

# Assignment 3: Off ball runs

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## 1 Introduction

İlkay Gündoğan has undeniably established himself as a Manchester City legend, even though many find it challenging to define his most dominant attributes. A widely held opinion, however, is that he possesses a remarkable talent for well-timed runs into the box. This skill has played a pivotal role in enabling him to record impressive goal-scoring seasons as a central midfielder, netting as many as 38 goals over his final three seasons with Manchester City.

Leveraging tracking data, I undertook a detailed analysis of his offensive movements during the Champions League final between Manchester City and Inter Milan. This analysis will allow to observe numerous details that might easily go unnoticed during a regular viewing of the match.

## 2 Analysis

In accordance with the requirements, I began by focusing on runs that concluded in the final third of the pitch. In this context, Gündoğan did not stand out among the players in terms of the number of runs into the final third; he was surpassed by forwards, wingers, and full-backs (he ranks in just the 54th percentile in this regard compared to all players). However, this metric includes the wide areas of the pitch, whereas İlkay's plays more of a "fox in the box" role. Therefore, I decided to concentrate my analysis specifically on this area.

As observed in Table 1, Gündoğan notably stands out in this specific aspect. Naturally, players positioned higher up the pitch are more likely to make runs into the penalty area. What differentiates the German, however, is his tendency to make these runs from deeper positions, which is evident in the significantly greater distance covered in comparison to the others displayed in the table.

Player	Distance	Count
Phil Foden	12.83	6
<b>İlkay Gündoğan</b>	<b>20.48</b>	<b>5</b>
Erling Haaland	16.58	4

Table 1: Top 3 players with most runs into the box (have more than 3 runs) and the corresponding average distance in metres

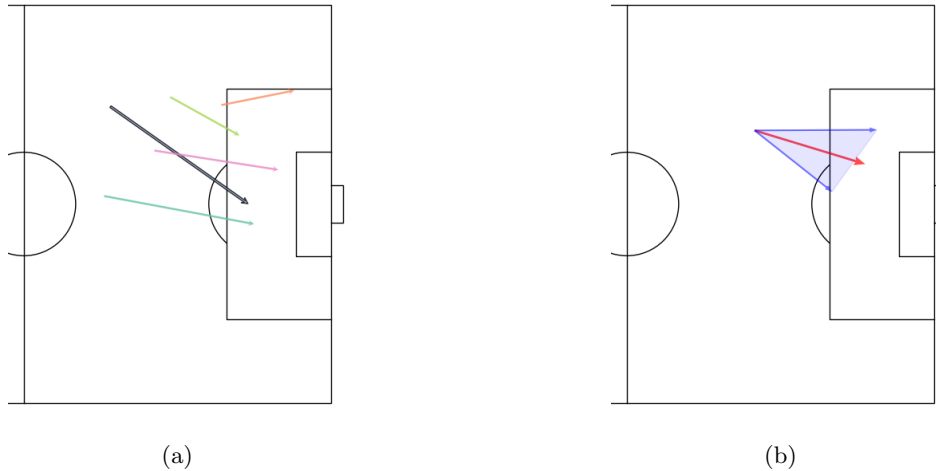


Figure 1: All Gündoğan runs into the box (a) and the average run (in red) displayed with variaton (in blue) (b).

Moving on to the analysis of the runs themselves, as shown in Figure 1 (a), Gündoğan's runs display a very consistent pattern. This is further emphasized by the low variance ( $25.56^\circ$ ) observed in (b), calculated as 'angle variance', which is the standard deviation of the angles of all runs, where angle represents the direction of each run relative to the horizontal (x-axis) on the pitch. In this match, the German played as a left central midfielder, making his observed runs intuitively consistent with his positioning. Surprisingly, all runs also exhibit very similar average speeds (average of 19.85 with standard deviation of 0.06) as well as close maximum speeds (average of 24.91 with standard deviation of 2.48). This might suggest that he has truly perfected this aspect of his game and could be spoken as his trademark.