

Players' technical profiles: a role-based approach

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1. Introduction

This Monthly Report continues the reflection started in the previous edition in determining the technical profile of players. To do this, we have again based ourselves on match data produced by the specialist company InStat.

The sample is made up of 6,111 outfield players from 32 leagues of UEFA member associations who had played at least 1,000 domestic league minutes (injury time included) during the 2021/22 season for the club employing them on the 24th March 2022.

The profiling was carried out using eleven game variables: six offensive, four defensive, and the passes. The actions selected have the advantage of being frequently carried out during matches, with a good distribution between players, which guarantees a more robust profiling. This is even more so when we take into account a sufficient number of match minutes as we have done in this study.

Figure 1: study sample

 Bundesliga (AUT)	 NB I (HUN)
 Pro League (BEL)	 Ligat haAl (ISR)
 First League (BUL)	 Serie A (ITA)
 1. HNL (CRO)	 Serie B (ITA/2)
 1. Division (CYP)	 Eredivisie (NED)
 Czech Liga (CZE)	 Ekstraklasa (POL)
 Superliga (DEN)	 Primeira Liga (POR)
 Premier League (ENG)	 Liga I (ROM)
 Championship (ENG/2)	 Premier League (RUS)
 Primera División (ESP)	 Premiership (SCO)
 Segunda División (ESP/2)	 Super Liga (SRB)
 Ligue 1 (FRA)	 Super League (SUI)
 Ligue 2 (FRA/2)	 Super Liga (SVK)
 Bundesliga (GER)	 1. SNL (SVN)
 2. Bundesliga (GER/2)	 Süper Lig (TUR)
 Super League 1 (GRE)	 Premier League (UKR)

Figure 2: match variables taken into account in the profiling

Air challenges won - attack
Air challenges won - defence
Assists (for goals)
Crosses
Ground challenges won - defence
Interceptions
Key passes (for chances)
Passes
Picking-ups
Shots
Successful dribbles

2. Domains and profiles of play

For all the variables taken into consideration, we have calculated the gap between players' performances and the average measured at the level of their team. This approach allows us to isolate the roles footballers fulfill within their clubs. These roles are not only linked to the position occupied, but also to the personal characteristics of players.

Insofar as the technical gestures selected are not distributed in an unequivocal manner between the players of a team, some being more concentrated than others, the differences from the team's average have been transformed into standard normal distributions. This procedure allows us to identify without statistical bias the actions for which the players really stand out the most from their teammates.

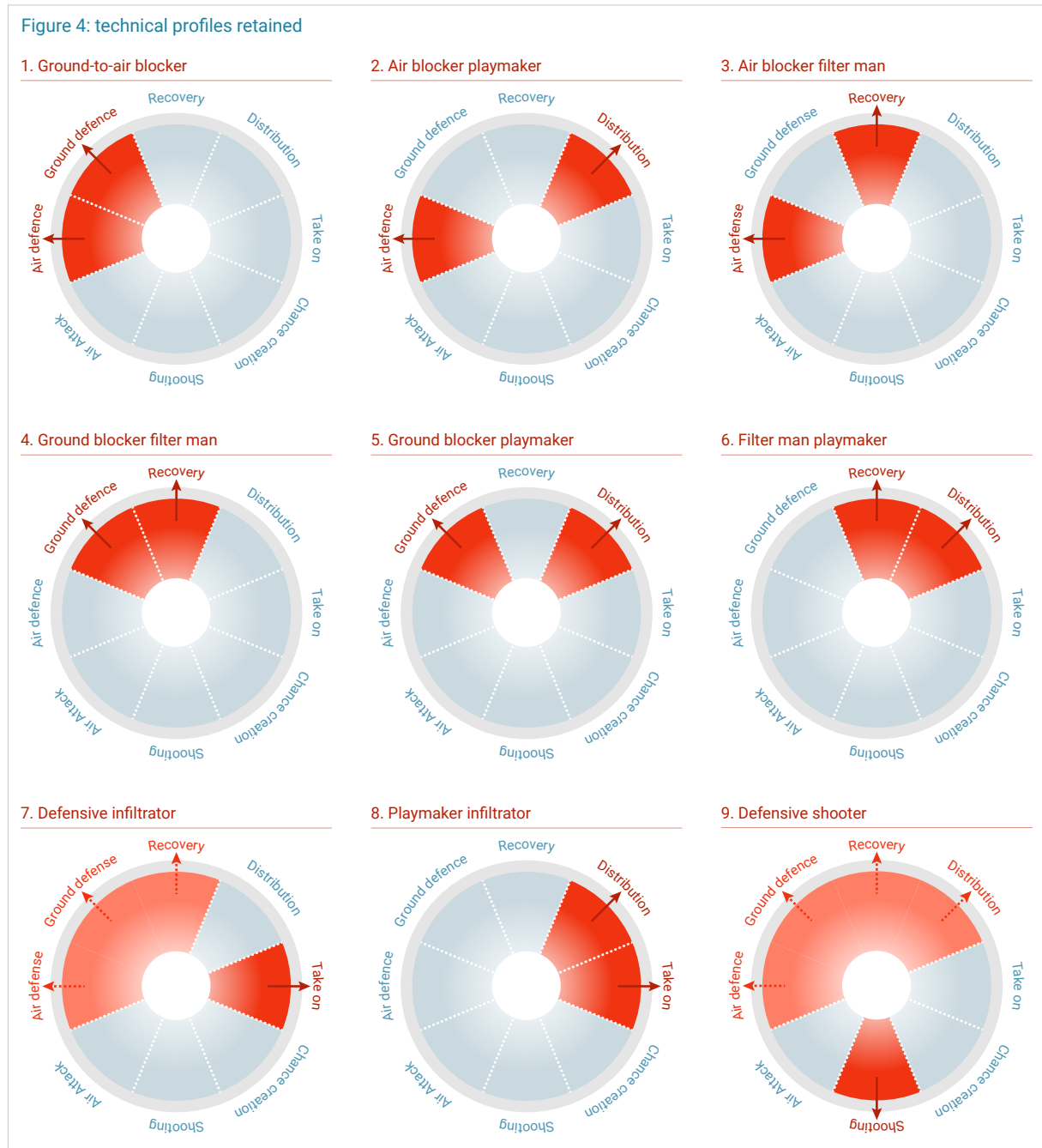
As figure 3 shows, the eleven indicators taken into account were sorted according to the area of the game they belong to. For example, the crosses and dribbles are both linked to the "take on" dimension. Or the key passes (passes for goal opportunities) and assists (passes for goals) refer both to the domain of "chance creation".

Figure 3: game domains of reference of the variables selected

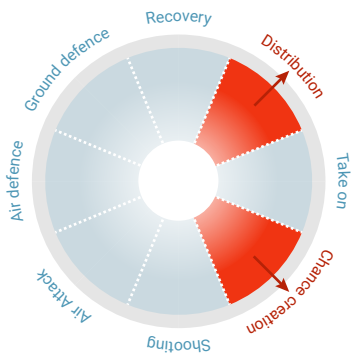
	Domains	Variables
1	Air defence	Air challenges won - defence
2	Ground defence	Ground challenges won - defence
3	Recovery	Picking-ups Interceptions
4	Distribution	Passes
5	Take on	Crosses Successful dribbles
6	Chance creation	Key passes (for chances) Assists (for goals)
7	Shooting	Shots
8	Air attack	Air challenges won - attack

For more finesse in the definition of roles played within a team, we have also taken into consideration the second variable for which players stand out the most from their teammates. With some additional groupings for atypical playing profiles, for example players who are very active in shooting but otherwise defensively oriented, we finally retained 15 technical profiles.

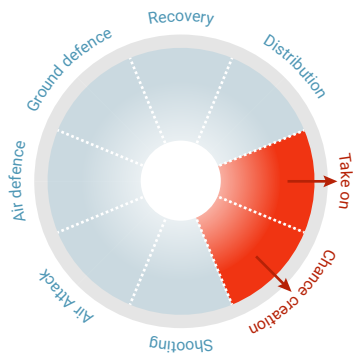
Figure 4: technical profiles retained



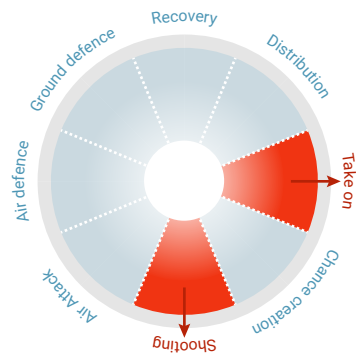
10. Playmaker creator



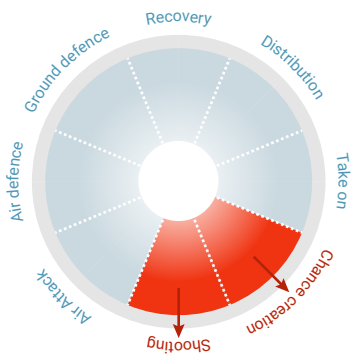
11. Infiltrator creator



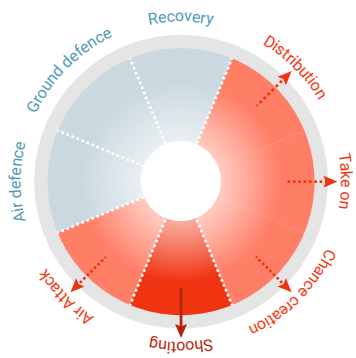
12. Shooter infiltrator



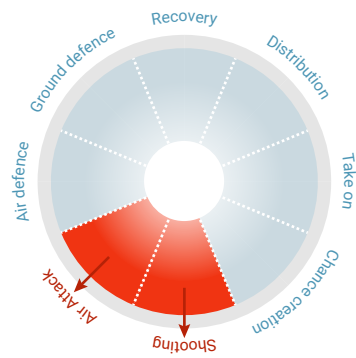
13. Shooter creator



14. Allrounder target man



15. Target man shooter



Distinct profiles can be identified also for footballers playing in the same position in different teams. Liverpool FC's centre back Virgil van Dijk, for example, has an "air blocker filter man" profile, while his counterpart from Chelsea, Antonio Rüdiger, has an "air blocker playmaker" one, and Manchester City's centre back Rubén Dias plays a more common "ground-to-air blocker" role.

Figure 6: technical profiles for three clubs (at least 1'000 domestic league minutes, season 2021/22)

MANCHESTER CITY	Rúben Dias (cb, 24 yrs)	Ground-to-air blocker
	Aymeric Laporte (cb, 27 yrs)	Air blocker playmaker
	Kyle Walker (fb, 31 yrs)	Ground blocker playmaker
	João Cancelo (fb, 27 yrs)	Ground blocker playmaker
	Rodri Hernández (dm, 25 yrs)	Filter man playmaker
	Bernardo Silva (am, 27 yrs)	Infiltrator creator
	Kevin de Bruyne (am, 30 yrs)	Shooter infiltrator
	Riyad Mahrez (fw, 31 yrs)	Shooter infiltrator
	Raheem Sterling (fw, 27 yrs)	Shooter infiltrator
	Ilkay Gündoğan (dm, 31 yrs)	Shooter creator
	Gabriel Jesus (fw, 24 yrs)	Shooter creator
	Phil Foden (fw, 21 yrs)	Shooter creator
	Jack Grealish (fw, 26 yrs)	Target man shooter
PARIS ST GERMAIN	Thilo Kehrer (cb, 25 yrs)	Ground-to-air blocker
	Presnel Kimpembe (cb, 26 yrs)	Ground-to-air blocker
	Marquinhos Aoás (cb, 27 yrs)	Air blocker filter man
	Danilo Pereira (dm, 30 yrs)	Air blocker filter man
	Nuno Mendes (fb, 19 yrs)	Defensive infiltrator
	Achraf Hakimi (fb, 23 yrs)	Defensive infiltrator
	Idrissa Gueye (dm, 32 yrs)	Ground blocker filter man
	Marco Verratti (dm, 29 yrs)	Filter man playmaker
	Ander Herrera (dm, 32 yrs)	Playmaker creator
	Neymar Júnior (fw, 30 yrs)	Infiltrator creator
	Georginio Wijnaldum (dm, 31 yrs)	Shooter infiltrator
	Ángel Di María (fw, 34 yrs)	Shooter infiltrator
	Kylian Mbappé (fw, 23 yrs)	Shooter infiltrator
	Lionel Messi (fw, 34 yrs)	Shooter creator
	Mauro Icardi (fw, 29 yrs)	Target man shooter
REAL MADRID	Nacho Fernández (cb, 32 yrs)	Ground-to-air blocker
	Éder Militão (cb, 24 yrs)	Ground-to-air blocker
	David Alaba (cb, 29 yrs)	Ground blocker filter man
	Carlos Casemiro (dm, 30 yrs)	Air blocker filter man
	Daniel Carvajal (fb, 30 yrs)	Filter man playmaker
	Ferland Mendy (fb, 26 yrs)	Playmaker infiltrator
	Lucas Vázquez (fb, 30 yrs)	Playmaker infiltrator
	Federico Valverde (dm, 23 yrs)	Defensive shooter
	Toni Kroos (dm, 32 yrs)	Defensive shooter
	Luka Modrić (dm, 36 yrs)	Playmaker creator
	Marco Asensio (fw, 26 yrs)	Shooter infiltrator
	Vinicius Júnior (fw, 21 yrs)	Shooter infiltrator
Karim Benzema (fw, 34 yrs)	Shooter creator	

4. Conclusion

The role-based approach presented in this report is particularly useful for determining the technical profile of players based on actions carried out in comparison to their teammates, independently of their position on the pitch.

For sure, the position played influences the roles carried out, but it does by far not account for everything. Our profiling method thus allows us to refine comparisons between players, both within a team and between different teams.

In parallel to the methods of statistical proximity and the k-medoids algorithm presented in the previous [Monthly Report](#), and in combination with the experience capital method detailed in the [70th Monthly Report](#), this approach is a precious tool available to clubs to fine tune their strategies and recruitment techniques.