus to results for **Team-B**, in the past three-decades, i.e., b/w 1990-2019 an average of **2635** overs have been bowled with a mean of **88** overs per year. In the Pre-T20 Era, i.e., 1990-2004 timeline, an average of **1353** overs have been bowled with a mean of **90** overs per years. However, in the Post-T20 Era, i.e., 2005-2019 timeline, an average of **1281** overs have been bowled with a mean of **85** overs per year (figure 16 & figure 17).

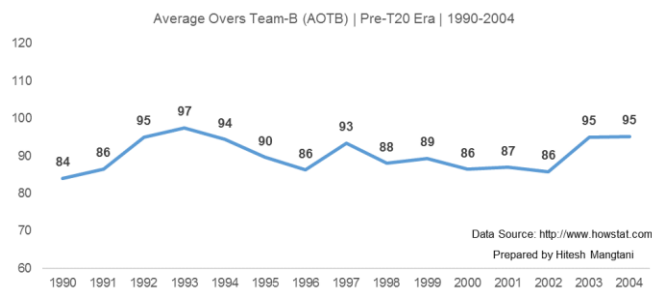


Figure 16. Average Overs Team-B (AOTB) | Pre-T20 Era | 1990-2004

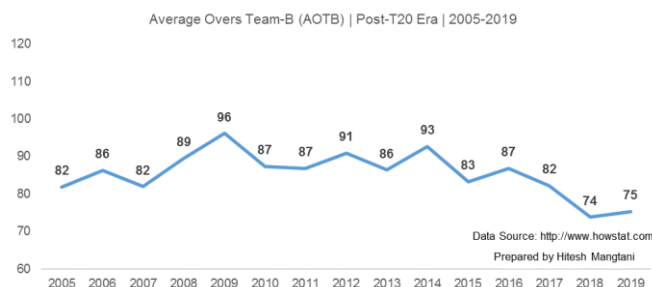


Figure 17. Average Overs Team-B (AOTB) | Post-T20 Era | 2005-2019

In any sport, time is the one of the most crucial aspects. Sometimes we need take a bit more relaxed approach, take our time to settle down and move forward with the game plan accordingly, and sometimes we need to have a bite more aggressive approach depending on the situation we are in on the given day. **Harsha Bhogle** has an emotional touch, when it comes

to Test Match Cricket, quote “*The fact that you play time.*” (*The Test: A New Era for Australia's Team*, 2020).

The time taken gives us a glimpse of what the *run-rate (RR)* is for the team in that Test-Match, be it Team A, or B. Evidently, for **Team A** has been scoring runs at a rate (RR) of **3.11** in the Pre-T20 Era, i.e., 1990-2004, and the runs scoring rate in the Post-T20 Era, i.e., 2005-2019 has been **3.42** (figure 18 & figure 19). For **Team-B**, the runs scoring rate (RR) in the Pre-T20 Era has been **3.01** and in the Post-T20 Era the run-rate (RR) has been **3.24** (figure 20 & figure 21).

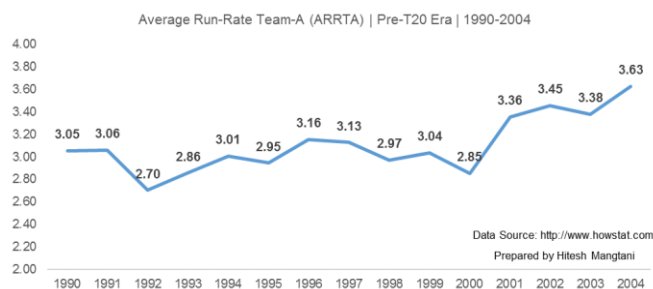


Figure 18. Average Run-Rate Team-A (ARRTA) | Pre-T20 Era | 1990-2004

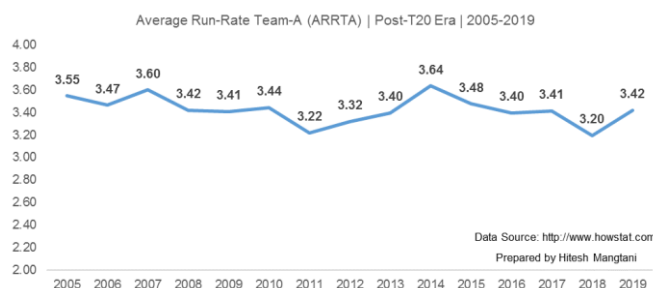


Figure 19. Average Run-Rate Team-A (ARRTA) | Post-T20 Era | 2005-2019

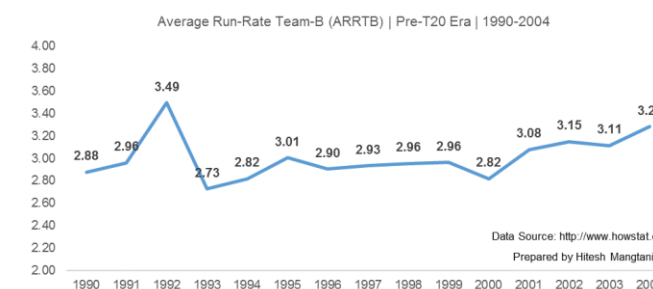


Figure 20. Average Run-Rate Team-B (ARRTB) | Pre-T20 Era | 1990-2004

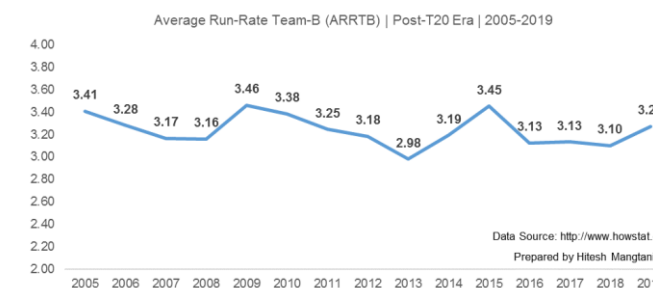


Figure 21. Average Run-Rate Team-B (ARRTB) | Post-T20 Era | 2005-2019

This significant jump (especially in 2004) can be established by referring to multiple parameters such as, (i) Increase in Total

Test Matches (TTM) played in 2004 [51 matches] (*refer to figure 1.*), (ii) The timeline is prior to introduction of T20I Format, as the athletes tend to take an aggressive approach in Test-Matches as a result of approaching a relatively faster format, and (iii) Higher Innings Run-Rate (*refer to figure 6,7,8 & 9*), by both Teams (A & B), etc. Honestly, there are multiple permutations & combinations to either justify the scaling up of numbers, or maybe to reflect on incidents which may have led to decline in the overall performances in the particular year of International Test-Match circuit.

The jump can also lead us to investigate how many innings have been played in the past 30-years, both in the Pre-T20 Era and the Post-T20 Era. In layman terms, each Team (i.e., A & B) can play 2-innings respectively, which makes it a total of 4-innings in a match (both A & B Combined). From a basic calculation standpoint, we multiple Total Test Matches (TTM) played in a year to four (4) to get an estimate of how many innings ‘should have been played’ in general.

Having said that, a total of **2408** innings ‘*should have been played*’ in the Pre-T20 Era, i.e., 1990-2004 with an average of **160** innings per year. In the Post-T20 Era, i.e., 2005-2019 **2592** innings should have been played with an average of **173** innings per year, ideally (*figure 22 & figure 23*).

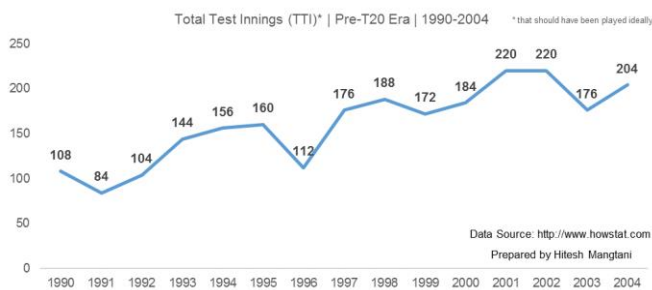


Figure 22. Total Test Innings (TTI) | Pre-T20 Era | 1990-2004

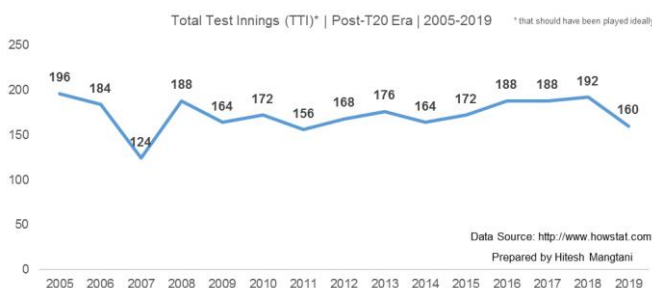


Figure 23. Total Test Innings (TTI) | Post-T20 Era | 2005-2019

Now we look at the specifics, i.e., how many innings were ‘*actually played*’ in a particular year. We start with 1<sup>st</sup> Innings of the Test-Matches (both Team A & B combined). In the past three decades, i.e., 1990-2019 a total of **2474** 1<sup>st</sup> Innings have been played with an average of **82** 1<sup>st</sup> Innings per year. Furthermore, in the Pre-T20 Era (1990-2004), **1186** 1<sup>st</sup> innings have been played combining both Team A & B, with an average of **79** per year, and in the Post-T20 Era (2005-2019) **1288** 1<sup>st</sup> Innings have been played with an average of **85** per year, Team A & B combined (*figure 24 & figure 25*).

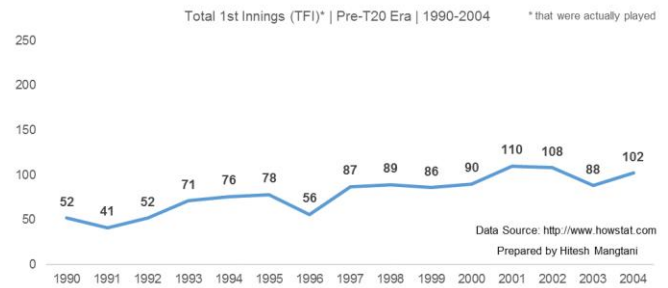


Figure 24. Total 1<sup>st</sup> Innings (TFI) | Pre-T20 Era | 1990-2004

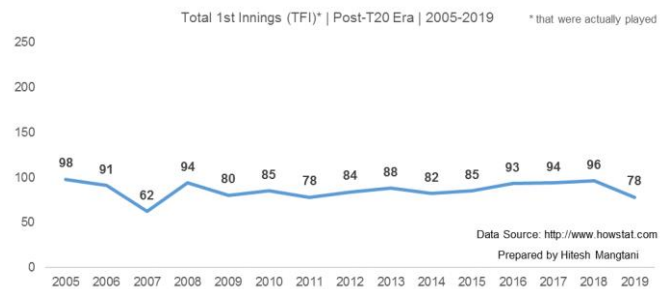


Figure 25. Total 1<sup>st</sup> Innings (TFI) | Post-T20 Era | 2005-2019

Let us jump onto the 2<sup>nd</sup> Inning figures, i.e., how many innings were ‘*actually played*’ in a particular year (both Team A & B combined). In 30-years, a total of **2060** 2<sup>nd</sup> Innings have been played with an average of **69** per year.

In the Pre-T20 Era (1990-2004), **959** 2<sup>nd</sup> Innings have been played with an average of **64** innings per year (Team A & B combined). Furthermore, in the Post-T20 Era (2005-2019) **1101** 2<sup>nd</sup> innings have been played with an average of **73** per year (*figure 26 & figure 27*).

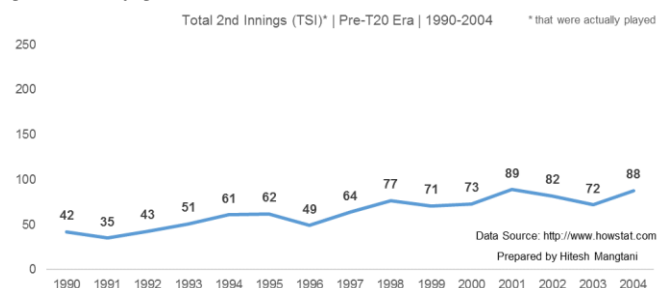


Figure 26. Total 2<sup>nd</sup> Innings (TSI) | Pre-T20 Era | 1990-2004

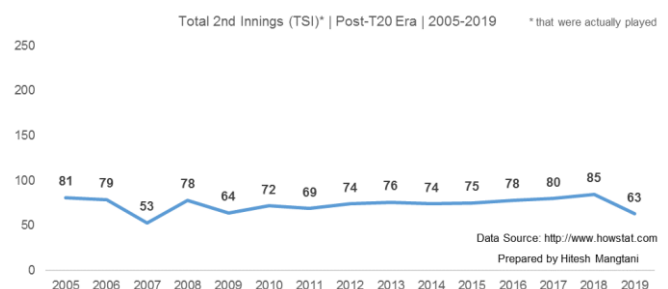


Figure 27. Total 2<sup>nd</sup> Innings (TSI) | Post-T20 Era | 2005-2019

We can obviously notice, the drop in the no. of innings (both 1<sup>st</sup> and 2<sup>nd</sup>) in the year’s when ODI & T20I World Cups took place,

i.e., 1996, 2003, 2007, 2019 respectively. Additionally, we can also notice a marginal decline in 1999 & 2011 year numbers too.

We can now potentially see the beauty of Test-Match format, as the game won't give us a result, not directly at least. You will have to work hard enough to get a definite result, be it on MED3, MED4 or MED5 of the matches (Mangtani H, 2021). The gap which gets left in the middle of, how many innings 'should have been played' and are 'actually played', that is where the magic happens, both on & off the field. On the field, In the past 30-years, i.e., 1990-2019 there were **26** occasions when 'No Play' in the 1<sup>st</sup> Innings of the Test-Matches, in the Pre-T20 Era **18** occasions & in Post-T20 Era **8** occasions (figure 28 & figure 29).

**No-Play** are situations where due to occurrence of un-certain circumstances the play was/had to be stopped, cancelled or abandoned (with or without a toss happening) further resulting in a loss of innings.

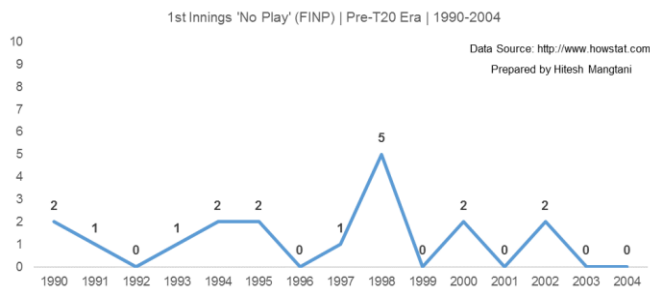


Figure 28. 1<sup>st</sup> Innings 'No Play' (FINP) | Pre-T20 Era | 1990-2004

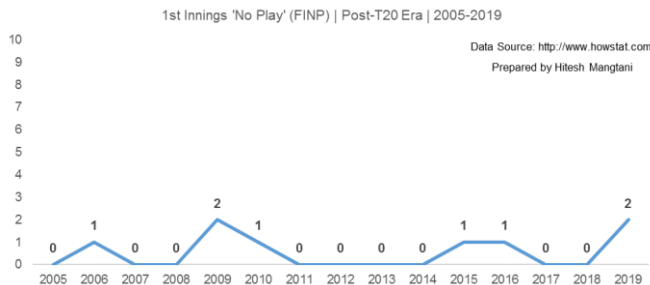


Figure 29. 1<sup>st</sup> Innings 'No Play' (FINP) | Post-T20 Era | 2005-2019

Moving forward with the 'No Play' aspect from the 2<sup>nd</sup> Innings point of view, in 30-years (1990-2019) there are a total of **97** occasions when a 2<sup>nd</sup> Innings 'No Play' (SINP) situation occurred, **65** occasions in the Pre-T20 Era and **32** instances in the Post-T20 Era (figure 30 & figure 31).

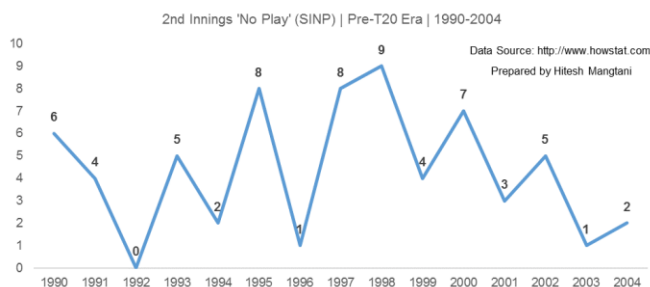


Figure 30. 2<sup>nd</sup> Innings 'No Play' (SINP) | Pre-T20 Era | 1990-2004

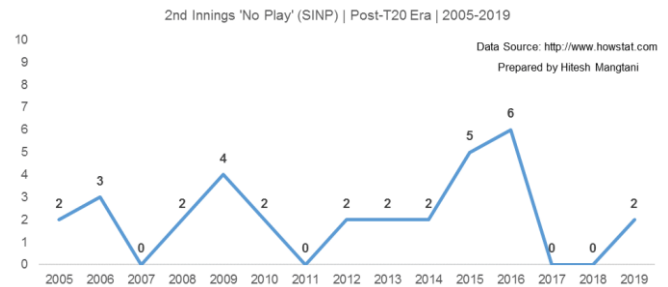


Figure 31. 2<sup>nd</sup> Innings 'No Play' (SINP) | Post-T20 Era | 2005-2019

FINP & SINP are not 100% in control of the organizers, officials, players or the ground staff, but the 'No Innings' is where things get very interesting. The reason being, how well the team performs on that given day of a test-match, gives the overall glimpse of how the Test-Match pans out as a whole.

Now there are obviously **no-instance** of 1<sup>st</sup> Innings 'No Innings' (**FINI**) occurrence in the past 30-years, because for a test-match to start the team will have to score a certain no. of runs for the opponent to either match the score, or take a lead & get Team A back on field, bowl them out before they can score the additional runs scored & win/loss depending on how well both teams play.

However, 2<sup>nd</sup> Innings 'No Innings' (**SINI**) gets really interesting because that's where we can see batsman getting into their peak-performance zone of showing their abilities, skills, techniques, resilience and stamina of going through difficult situations. The bowlers, are all charged-up (even after fatigue from previous innings) to get the opponent out & get a desired result. It may be a draw, win by runs, win by wickets & runs, win by wickets, etc. In the last three decades, a total of **342** occasions of SINI have taken place, **179** in the Pre-T20 Era with an average of **12** per year, and **163** in the Post-T20 Era with an average of **11** per year, both Team A & B combined (figure 32 & figure 33).

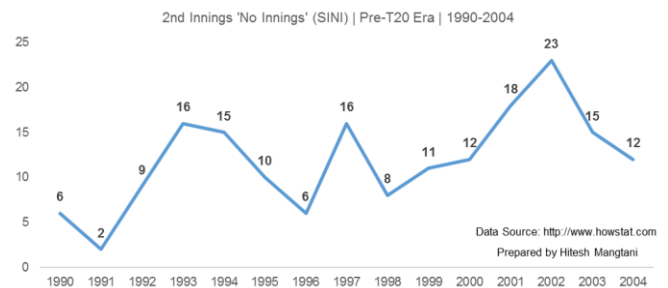


Figure 32. 2<sup>nd</sup> Innings 'No Innings' | Pre-T20 Era | 1990-2004

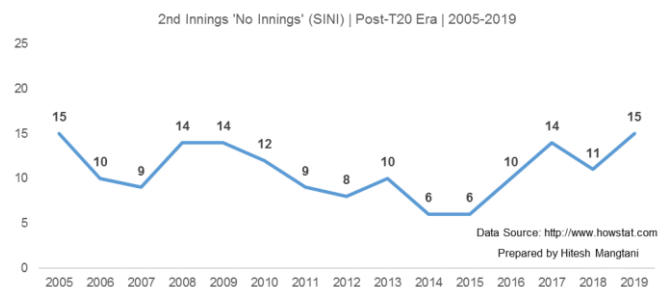


Figure 33. 2<sup>nd</sup> Innings 'No Innings' | Post-T20 Era | 2005-2019

The more we talk about Test-Match Cricket, there are more questions we have about the sport, and furthermore we tend to build a stronger relation with this format. To try and figure out answers to as many questions as possible, the suspense of deeper understanding of Test-Matches can help us in finding effective & efficient answers for rejuvenating the oldest format, to further enhance the cricket lover's experience(s).

**Data Collection:** To be able get a bit of investigative approach to figure out this statistical journey of Test-Match Cricket, the primary source of the collected data has been [www.howstat.com](http://www.howstat.com), and Microsoft Excel Professional Plus 2016, has been the primary *analytical tool* for collecting, collating & preparing graphical representation(s) used in this study, to be able to have a evaluator view over the futuristic accession of Test-Match cricket in the International circuit.

*Lenten L (2008)*, evaluated the "influence over the regularity of draws" which can be the reason quote, "why too many tests are ending relatively early", and through our earlier evaluation of significance in the trends of MED3, MED4 & MED5 in the Pre-T20 & Post-T20 Era (*Mangtani H, 2021*) we further investigated in determining if Matched Ending on Day-3, or Day-4 can further be potentially viable options for effective rejuvenation of the format, hence allowing us to further compare notes on the *futuristic tour* of the traditional format, the Test Match Cricket.

#### IV. CONCLUSION

Cricket is no longer a game where, we as the product consumers, or service receivers, or business drivers (to some extent) are totally inclined towards the sticking to just a relatively longer format of the game (*Sacheti, Gregory-Smith & Paton, 2014*). **Variability is the key**, as it drives the business operations in Sports. Cricket in this case. Our initial significant evaluation based on the questionnaire titled "Public Sentiments on International Cricket" revealed that, many of us majorly prefer the T20 format (*Mangtani H, 2021*), as fits the leisure time available with us every day.

**Variability** in a sense (from the performance on-the-field perspective) to have talented cricketers pairing up like Marnus Labuschagne & Steve Smith, Josh Hazlewood & Cameron Green from Australia, Kane Williamson & Henry Nicholls, Trent Boult & Kyle Jamieson for New Zealand, Azhar Ali & Mohammad Rizwan, Shaheen Afridi & Yasir Shah for Pakistan, Joe Root & Jos Buttler, James Anderson & Stuart Broad for England, Cheteshwar Pujara & Rishabh Pant, Jasprit Bumrah & Mohammed Shami for India (*Cricbuzz, 2021*), and so on to keep the inquisitiveness of watching a Test Match Cricket alive for as long as possible.

Some of us would like to have more focus on ODI format, definitely because of the World Cup along with the National Pride (*Das. P, 2008*) that comes along with it. But, being a little old school, we always have a soft side for Test-Match Cricket, as it is considerably the real deal, the real test of talent, not only from the player's perspective, but from a team's perspective too.

Through this statistical journey, which can also be referred to as the **Overview of Test-Match Cricket**, we tried to share a few parameters which are, considerably, the most important attributes assisting in evaluating how the future of the Test-Match format pans out, not only from a statistical significance stand-point (*Mangtani H, 2021*), but definitely from a Test-Match playing nation position as well.

In this fan-driven era (*Cricbuzz, 2020*) with new expectations for more Cricket at the International stage, the governing bodies & sports administrators will have to be more calculative in terms of cultivating the accountability factor (*Cricbuzz, 2020*) within the community, regional & state/providence level which are accumulating parklands for selections at the National & International level (*Cricbuzz, 2020*).

Therefore, we can now categorically assess the intensity, passion, diversity & knowledge (*The Print, 2021*) required to be at the elite level especially in Test Matches, predominantly based on number of runs scored in each innings (1<sup>st</sup> & 2<sup>nd</sup> respectively), average overs bowled by each team (A & B) respectively, and run-rate (RR) aka scoring rate, of each team (A & B) respectively, in each innings of the match which is further judged based on Total Test Matches (TTM) played in 30-years.

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