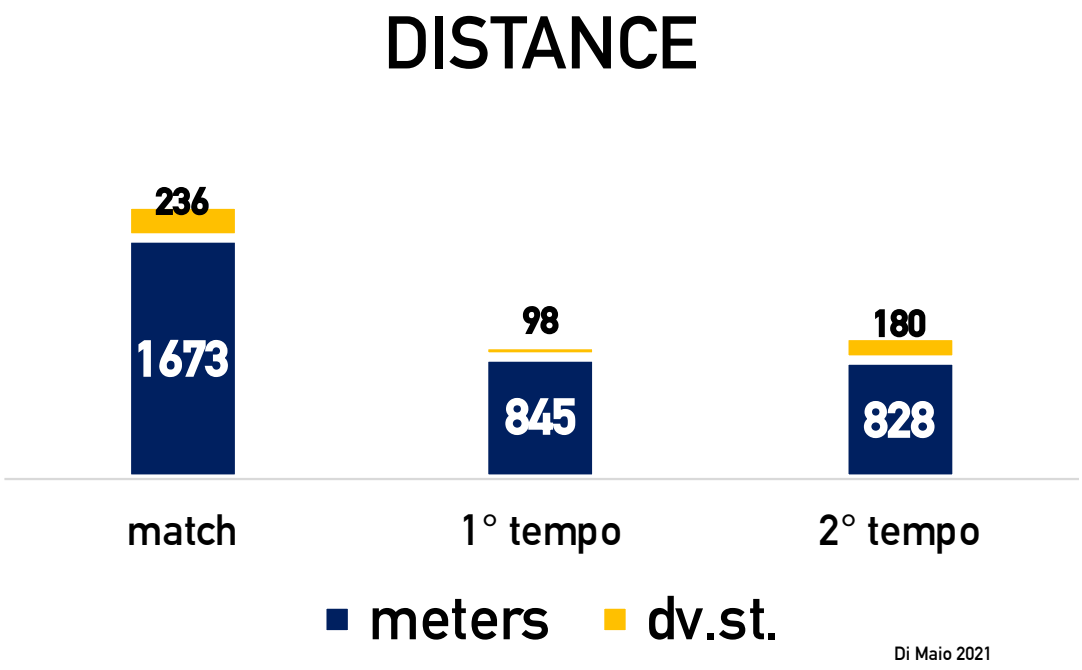
Rugby Sevens

Study of the performance model

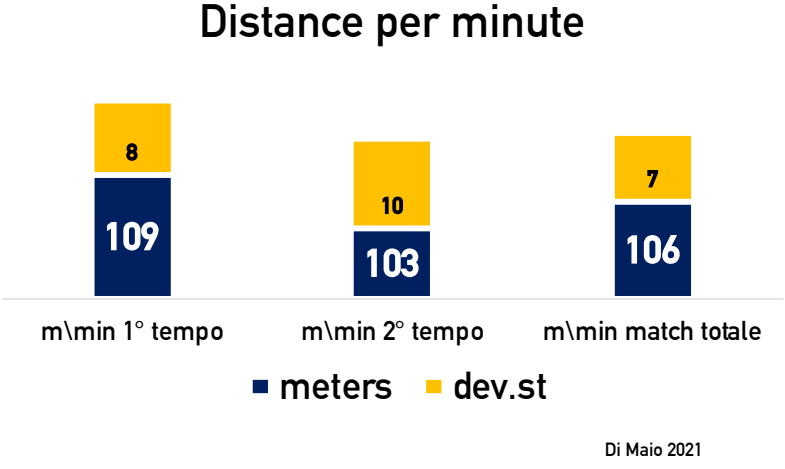
Index

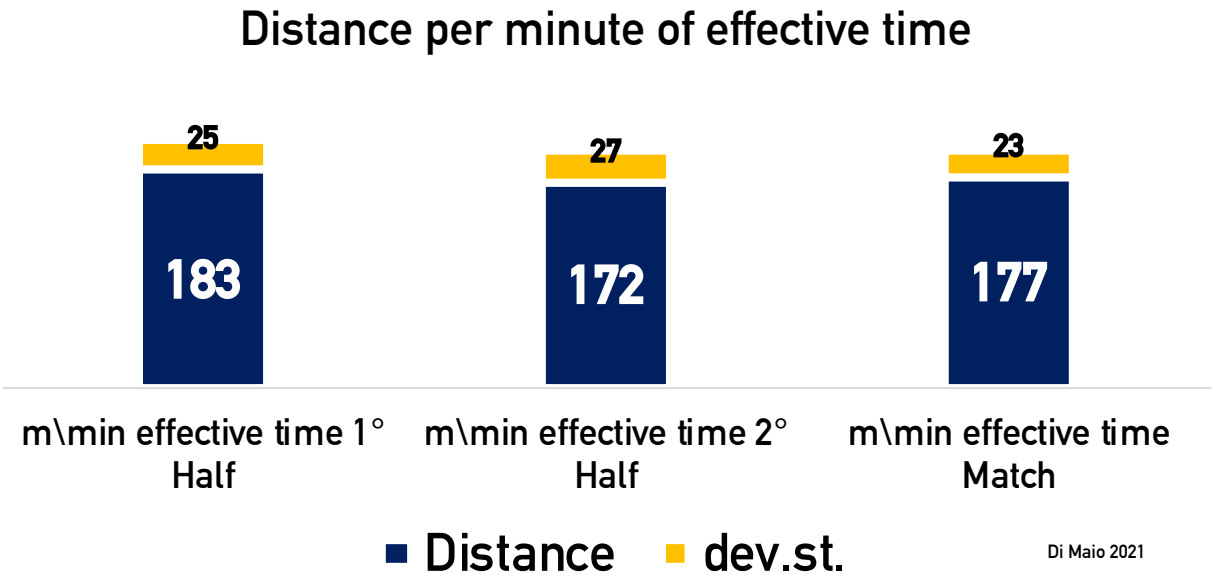
DISTANCE

The travelled distance is a widely used parameter to identify the volume of work done during a game. Actually, it is a data that we can interpret as a container within which intense actions are then carried out interspersed with more or less short recoveries. In a game the average is 1600 meters approximately, equally distributed between the first and second half.

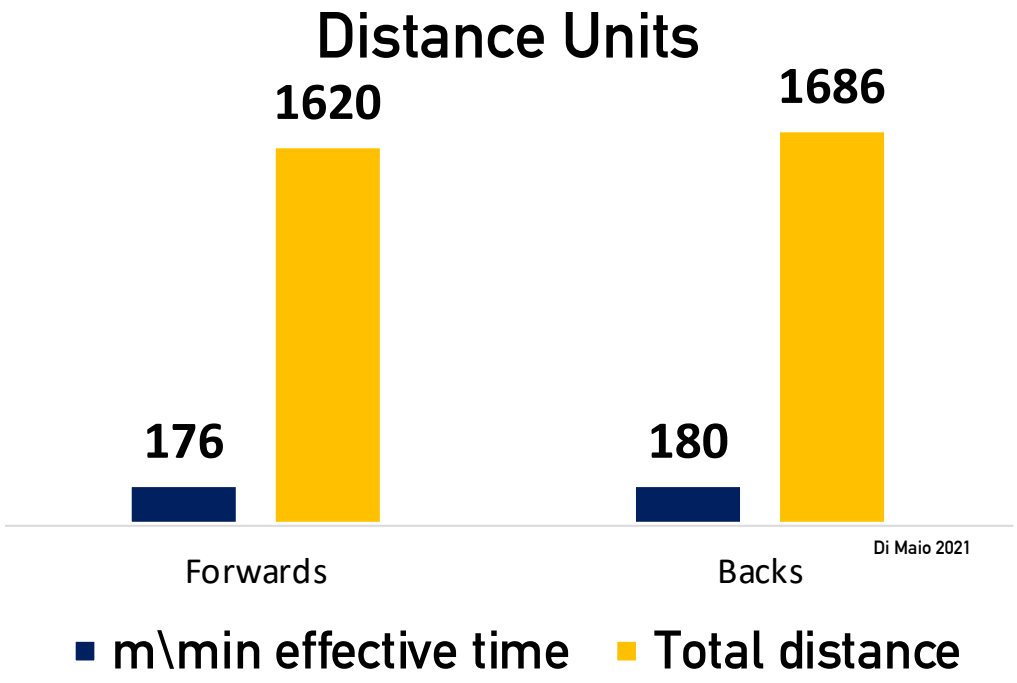


The next two graphs show the distance travelled for each minute of the game and the distance travelled for each minute of effective time. The game time is an excellent value with which to relate the data, because it allows you to compare games that have had different total game times without making the error of evaluating a volume of work without knowing for how long it was actually been carried out.

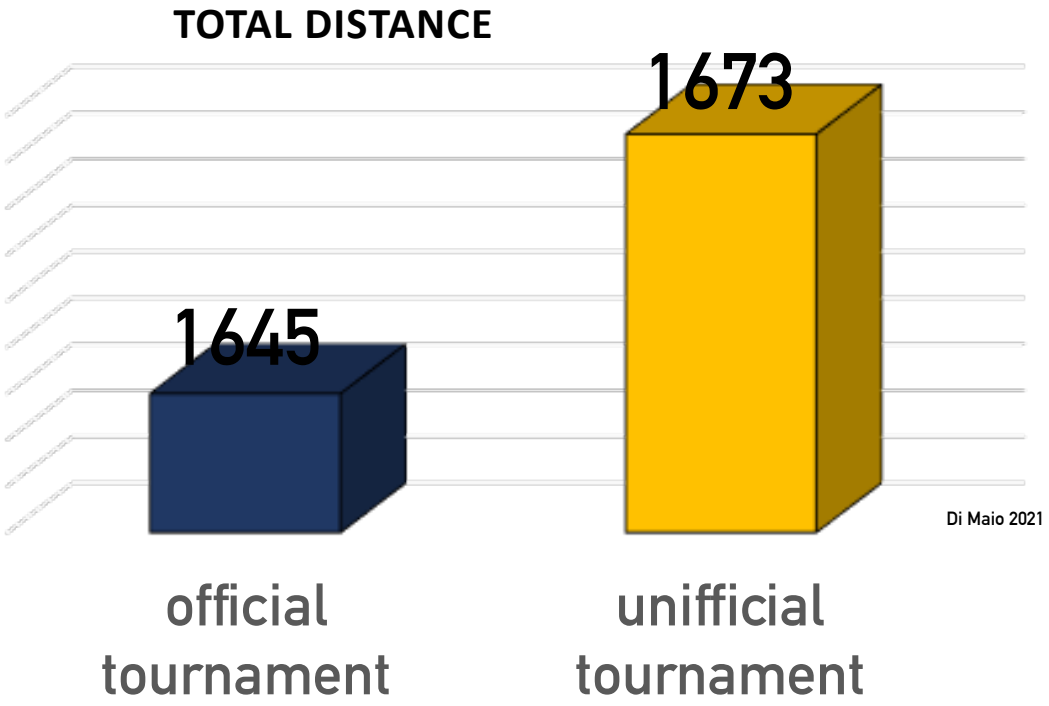




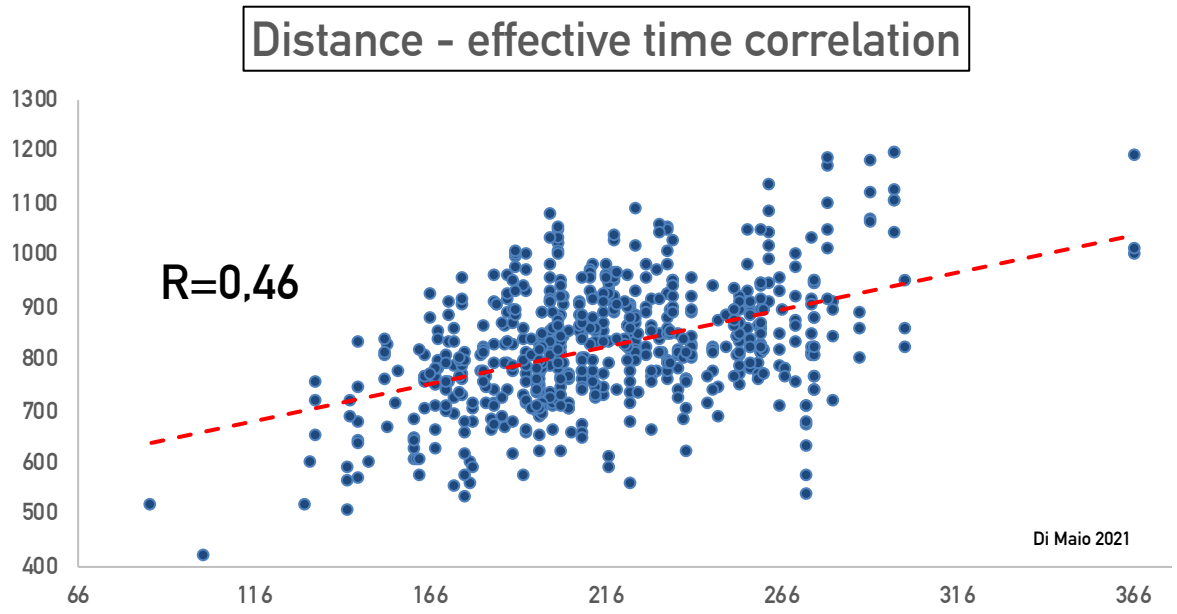
By observing the difference between Forwards and Backs in the context of the total distance travelled and the distance travelled in the effective time, we can confirm that there are no substantial differences between the roles with regard to this parameter.

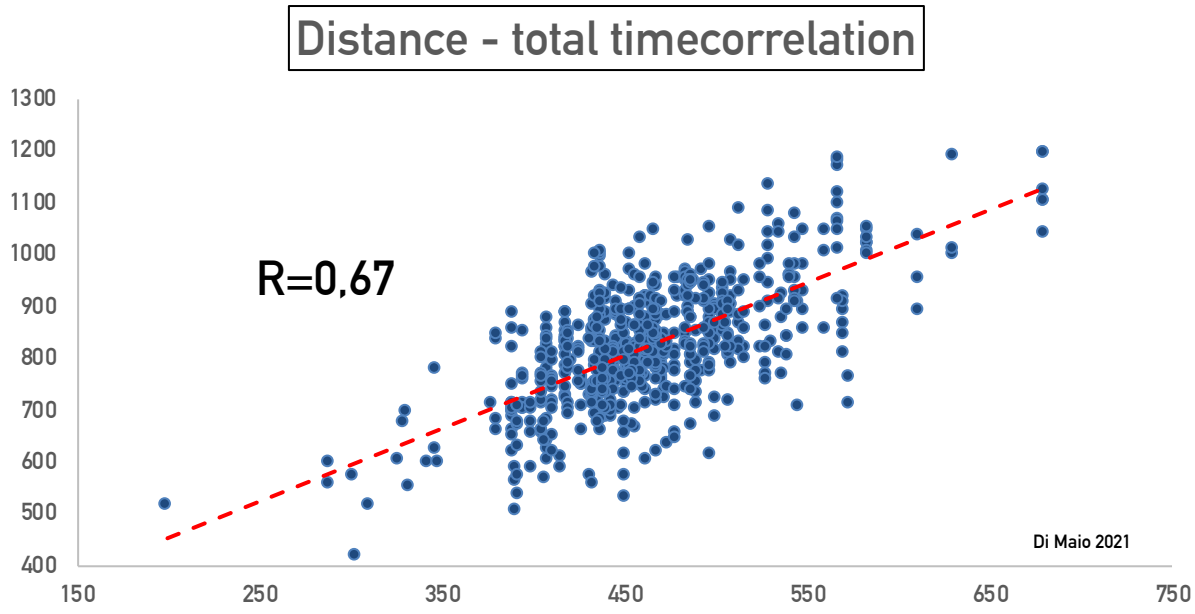


Another differentiation is made based on the type of tournament.
In fact, the data concerning the official Rugby Europe and World Rugby tournaments have been divided from the unofficial preparation tournaments
Although the level is almost always higher in official tournaments, the figures show that there is no substantial difference between the two situations, as the difference is only 2%.

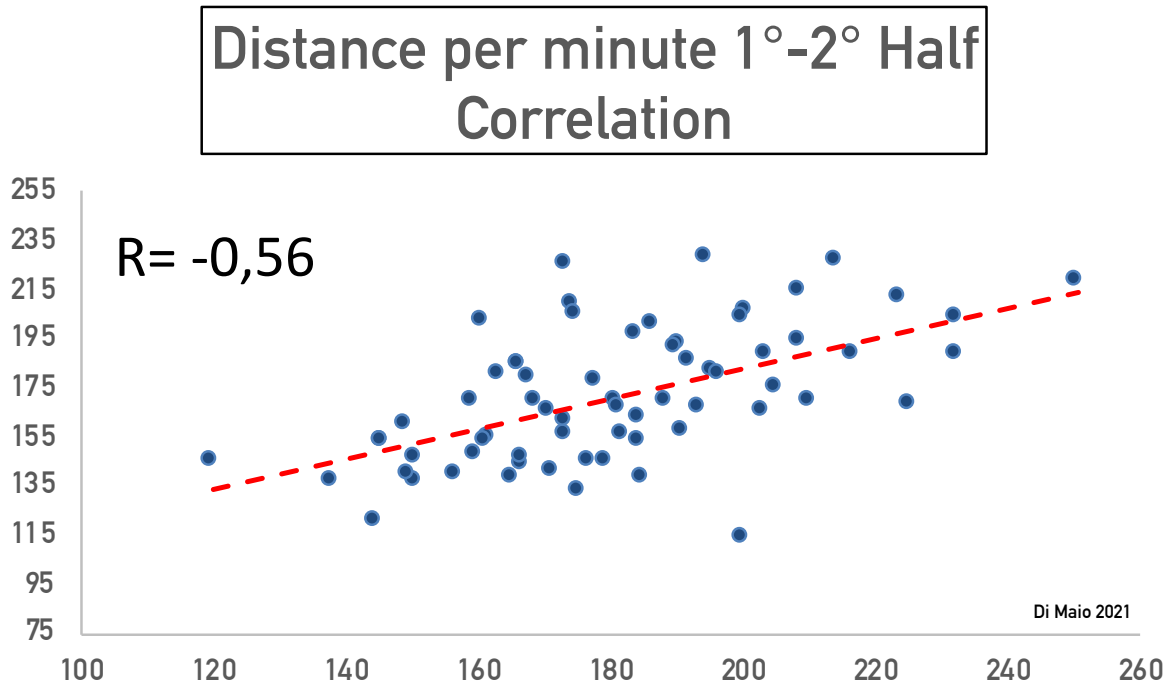


The next analysis helps us understanding if there is a strong correlation between time and distance covered during a match.
The correlation was made taking into consideration both the total time and the effective playing time alone.
Subsequently, the relationship between the distance per minute covered in the first half and that of the second half of each single match is established.
This allows us to verify whether the fact that in a match there was a high number of meters covered in the first fraction leads to a decrease in the second half. Or if a high figure in the first half indicates that that specific match was played over long distances in the second half as well. This would show that it is the type of game that directs the trend of this data.



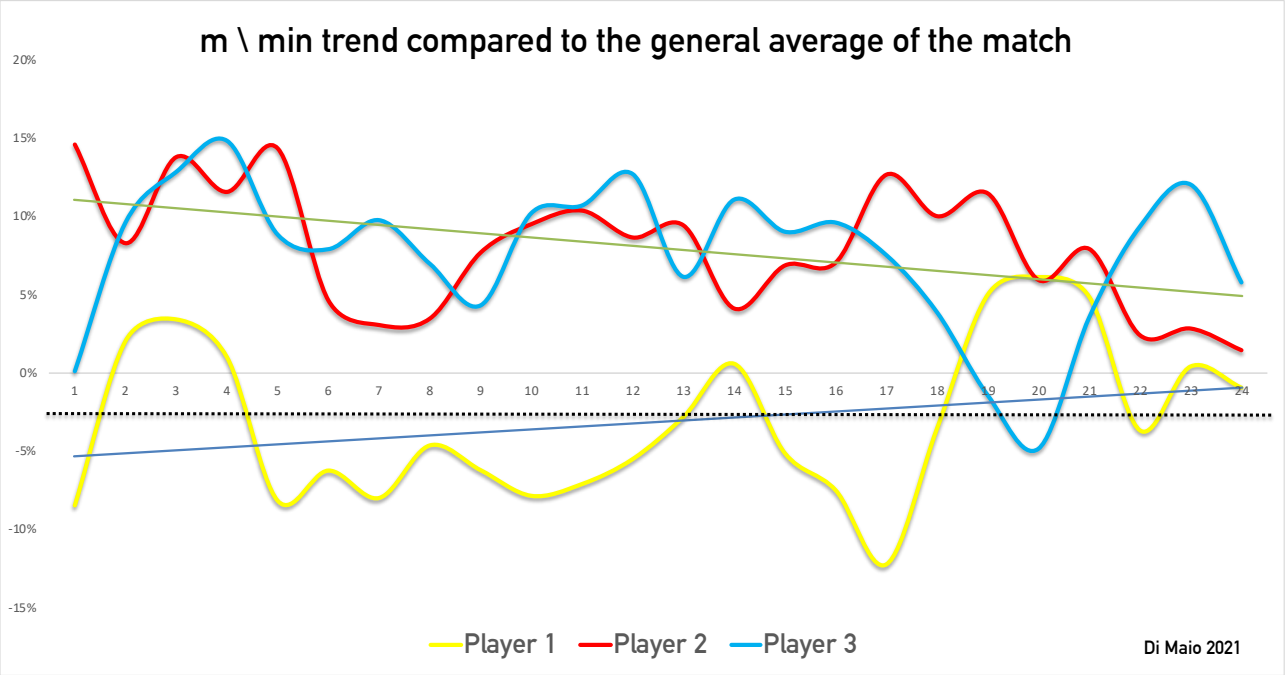


As it can be seen in the first two graphs, there is a relationship between the total time of the game and the covered distance.
This correlation is not perfect as there are very different situations that can change this data.
The correlation is lower if the game time is taken into account.
This result can mean that a longer playing time does not always lead to a greater distance covered and could be justified by the fact that in a game where the sequences last longer, within the same sequence the physical performances of the players tend to decrease by intensity.

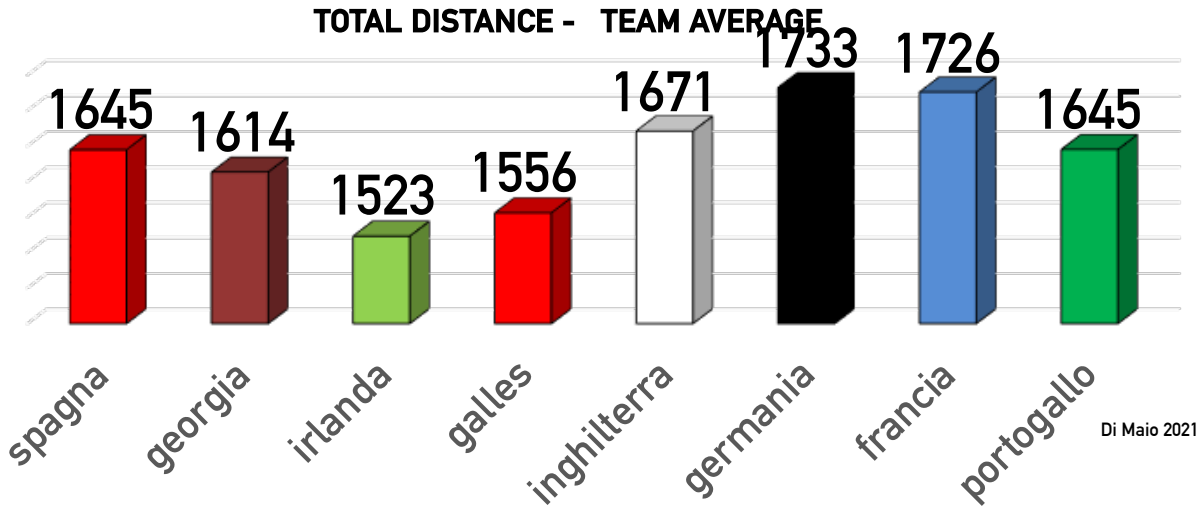


Correlation between performance of the first half and the second half which turns out to be with an R of 0.56. As evidenced by the distribution of the points, this correlation is not strong and there are many situations where in the second part of the game more meters per minute have been covered. On the contrary, there are situations in which the performance, in terms of distance covered every minute, undergoes a decrease in the second half.
Therefore, there is no real linearity between these two data.
This is still justifiable with the fact that the distance data is very general and does not fully represent the content of physical performance during a match.

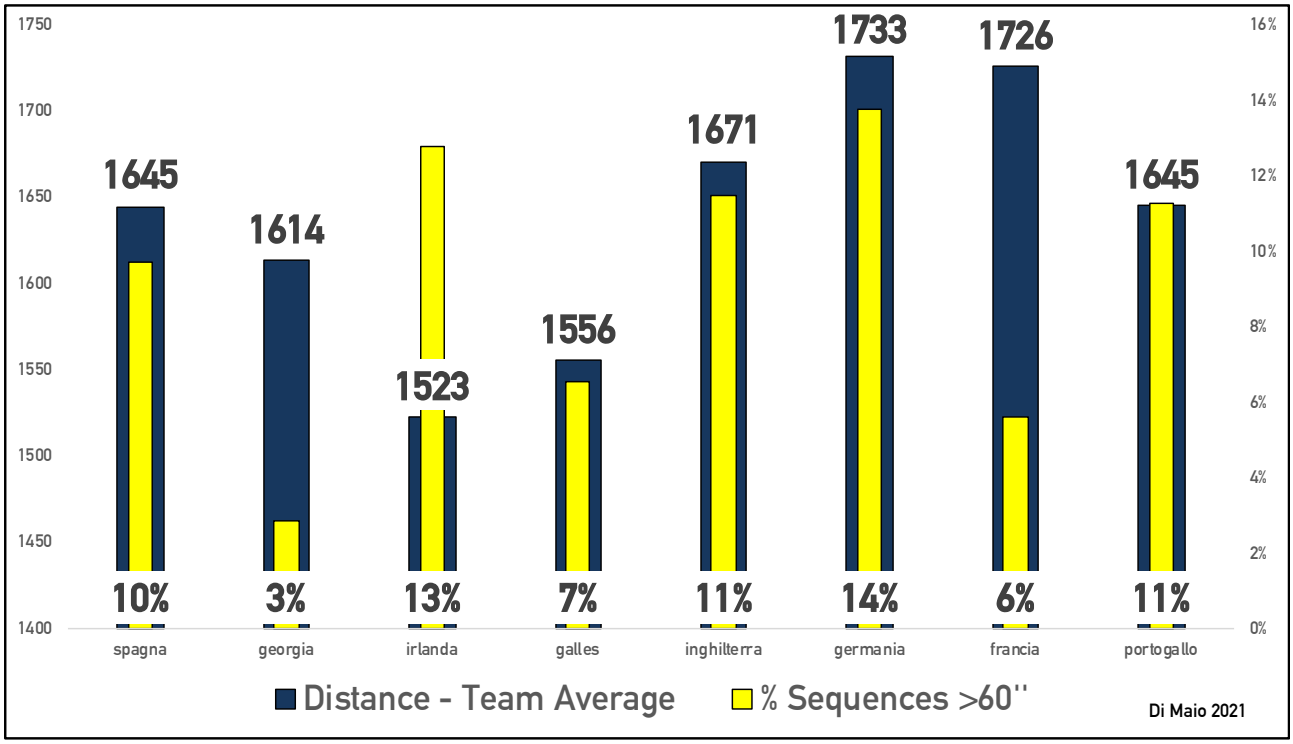
On the other hand, there is a certain linearity regarding the individual data of the player, which falls within the intrinsic characteristics of the player himself.
The next graph shows the trend of three players (out of 24 registered games) which shows the value, in percentage, of the difference between the distance covered by the individual and the average of all the players in the same game (the black dotted line represents the average of all players in the game).
Those who usually accumulate above average values tend to repeat this type of performance. However, there are situations in which the player comes out of his standards.



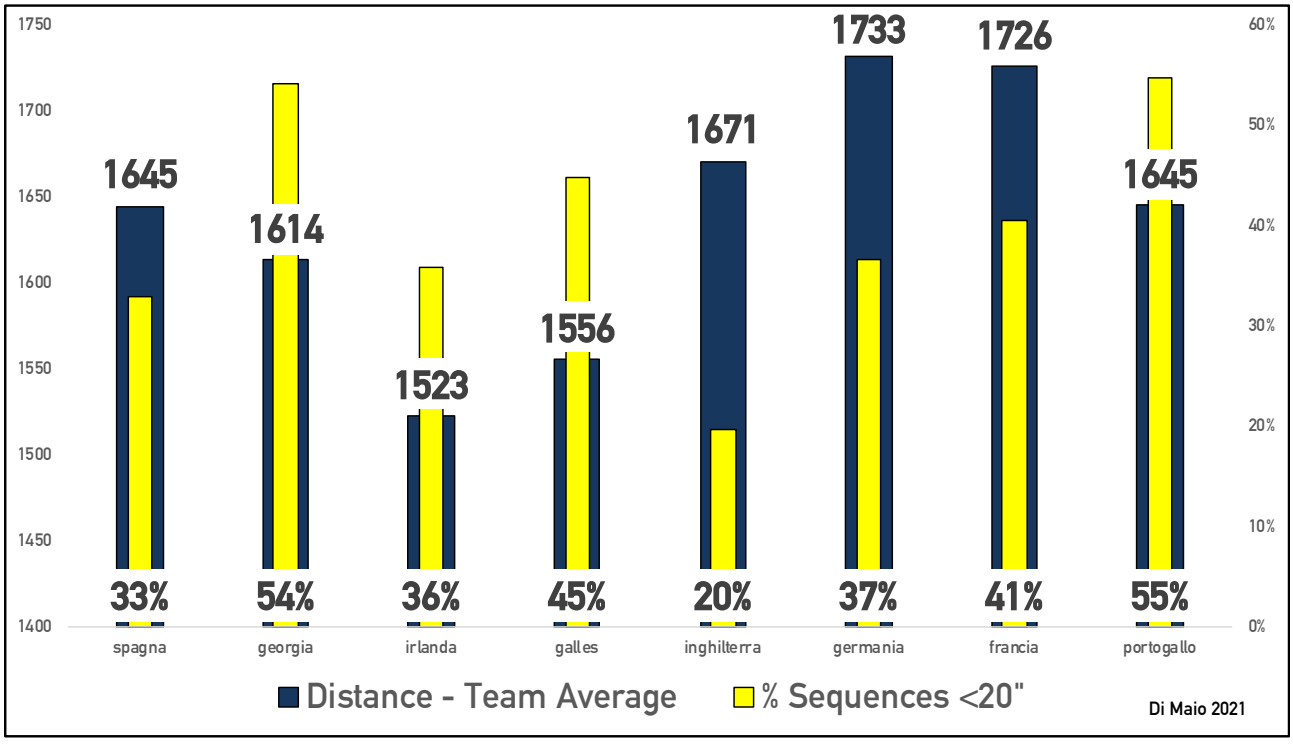
Once again if we consider the difference between the encountered teams, here is what we can find:



But is there a relationship between the distance that is usually covered with a particular team and the distribution of the game sequences?
The next comparisons will help us understand how these two parameters are directly related.



In this elaboration, the average distance covered with a team and the percentage of sequences over 60 seconds are compared.
The correlation index of these data is R = 0.1, meaning there is no relationship between the two parameters.



If we take into account the sequences lasting less than 20 seconds the rule does not change. An R equal to -0.2 indicates that the correlation is inverse and very low In conclusion, it can be said that the duration of the game sequences does not affect the total distance travelled but rather it is the tactical-strategic events that determine its extent.

To confirm how the technical content and the choices made by the players are the determining factor in the intensity of the match (running data), the meters covered per minute in game time and two intensity parameters that will be dealt with more details further on: the time spent above the 20Watt and 16Km \ h thresholds.
As shown by the graphs and the correlation index, there are no direct relationships linking these two parameters, which are practically independent of each other.