University College Cork

Coláiste na hOllscoile Corcaigh

2022-AM4065: Network Science: Theory and Applications

Final Phase:

"Using Neural Networks to Assess Passing Data to Identify the Dominant and Intermediary Players for a given Team in the Champions League"

Patrick Falvey – 113384116

School of Mathematical Sciences

MSc Mathematical Modelling and Self-Learning Systems

Coordinator: Dr. Philipp Hoevel

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1 Introduction

This project aims to develop a network-based approach to analyse player passing data, to identify the dominant and intermediary players and how they contribute to the team performance. In this project, we will use a selected team from The Champions League over a selected campaign.

Association Football (or Soccer) is best defined as a team sport between two opposing teams of 11 players each. The objective of the game is for one team to score more goals than the opposition. Throughout the modern era of football, several individual aspects have been emphasised which usually resulted in a widely adopted approach to playing football as a team. One of the biggest transitions was the change from an emphasis on dribbling to passing. The draw of passing over dribbling was the advantage passing brings with regards to securing possession of the ball, without allowing the opposing team an opportunity to attack.

There has been a lot of previous research already in the field of applying network analysis to team sports (Lusher, Robins, & Kremer, 2010). A passing network, where players are represented by nodes and passes represent directed edges, can be assessed using various network measures such as centrality. This method of analysis reveals the key players that contribute to a team's passing performance.

In the initial phase of this project, an investigation into why a football team is a good example of a neural network was undertaken. A dataset was established and compiled.

In the final phase of this project, an assessment of team performance using network measures was conducted. The analysis considers individual players and uses network measures to highlight which players are most influential on the team's passing network. The results display that network measures such as centrality can be successfully employed to identify key passers (playmakers) in a selected team throughout a campaign.

2 Background

2.1 The Champions League

The UEFA Champions League, formally known as the European Cup, has a history spanning back to 1955. It is an annual football competition contested by Europe's top-division clubs. The competition occurs across thirteen matchdays (not including qualifying rounds) which are made up of:

- The Group Stage: First six matchdays are a double round-robin qualifying system. The thirty-two qualifying teams are drawn into eight groups. Each team within each group plays each other on two occasions. Points are awarded to teams that win or draw these matches. The eight group winners and eight runners-up in each group proceed to the knockout phase.
- The Knockout Phase: The remaining seven matchdays are made up of four rounds that culminate with the final.

Each team must enter a squad of a maximum of 25 players, although in some cases not all 25 players are used throughout the campaign. Football is a game of 11 versus 11, with the following typical roles on each team:

- Goalkeeper
- Defender
- Midfielder
- Attacker

2.2 Passing Network

Passing networks are constructed from the observation of the ball exchange between players. In this scenario, the players (e.g. Jordan Henderson, Liverpool F.C) can be described as the network node (or vertices), and the number of passes, throughout a campaign, between any two players of the team can be described as links (or edges). These links can be bidirectional as a player can both receive and give a pass from/to another player. As a result, we can construct a weighted and bidirectional passing network (see example in Figure 1 below).

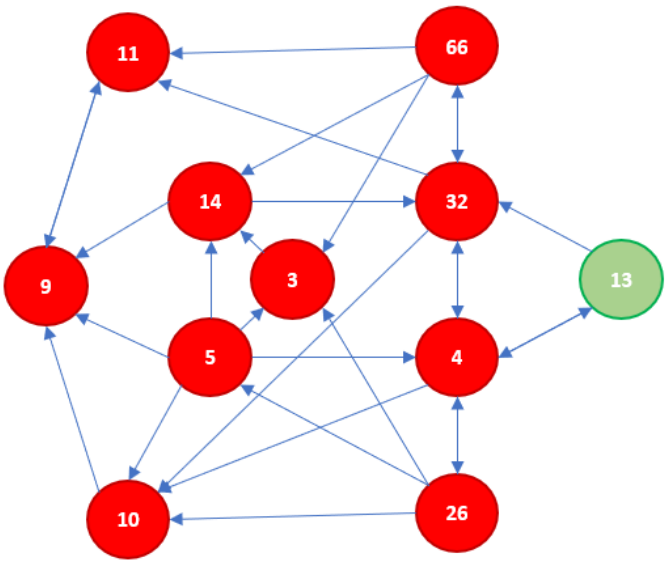

Figure 1: Example of a weighted bidirectional passing network given in the form of a football team

3 Dataset

The dataset is a total passing distribution of each player of the football club Liverpool Football Club throughout the 2018/19 Champions League campaign. Liverpool played a total of 13 matchdays in this particular campaign, progressing to the competition's final and being crowned winner of the competition after defeating Tottenham Hotspur F.C.

Passing data for all 13 Liverpool games was compiled. Since passing network differs by every match due to the change of in personnel on a game by game basis depending on the personal available (individual players may be forced out of selection through injury) and the selected strategy for a particular game (depends on the perceived difficulty of the opponent) it is proposed to assess all players that were involved in the campaign.

Total passing distributions of every match in the UEFA Champions League are uploaded in press kits of UEFA.com [1]. As a result, being only available in pdf format, I re-typed the data into an excel table format.

In the 2018/19 campaign, 20 of the allowable 25 players played in at least one match for Liverpool. Each of these players represents a node in the team network. For this assessment, we will label each node with the corresponding player's squad number (i.e. Sadio Mané is represented by his squad/shirt number 10).

3.1 Data Collation

To compile the passing data used for this assignment, publicly-available data from the UEFA.com website was utilised (UEFA, 2019). The per-player breakdowns of games statistics are available through the game press kits. The dataset used here was a detailed passing dashboard, which includes passes to and from between a selected player and their teammate.

The data is only available in a pdf format which meant that all of the data collected had to be retyped into an excel table format. Unfortunately, it was not possible to apply any automation to this process which meant it was quite time-consuming and not easily collated.

3.2 Data Parsing

Once a passing dashboard for each game was recreated in excel, a combined adjacency matrix could be built which highlights the passes to and from between a selected player and their teammate across the entire competition. This is a matrix where the number of columns is the same as the number of rows (n x n, where n is the number of players on the team that has played throughout the campaign). The output value of this matrix, Aij can be described as the total number of passes from player i to player j. As player i cannot pass the ball to himself, the diagonal terms of the adjacency matrix are zero (no self-loops as previously stated). Figure 2 gives the passing adjacency matrix for Liverpool FC across the 13 games in the 2018/2019 season.

$$A_{ij}(Liverpool.F.C) =$$

+	#3	#4	#5	#6	#7	#8	#9	#10	#11	#12	#13	#14	#15	#18	#20	#23	#26	#27	#32	#66
#3	0	41	19	11	37	20	21	23	19	26	15	21	2	2	0	13	45	3	30	33
#4	50	0	47	37	80	19	14	31	12	58	50	34	3	3	4	3	118	10	48	25
#5	20	40	0	7	32	2	20	28	49	49	8	26	4	0	8	9	47	4	22	58
#6	11	35	4	0	11	3	2	0	8	8	11	12	1	0	0	1	2	0	0	23
#7	26	50	23	5	0	13	26	50	39	23	10	19	2	0	8	4	90	9	30	45
#8	16	13	7	3	15	0	10	8	8	3	1	15	2	0	0	0	14	0	2	3
#9	16	8	30	3	16	13	0	33	33	7	0	28	2	2	3	6	34	1	1	14
#10	16	14	21	1	30	11	27	0	30	10	2	12	1	0	6	4	56	4	5	11
#11	9	3	35	0	18	4	35	27	0	11	0	29	4	0	2	1	10	2	5	34
#12	23	65	32	8	27	1	14	22	21	0	21	27	0	1	6	10	9	1	19	40
#13	31	81	15	18	25	4	2	9	1	30	0	19	2	0	0	0	49	1	62	26
#14	27	32	23	12	31	12	21	24	38	23	7	0	5	0	0	11	47	6	28	65
#15	1	0	6	0	2	1	2	5	5	0	1	3	0	0	2	0	4	0	0	5
#18	2	1	1	0	0	0	3	2	0	0	0	0	1	0	1	0	0	0	0	0
#20	0	1	9	0	4	0	3	3	4	4	0	0	2	0	0	0	7	1	2	4
#23	6	3	4	1	3	0	5	3	5	5	1	6	0	0	0	0	5	1	4	15
#26	30	83	59	0	82	12	45	82	20	14	20	26	10	0	3	5	0	10	12	9
#27	1	3	2	0	6	0	4	3	3	0	0	5	0	0	0	4	5	0	1	1
#32	34	51	27	0	31	6	13	12	20	25	63	24	3	0	1	2	5	5	0	49
#66	24	17	41	16	25	5	31	13	62	21	8	49	9	0	7	17	8	1	31	0

Figure 2: Passing Adjacency Matrix for Liverpool .F.C for the 2018/19 Champions League Campaign

The excel file is output can be saved as a common separated value (.csv) or .txt file.

3.3 Data Visualisation

Using the matrix produced in the Data Parsing Stage, we can create a visual of this passing network. In this instance, MATLAB is the software package of choice to produce our network drawing. Using the MATLAB function **digraph,** we can input our adjacency matrix and our node titles to produce a visual of both the nodes and their edges. The Visual allows us to see the passing relationships between all 20 players across the 2019/20 season.

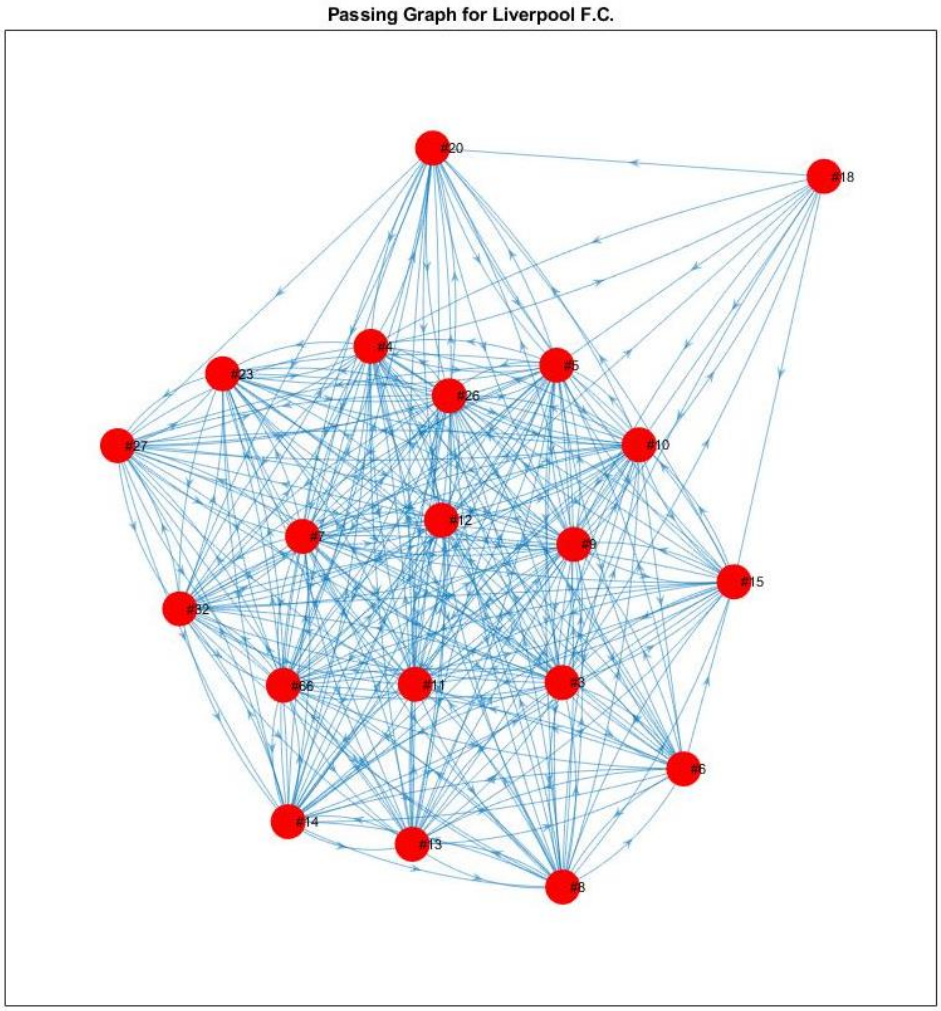

Figure 3:Passing Graph for Liverpool F.C. 2018/19

3.4 Network Measures

Since the turn of the century, the level of research focused on applying the theory of social networks to football has increased significantly to the point where we are now seeing managers/coaches developing their team strategies with a huge consideration for such research. When we look at the relationship between football and social networks one form of network is said to be most defined – passing networks.

A passing network is essentially a graph G=(V, E), where any two players v_1 and v_2 can be connected by two directed and weighted edges:

- $e_{1,2}$ which in this case represents the passes made by Player 1 to Player 2 and;
- $e_{2,1}$ which represents the passes made by Player 2 to Player 1.

When analysing Passing Networks one of the best measures is the concept of centrality and its various forms. Centrality is a vast and well-studied concept in social network analysis. Its

purpose is to estimate and determine what nodes are important in a network. When we apply the idea of centrality to passing networks in team sports, it can be used to identify the dominant and intermediary players and estimate the level of interaction between teammates of the assessed team.

3.4.1 Degree Centrality

Degree centrality is defined as the number of links a node has. In the case where a network is directed (where the direction of the link is a factor), then degree centrality can be furth broken down into two further measures, the indegree and outdegree. The Indegree is a count of the number of links to the node and the out-degree is the number of links directed to other nodes within a network. As a result, it can be said that the degree centrality value for a node is the summation of both the indegree and outdegree. This has been explored in "Network Analysis in Basketball - Inspecting the Prominent Players Using Centrality Metrics," (Clemente, Lourenco, Kalamaras, & Mendes, 2015).

It is clear to see how Degree Centrality is a good measure to determine which player on a team is the main passer (playmakers) and which players are the top scorers (finishers). If a player/node is to have a higher indegree than its outdegree, we can say that the player receives more passes than the player gives. This would indicate that the player is a priority during offensive plays and would tend to take a shot at goal on occasions rather than pass to another player on the team. This is a common trait of an offensive player. We can formulate this as follows:

$$Indegree_p = \sum_{i=p,j=1}^{j=n}$$

Where the in-degree of a player, $Indegree_p$, is given by the sum of the weights of all incoming edges – i.e. the sum of column j where j=p, p being the player being examined.

In contrast, If a player/node is to have a higher outdegree than its indegree, we can say that the player is a facilitator and move the ball around to other teammates more, rather than being the focus of passing.

$$Outdegree_p = \sum_{i=1,j=p}^{j=n}$$

Where the Outdegree of a player, $Outdegree_P$, is given by the sum of the weights of all outgoing edges – i.e. the sum of row i where i=p, p being the player being examined.

As an example, we can look at the player Fabinho (squad number 3). His indegree is the sum of all the passes to the player. To attain this value, sum all the passes to the player from all of his teammates by surmising all the values in the node #3 column in the Adjacency matrix. We can conclude that his indegree is 343(i.e. Fabinho has had 343 passes played to him in this season).

His outdegree is the sum of all the passes from the player to his fellow teammates. To attain this value, sum all the passes to the player from all of his teammates by surmising all the values in the node #3 row in the Adjacency matrix. We can conclude that his outdegree is 381(i.e. Fabinho has had 381 successful passes played from him to other teammates in this season).

3.4.2 Closeness Centrality

Centrality measures give us relative notions of the 'importance of a node in a network. Closeness Centrality indicates how close a node is to all other nodes within the network. It can be calculated as the average of the shortest path length from the node to every other node. Applying this to a football team perspective, if two players have made many passes to each other, they can be considered being 'close'. As already discussed in a football passing network, the edge weights define the number of passes between two players. If two players are close this may indicate that there exists a relative easiness in passing the ball between the pair. We can formulate this as follows:

$$d_{ij} = \frac{1}{\mathrm{A_{ij}}}$$

Where did, the closeness centrality of a node, is defined as the reciprocal of the number of passes (A_{ij}).

In our analysis, the incoming number of passes to a node/player is used to define closeness as a measure of how easy it is to get the ball to that given player/node. If a player on a given team has a high closeness centrality, he is well connected with his fellow teammates and is receiving a lot of passes. The closeness centrality of a player, CC_p, is given by the below form:

$$CC_p = \frac{n-1}{\sum_{v=1}^{n-1} d(v,u)}$$

As an example, we will again look at the player Fabinho (squad number 3). His closeness centrality is calculated by the number of numbers within the network baring the node/player himself multiplied by the reciprocal of the players in degree.

$$CC_p = \frac{20-1}{343} = 0.055$$

The inverse of this value was then taken to compare with other players within the team. The higher the value of the reciprocal of the player's closeness centrality the more connected the player is with his teammates. In this scenario, Fabinho is a quite well-connected player.

We can extend this concept to encapsulate the entire network's overall closeness centrality, or in the is the centralisation of a team. In the paper "Centrality in Social Networks – Conceptual Clarification" (Freeman, 1978), the following form of graph centrality for closeness was derived, by considering that the maximum possible closeness is when a node is at a distance of 1 from all other nodes.

$$CC = \frac{\sum_{p=1}^{n-1}[CC_{max} - CC_p]}{\frac{n^2-3n+2}{2n-3}}$$

We can use overall closeness centrality for each game in the given season to compare passing strategies from game to game. High levels of centralisation in football networks results are associated with reduced team performance (Grund, 2012).

3.4.3 Betweenness Centrality

The betweenness centrality of a node is defined as the number of times that a node lies on the shortest path between two other nodes in the graph. In terms of our example of a player with the network of a team the betweenness centrality how much the ball movement between his teammates depends on him (i.e. his importance to move the ball from one player to the next in the passing chain). We could also look at betweenness as a measure of how much a team suffers when a player is removed. The betweenness Centrality, BC_p, of a player can be represented as follows:

$$BC_p = \sum \frac{g_{jk}(p)}{g_{jk}}$$

Where:

- $g_{jk}(p)$ = number of shortest paths between Player j and k that pass-through player p
- g_{jk} = total number of shortest paths between Player j and k

About our analysis, betweenness centrality will be used to identify which players on our chosen team act as the intermediary passers and facilitate ball movement between other players. We expect that the regular starting midfielders will have high betweenness centrality values, while regular substitutes, the goalkeeper, and those in attacking roles should have low or possibly zero values (as they are typically the start or end node of a passing chain).

3.4.4 PageRank Centrality

PageRank is a way of measuring the importance of website pages by counting the number and quality of links to a page (Page, et al., 1999). It was first introduced in the context of web search engines by the creator of google. The idea behind PageRank is that the importance of a node (or in our case a player) depends on the importance of its neighbors. When applied to our study, the measure is used to determine the probability that a given player has the ball after several passes (Pena & Touchette, 2012). If the PageRank score of a given player is high, they are the focus of a teams passing strategy as they are more likely to have possession of the ball when the team is in possession.

PageRank of Player i can be represented as (Gudmunsson & Horton, 2017):

$$x_i = p \sum_{j \neq i}^{n} \frac{A_{ij}}{L_j^{out}} x_j + q$$

Where:

L_j^{out}=total number of passes made by Player j

p= probability that a player passes the ball instead of shooting

q= parameter awarding ‘free’ popularity to each player

With PageRank Centrality, the sum of all players on the chosen team (network) values sums to 1. This means that each player’s PageRank Centrality value is dependant on the PageRank of each of his teammates.

3.4.5 Clustering

Clustering can be considered as a measure of the transitivity of the network – with a given player p acting as a middle node for his teammates to pass to one another (Pena & Touchette, 2012). In the case of a directed, weighted network the clustering coefficient is defined as (Fagiolo, 2007):

$$c_p = \frac{1}{d_p(d_p - 1) - 2s_p} \cdot T_p$$

Where:

d_p= sum of in and out degrees of node p:

s_p= reciprocal degree of node p

T_p= number of directed triangles through node p:

If the clustering coefficient for a player is high, he is said to be well connected amongst his teammates (neighbors) and if the clustering coefficient is low, the given player is said to be not well connected amongst his teammates, in other words, the player is not involved in many passing paths between teammates. The average of all node/player cluster coefficients gives the global cluster coefficient for that network/team.

3.4.6 Passing Performance Metrics

It is also important to determine a metric for the performance of the individual players. A player's performance will provide a measure to assess which players have the biggest involvement in the movement of the ball amongst a team from a passing perspective to identify players' roles in a team. Two quantities that can be used to characterise the passing of a Player p are the Contribution K_p and the Passing Ratio PR_p (Xun He, 2019). This independent review will allow us to quantify the relative passing performance of a team.

3.4.6.1 Contribution

Contribution is defined as the sum of the outdegree and indegree of a Player p (ie. The number of passes that player has been involved in).

$$K_p = \sum_{i=p,j=1}^{j=n} A_{ij} + \sum_{i=1,j=p}^{j=n} A_{ij}$$

Total Contribution is a good method to assess the overall contribution of Player p. Contribution can be extended by considering the Contribution Ratio, which is a ratio of Player p contribution against the total passes made by the team as a whole. The sum of Contribution Ratios for all players in a team is 1.

$$KR_p = \frac{K_p}{\sum_{i,j=1}^{i,j=n} A_{ij}}$$

3.4.6.2 Passing Ratio

The passing ratio of a player is the difference between a player's indegree and outdegree divided by the player's Contribution (the sum of his indegree and outdegree). If a player possesses a positive passing ratio it suggests that the player passes more than he receives (a facilitator/playmaker). If a player possesses a negative passing ratio it suggests that the player receives more than he passes (a finisher/end node of network). We can use the passing ratio measure to determine a player's role in the team.

$$PR_p = \frac{\sum_{i=p,j=1}^{j=n} A_{ij} - \sum_{i=1,j=p}^{i=n} A_{ij}}{K_p}$$

Where:

K_p= Contribution of Player p (i.e. the sum of the player's indegree and outdegree)

$\sum_{i=p,j=1}^{j=n} A_{ij}$ =The indegree of player p (i.e. the number of passes player p receives)

$\sum_{i=1,j=p}^{i=n} A_{ij}$ =The outdegree of player p (i.e. the number of passes player distributes to other teammates successfully)

4 Analysis and Results

4.1 Team Analysis

The centrality measure as describe in the previous section of the report were applied to the data collected, Liverpool's 2018/19 Champions League campaign. Throughout 13 matches, the Liverpool passing graph had a total of 20 nodes and 315 edges. The total number of passes completed by Liverpool in this campaign was 5534. In Table 1 below, the figures for each player's indegree (successful passes received by a player) and outdegree (successful passes from that player to a teammate).

Player Name	Squad Number	Indegree	Outdegree
Andy Robertson	#26	555	522
Virgil Van Dijk	#4	541	646
James Milner	#7	475	386
Trent Alexander-Arnold	#66	460	386
Georginio Wijnaldum	#5	405	261
Sadio Mané	#10	378	261
Mohamed Salah	#11	377	229
Jordan Henderson	#14	355	412
Fabinho	#3	343	381
Joe Gomez	#12	317	347
Joël Matip	#32	301	471
Roberto Firmino	#9	298	250
Alisson Becker	#13	218	375
Naby Keïta	#8	126	120
Dejan Lovren	#6	122	132
Xherdan Shaqiri	#23	90	67
Divock Origi	#27	60	38
Daniel Sturridge	#15	53	37
Adam Lallana	#20	51	44
Alberto Moreno	#18	8	11
Total		**5534**	**5534**

Table 1: Liverpool Players' Indegree and Outdegree (weighted to account for the number of passes)

It is also beneficial to break this down into the unweighted indegree and outdegree. In table 2, we can see exactly how many players each player has received a pass from (indegree) and how many players each have played a pass to (outdegree).

Player Name	Squad Number	Indegree	Outdegree
Andy Robertson	#26	18	17
Virgil Van Dijk	#4	19	19
James Milner	#7	18	18
Trent Alexander-Arnold	#66	18	18
Georginio Wijnaldum	#5	19	18

Sadio Mané	#10	18	18
Mohamed Salah	#11	18	16
Jordan Henderson	#14	17	17
Fabinho	#3	18	18
Joe Gomez	#12	16	18
Joël Matip	#32	16	17
Roberto Firmino	#9	19	18
Alisson Becker	#13	14	16
Naby Keïta	#8	15	15
Dejan Lovren	#6	122	132
Xherdan Shaqiri	#23	12	14
Divock Origi	#27	15	12
Daniel Sturridge	#15	16	12
Adam Lallana	#20	12	12
Alberto Moreno	#18	4	7
Total		**315**	**315**

Table 2: Liverpool Players' Indegree and Outdegree (unweighted)

The table above has been organized by the largest indegree to the smallest. Looking at the table, it is clear as to what players are central to the team passing network. This suggests that these are the important playmakers in the Liverpool team and are the focus of the team's passing based on playmaking and ability to retain possession of the ball.

Andy Robertson (#26) is the player that exhibits the high Indegree with a total pass received of 555. It is interesting to note that the player's outdegree is less although of a similar value to his indegree. This suggests that although he is seen as a key player in the team's passing he is not necessarily where the network ends (i.e. takes a shot a goal). This makes sense as Robertson's position is left-back and as a player, his attributes include running the ball down the flank of the left side of the pitch and delivering a cross to find a teammate inside the box.

The player with the highest overall degree (the combination of his indegree and outdegree) is Virgil Van Dijk (#4).

To complement our initial analysis, we also examined the Centrality of the network using the 3 key measures: Closeness, Betweenness, and PageRank Centrality. This can be seen in the table below.

Player Name	Squad Number	Closeness Centrality	Betweenness Centrality	Page Rank Centrality
Fabinho	#3	0.950	0.0118	6.15%
Virgil Van Dijk	#4	1.000	0.0149	9.35%
Georginio Wijnaldum	#5	1.000	0.0149	7.11%
Dejan Lovren	#6	0.826	0.0012	2.69%
James Milner	#7	0.950	0.0060	7.28%
Naby Keïta	#8	0.826	0.0008	2.63%
Roberto Firmino	#9	1.000	0.0149	5.51%
Sadio Mané	#10	1.000	0.0149	5.94%
Mohamed Salah	#11	0.950	0.0060	5.83%
Joe Gomez	#12	0.950	0.0136	6.00%
Alisson Becker	#13	0.905	0.0030	5.56%
Jordan Henderson	#14	0.905	0.0030	6.46%
Daniel Sturridge	#15	0.864	0.0099	1.67%
Alberto Moreno	#18	0.633	0.0008	0.96%
Adam Lallana	#20	0.760	0.0053	1.49%
Xherdan Shaqiri	#23	0.826	0.0008	1.87%
Andy Robertson	#26	0.950	0.0060	8.77%
Divock Origi	#27	0.826	0.0020	1.49%
Joël Matip	#32	0.905	0.0046	6.21%
Trent A-Arnold	#66	0.950	0.0060	7.03%

Table 3:Centrality Measures for Liverpool F.C 2018/19

When looking at Closeness Centrality, we can see that the players who possess high in-degree values also possess a high closeness centrality. The order of the player with the largest closeness centrality is the same as the order of the player with the highest in-degree value. A high closeness centrality value is indicative of the fact that said player is an important role in the passing network. Other teammates seek out this player to move the ball further through the network, the player is well connected and 'close' to the rest of their teammates as a result of the high volume of passing.

The analyses of the player's betweenness centrality reveal that there are 4 players that share the similar result of highest betweenness centrality. A high betweenness centrality result means that the player can be considered a link between other members of the team. This

highlights these players as highly important when it comes to moving the ball around the team.

The Page Rank Centrality results inform us of the probability each player has of having the ball and thus the importance of the player having a ball during a spell of possession. VVD is most likely to be in possession of the ball with the highest Page Rank Centrality Value. The ranking of the players based on their Page Rank Centrality Value represent the best possible team with regards to the passing and possession retaining abilities of the players.

In contrast, players with a low measure of closeness centrality are players that are not so well connected with the remainder of their teammates. If we look more closely into their performance over the season, the reason for this low value becomes more obvious. For example, if we were to take Alberto Moreno who has a closeness centrality value of 0.42. Alberto Moreno has a low indegree and outdegree of 8 and 11 respectively (that is a total of 8 passes to the player and 11 passes that the player has made to other teammates). Without further research into the player's overall performance over the campaign we could conclude that the player is not involved in the team's play when on the pitch. However, throughout the campaign, he only made one appearance out of the 13 possible and came on as a substitute in the remaining minutes of the match. This lack of involvement with the team accurately verifies a low value for Closeness Centrality.

Further to the assessment of Centrality measures, the analysis also included player contribution and passing ratio. As discussed in section 3, the contribution is a measure of all passing involving the player, either passes to the player (indegree) or successful passes from the player to a teammate (outdegree). The passing Ratio highlights whether a player makes more passes than he received or the direct opposite (a positive value means the player makes more passes than he receives, a negative value means the player receives more passes than he makes). If the passing ratio value is 0, this means a player makes the same number of passes and he receives. A positive passing value implies that the player is a facilitator or the start of a passing chain.

Player Name	Squad Number	Contribution Ratio	Passing Ratio
Fabinho	#3	0.065414	0.052486
Virgil Van Dijk	#4	0.107246	0.088458
Georginio Wijnaldum	#5	0.075714	0.033413
Dejan Lovren	#6	0.022949	0.03937

James Milner	#7	0.085562	-0.00317
Naby Keïta	#8	0.022226	-0.02439
Roberto Firmino	#9	0.049512	-0.08759
Sadio Mané	#10	0.057734	-0.1831
Mohamed Salah	#11	0.054752	-0.24422
Joe Gomez	#12	0.059993	0.045181
Alisson Becker	#13	0.053578	0.264755
Jordan Henderson	#14	0.069299	0.074316
Daniel Sturridge	#15	0.008132	-0.17778
Alberto Moreno	#18	0.001717	0.157895
Adam Lallana	#20	0.008583	-0.07368
Xherdan Shaqiri	#23	0.014185	-0.1465
Andy Robertson	#18	0.097308	-0.03064
Divock Origi	#27	0.008854	-0.22449
Joël Matip	#32	0.060806	0.102526
Trent Alexander-Arnold	#66	0.076437	-0.08747

Table 4: Contribution and Pass Ratio for Liverpool Players 2018/19

The player with the largest Pass ratio is Alisson with a pass ratio of 0.264755. A positive passing value implies that the player is a facilitator or the start of a passing chain. This is reflective of what happens on the pitch as Becker is a goalkeeper he typically receives the ball from the goalkeeper at the start of play.

The player with the smallest Pass ratio is Mohamed Salah with a pass ratio of -0.24422. A negative passing value implies that the player receives the ball more or is positioned at the end of a passing chain. This is reflective of what happens on the pitch as Salah plays on the right side of the front 3 and is noted as Liverpool's biggest attacking threat.

We can put some context to these results by observing some typical player performance statistics. The impact a player has throughout a campaign can be attributed to how many goals the player scored and how many assist the player made from an attacking point of view and how many tackles were made from a defensive standpoint. The table below highlights all goals throughout the 2018/2019 campaign and their contributions.

Player Name	Squad Number	Goals	Assists
Mohamed Salah	#11	5	2

Roberto Firmino	#9	4	1
Sadio Mané	#10	4	1
Divock Origi	#27	3	1
Virgil Van Dijk	#4	2	2
Georginio Wijnaldum	#5	2	0
James Milner	#7	2	2
Naby Keïta	#8	1	0
Daniel Sturridge	#15	1	1

Table 5: Liverpool F.C. - Performance Statistics 2018/19 Champions League

In Table 5 above, it is evident that overall Mo Salah is the most important contributor as he is the highest scorer for Liverpool on this campaign. He also contributed two significant assists reinforcing his outdegree figure. It is also interesting to note Virgil Van Dijk's (VVD) contribution to the overall goal tally. He shows slightly different characteristics to what we had previously assumed. VVD has the second-largest pass ratio but is also a joint 4th goal scorer contributing 2 goals during the campaign. Given his pass ratio, we expected VVD to be starting play rather than ending play.

5 Conclusion

The project aimed to identify the key players in the Champions League winging Liverpool F.C team of 2018/19 from the perspective of their passing ability alone.

To identify these key players, a passing graph for the Liverpool F.C team had to be compiled. The raw passing data was collated from the UEFA Press kits. Once complied, the passing graph was analysed using a selection of network measures. Looking at pure passing volume (indegree and outdegree), It was possible to identify what players are constantly involved in Liverpool's possession game. It was also made clear that the central node/player for the team over this campaign was Virgil Van Dijk (#4) because he has the highest degree (indegree and outdegree combined).

The project indicated that players having higher closeness centrality shows how well the player is connected with his teammates. The higher the contribution a player makes to his team leads to his higher contribution to the result of the game. Therefore, it can be concluded that players with more successful passes are more likely to be to have an impact on the team's performance.

To summaries, in this project, we have assessed individual players' performances through various centrality measures applied to the team passing network throughout a 13-game campaign. It demonstrates how network measures can be successfully employed to analyse the performance of a team relative to their passing ability. Through the use of network measures, it is possible to identify the importance of a selected player in a football team.

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Appendix A: Sample Code

Generating Graph (Matlab)

```
clear all

%Create Adjacency matrix A - describes a graph with 20 nodes and 315 edges.
A = [0  41  19  11  37  20  21  23  19  26  15  21  2   2   0   13  45  3
30  33;
    50  0   47  37  80  19  14  31  12  58  50  34  3   3   4   3   118 10
48  25;
    20  40  0   7   32  2   20  28  49  49  8   26  4   0   8   9   47  4
22  58;
    11  35  4   0   11  3   2   0   8   8   11  12  1   0   0   1   2   0
0   23;
    26  50  23  5   0   13  26  50  39  23  10  19  2   0   8   4   90  9
30  45;
    16  13  7   3   15  0   10  8   8   3   1   15  2   0   0   0   14  0
2   3;
    16  8   30  3   16  13  0   33  33  7   0   28  2   2   3   6   34  1
1   14;
    16  14  21  1   30  11  27  0   30  10  2   12  1   0   6   4   56  4
5   11;
    9   3   35  0   18  4   35  27  0   11  0   29  4   0   2   1   10  2
5   34;
    23  65  32  8   27  1   14  22  21  0   21  27  0   1   6   10  9   1
19  40;
    31  81  15  18  25  4   2   9   1   30  0   19  2   0   0   0   49  1
62  26;
    27  32  23  12  31  12  21  24  38  23  7   0   5   0   0   11  47  6
28  65;
    1   0   6   0   2   1   2   5   5   0   1   3   0   0   2   0   4   0
0   5;
    2   1   1   0   0   0   3   2   0   0   0   0   1   0   1   0   0   0
0   0;
    0   1   9   0   4   0   3   3   4   4   0   0   2   0   0   0   7   1
2   4;
    6   3   4   1   3   0   5   3   5   5   1   6   0   0   0   0   5   1
4   15;
    30  83  59  0   82  12  45  82  20  14  20  26  10  0   3   5   0   10
12  9;
    1   3   2   0   6   0   4   3   3   0   0   5   0   0   0   4   5   0
1   1;
    34  51  27  0   31  6   13  12  20  25  63  24  3   0   1   2   5   5
0   49;
    24  17  41  16  25  5   31  13  62  21  8   49  9   0   7   17  8   2
31  0;]

%cell array of character vectors, specifies 20 node names for a 20-by-20
%adjacency matrix A.
names ={'#3','#4','#5','#6','#7','#8','#9','#10','#11'...
    '#12','#13','#14','#15','#18','#20','#23','#26','#27','#32'...
    '#66'}

%
figure(1)
G = digraph(A,names)
plot(G,'NodeLabel',{'#3','#4','#5','#6','#7','#8','#9','#10','#11'...
    '#12','#13','#14','#15','#18','#20','#23','#26','#27','#32'...
```

```
    '#66'},'NodeColor','r','MarkerSize',20)
title('Passing Graph for Liverpool F.C.')

indegree = centrality(G,'indegree','Importance',G.Edges.Weight);
outdegree = centrality(G,'outdegree','Importance',G.Edges.Weight);
degrees = [indegree outdegree]

closeness = centrality(G,'outcloseness','Cost',G.Edges.Weight);
betweeness = centrality(G,'betweenness','Cost',G.Edges.Weight);
pg_ranks = centrality(G,'pagerank','Importance',G.Edges.Weight);

central = [closeness betweeness pg_ranks]
```

Appendix A: Sample Code (Matlab)

For Generating Graph and Analysis

```
clear all

%Create Adjacency matrix A - describes a graph with 20 nodes and 315 edges.
A = [0  41  19  11  37  20  21  23  19  26  15  21  2   2   0   13  45  3
30  33;
    50  0   47  37  80  19  14  31  12  58  50  34  3   3   4   3   118 10
48  25;
    20  40  0   7   32  2   20  28  49  49  8   26  4   0   8   9   47  4
22  58;
    11  35  4   0   11  3   2   0   8   8   11  12  1   0   0   1   2   0
0   23;
    26  50  23  5   0   13  26  50  39  23  10  19  2   0   8   4   90  9
30  45;
    16  13  7   3   15  0   10  8   8   3   1   15  2   0   0   0   14  0
2   3;
    16  8   30  3   16  13  0   33  33  7   0   28  2   2   3   6   34  1
1   14;
    16  14  21  1   30  11  27  0   30  10  2   12  1   0   6   4   56  4
5   11;
    9   3   35  0   18  4   35  27  0   11  0   29  4   0   2   1   10  2
5   34;
    23  65  32  8   27  1   14  22  21  0   21  27  0   1   6   10  9   1
19  40;
    31  81  15  18  25  4   2   9   1   30  0   19  2   0   0   0   49  1
62  26;
    27  32  23  12  31  12  21  24  38  23  7   0   5   0   0   11  47  6
28  65;
    1   0   6   0   2   1   2   5   5   0   1   3   0   0   2   0   4   0
0   5;
    2   1   1   0   0   0   3   2   0   0   0   0   1   0   1   0   0   0
0   0;
    0   1   9   0   4   0   3   3   4   4   0   0   2   0   0   0   7   1
2   4;
    6   3   4   1   3   0   5   3   5   5   1   6   0   0   0   0   5   1
4   15;
    30  83  59  0   82  12  45  82  20  14  20  26  10  0   3   5   0   10
12  9;
    1   3   2   0   6   0   4   3   3   0   0   5   0   0   0   4   5   0
1   1;
    34  51  27  0   31  6   13  12  20  25  63  24  3   0   1   2   5   5
0   49;
    24  17  41  16  25  5   31  13  62  21  8   49  9   0   7   17  8   2
31  0;]

%cell array of character vectors, specifies 20 node names for a 20-by-20
%adjacency matrix A.
names ={'#3','#4','#5','#6','#7','#8','#9','#10','#11'...
    '#12','#13','#14','#15','#18','#20','#23','#26','#27','#32'...
    '#66'}

%
figure(1)
G = digraph(A,names)
plot(G,'NodeLabel',{'#3','#4','#5','#6','#7','#8','#9','#10','#11'...
    '#12','#13','#14','#15','#18','#20','#23','#26','#27','#32'...
    '#66'},'NodeColor','r','MarkerSize',20)
title('Passing Graph for Liverpool F.C.')
```

```
indegree = centrality(G,'indegree','Importance',G.Edges.Weight);
outdegree = centrality(G,'outdegree','Importance',G.Edges.Weight);
degrees = [indegree outdegree]

closeness = centrality(G,'outcloseness','Cost',G.Edges.Weight);
betweeness = centrality(G,'betweenness','Cost',G.Edges.Weight);
pg_ranks = centrality(G,'pagerank','Importance',G.Edges.Weight);

central = [closeness betweeness pg_ranks]
```

Appendix B: Sample Code (Python)

```
import numpy as np
import matplotlib.pyplot as plt
import networkx as nx
import pandas as pd
import csv

A =np.array([
    [0,41,19,11,37,20,21,23,19,26,15,21,2,2,0,13,45,3,30,33],
    [50,0,47,37,80,19,14,31,12,58,50,34,3,3,4,3,118,10,48,25],
    [20,40,0,7,32,2,20,28,49,49,8,26,4,0,8,9,47,4,22,58],
    [11,35,4,0,11,3,2,0,8,8,11,12,1,0,0,1,2,0,0,23],
    [26,50,23,5,0,13,26,50,39,23,10,19,2,0,8,4,90,9,30,45],
    [16,13,7,3,15,0,10,8,8,3,1,15,2,0,0,0,14,0,2,3],
    [16,8,30,3,16,13,0,33,33,7,0,28,2,2,3,6,34,1,1,14],
    [16,14,21,1,30,11,27,0,30,10,2,12,1,0,6,4,56,4,5,11],
    [9,3,35,0,18,4,35,27,0,11,0,29,4,0,2,1,10,2,5,34],
    [23,65,32,8,27,1,14,22,21,0,21,27,0,1,6,10,9,1,19,40],
    [31,81,15,18,25,4,2,9,1,30,0,19,2,0,0,0,49,1,62,26],
    [27,32,23,12,31,12,21,24,38,23,7,0,5,0,0,11,47,6,28,65],
    [1,0,6,0,2,1,2,5,5,0,1,3,0,0,2,0,4,0,0,5],
    [2,1,1,0,0,0,3,2,0,0,0,0,1,0,1,0,0,0,0,0],
    [0,1,9,0,4,0,3,3,4,4,0,0,2,0,0,0,7,1,2,4],
    [6,3,4,1,3,0,5,3,5,5,1,6,0,0,0,0,5,1,4,15],
    [30,83,59,0,82,12,45,82,20,14,20,26,10,0,3,5,0,10,12,9],
    [1,3,2,0,6,0,4,3,3,0,0,5,0,0,0,4,5,0,1,1],
    [34,51,27,0,31,6,13,12,20,25,63,24,3,0,1,2,5,5,0,49],
    [24,17,41,16,25,5,31,13,62,21,8,49,9,0,7,17,8,2,31,0]])
```

```
#Column and Row names, represent the players squad number i.e. the number at the back of their jersey

column_names = ['3', '4', '5','6', '7', '8','9', '10', '11','12', '13','14', '15', '18','20','23','26','27','32','66']

row_names = ['3', '4', '5','6', '7', '8','9', '10', '11','12', '13','14', '15', '18','20','23','26','27','32','66']

df = pd.DataFrame(A, columns=column_names, index=row_names)

df

#Create graph from pandas adjaceny matrix

G=nx.from_pandas_adjacency(df)

G.name = "Graph from pandas adjacency matrix"

#plot circular passing graph

nx.draw_circular(G,with_labels=True)

 team_nodes = nx.number_of_nodes(G)

team_nodes

team_edges = nx.number_of_edges(G)

team_edges

#Closeness Centrality

cc = nx.closeness_centrality(G,distance="distance")

cc

#Betweenness Centrality

bc = nx.betweenness_centrality(G,weight="distance")

bc

#PageRank Centrality

prc = nx.pagerank(G,weight="weight")
```

```
prc
#Clustering


c = nx.clustering(G,weight=None)
c
```

Appendix C: UEFA Press Kits

Passing Distribution

Matchday 1 - Tuesday 18 September 2018

Group C - Anfield - Liverpool

Liverpool FC 3 - 2 Paris Saint-Germain

From		TP	To: Alisson Becker	Virgil Van Dijk	Georginio Wijnaldum	James Milner	Sadio Mané	Mohamed Salah	Joe Gomez	Jordan Henderson	Daniel Sturridge	Andy Robertson	Trent Alexander-Arnold	Fabinho	Roberto Firmino	Xherdan Shaqiri	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	%
			13	4	5	7	10	11	12	14	15	26	66	3	9	23									
Alisson Becker	13	94'29"		-	1	1	1	-	-	2	-	1	2	-	-	-	4	6	4	5	0	0	8	11	73%
Virgil **Van Dijk**	4	94'29"	-		8	5	4	1	25	3	1	9	10	-	1	-	13	17	48	49	6	6	67	72	93%
Georginio **Wijnaldum**	5	94'29"	1	9		4	3	4	10	3	2	5	9	-	-	-	3	3	35	35	12	17	50	55	91%
James **Milner**	7	94'29"	-	6	1		4	6	3	3	1	6	11	-	-	-	6	11	26	32	9	12	41	55	75%
Sadio **Mané**	10	93'46"	-	3	5	2		4	-	-	-	4	2	-	-	2	4	4	13	17	5	11	22	32	69%
Mohamed **Salah**	11	85'44"	-	-	2	3	5		1	3	2	-	9	-	-	-	2	4	12	19	11	13	25	36	69%
Joe **Gomez**	12	94'29"	-	30	4	9	-	-		2	-	5	13	-	1	-	6	8	53	55	5	6	64	69	93%
Jordan **Henderson**	14	94'29"	-	6	4	3	2	4	6		4	4	6	-	-	1	5	5	24	27	11	13	40	45	89%
Daniel **Sturridge**	15	72'18"	-	-	5	-	3	3	-	2		1	1	-	-	-	1	3	5	6	9	11	15	20	75%
Andy **Robertson**	26	94'29"	1	6	7	5	8	-	5	1	6		2	-	1	-	2	6	31	36	9	11	42	53	79%
Trent **Alexander-Arnold**	66	94'29"	-	2	12	3	2	11	8	5	7	1		-	-	-	8	12	32	41	11	15	51	68	75%
Fabinho	3	43"	-	-	-	-	-	-	-	-	-	-	-		-	-	0	0	0	0	0	0	0	0	0%
Roberto **Firmino**	9	22'11"	-	-	1	-	1	-	-	2	-	2	-	-		1	0	0	2	3	5	5	7	8	88%
Xherdan **Shaqiri**	23	8'45"	-	-	-	2	-	-	-	-	-	-	-	-	1		1	2	1	1	1	4	3	7	43%
Total passes received:			2	62	50	37	33	33	58	26	23	38	65	0	4	4	55	81	286	326	94	124	435	531	82%

From		TP	To: Alphonse Areola	Thiago Silva	Presnel Kimpembe	Marquinhos	Kylian Mbappé	Edinson Cavani	Neymar	Ángel Di María	Thomas Meunier	Juan Bernat	Adrien Rabiot	Eric Maxim Choupo-Moting	Julian Draxler	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	%
			16	2	3	5	7	9	10	11	12	14	25	17	23										
Alphonse **Areola**	16	94'29"		7	2	2	-	-	-	-	6	1	1	-	-	7	9	8	8	4	4	19	21	90%
Thiago Silva	2	94'29"	2		16	19	3	-	2	11	10	3	11	-	1	6	7	65	67	7	7	78	81	96%
Presnel **Kimpembe**	3	94'29"	4	22		9	-	1	3	15	-	6	3	-	-	4	6	48	48	11	11	63	65	97%
Marquinhos	5	94'29"	1	18	18		3	1	4	4	6	1	-	-	1	5	6	43	44	9	9	57	59	97%
Kylian **Mbappé**	7	94'29"	-	-	-	-		1	1	-	5	1	5	-	-	1	2	5	8	7	11	13	21	62%
Edinson **Cavani**	9	80'38"	-	-	-	3	-		2	4	-	-	2	-	-	1	1	7	8	3	3	11	12	92%
Neymar	10	94'29"	-	4	1	3	4	-		6	3	4	5	1	1	6	9	17	22	9	11	32	42	76%
Ángel **Di María**	11	80'49"	-	6	10	7	1	-	18		-	12	2	-	-	0	1	41	43	15	16	56	60	93%
Thomas **Meunier**	12	94'29"	1	8	-	2	9	-	2	-		-	5	1	1	2	4	21	32	6	8	29	44	66%
Juan **Bernat**	14	94'29"	-	-	5	1	1	-	9	12	-		-	-	-	0	0	19	20	9	10	28	30	93%
Adrien **Rabiot**	25	94'29"	-	9	1	8	4	4	2	7	4	1		1	-	0	2	26	27	15	16	41	45	91%
ric Maxim **Choupo-Moting**	17	13'40"	-	-	1	-	1	-	3	-	-	-	-		-	0	0	3	3	2	2	5	5	100%
Julian **Draxler**	23	13'51"	-	1	-	-	-	-	2	-	1	-	1	-		0	0	1	1	4	4	5	5	100%
Total passes received:			8	75	54	54	26	7	48	59	35	29	35	3	4	32	47	304	331	101	112	437	490	89%

TP: Time played PA: Passes attempted PC: Passes completed %: Passing accuracy

01:29:05CET
19 Sep 2018

Passing Distribution

Matchday 2 - Wednesday 3 October 2018

Group C - Stadio San Paolo - Naples

SSC Napoli 1 - 0 Liverpool FC

From		TP	To: David Ospina	Allan	Mário Rui	José Callejón	Fabián Ruiz	Marek Hamšík	Nikola Maksimović	Lorenzo Insigne	Kalidou Koulibaly	Raúl Albiol	Arkadiusz Milik	Simone Verdi	Dries Mertens	Piotr Zieliński	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
			25	5	6	7	8	17	19	24	26	33	99	9	14	20									
David **Ospina**	25	97'29"		-	4	1	-	1	8	2	5	5	-	-	-	-	8	15	17	17	1	1	26	33	79%
Allan	5	97'29"	2		1	8	2	12	12	8	5	5	1	2	-	1	8	9	39	39	12	12	59	60	98%
Mário Rui	6	97'29"	-	2		-	9	10	-	9	15	1	-	2	1	2	0	3	33	41	18	20	51	64	80%
José **Callejón**	7	97'29"	1	10	1		1	2	13	7	-	1	1	-	2	1	7	7	21	25	12	14	40	46	87%
Fabián Ruiz	8	71'40"	1	1	14	-		8	-	2	2	-	1	-	-	-	0	0	16	19	13	16	29	35	83%
Marek **Hamšík**	17	84'37"	4	8	18	6	7		3	6	16	19	2	2	-	-	12	16	52	56	27	27	91	99	92%
Nikola **Maksimović**	19	97'29"	9	7	-	11	-	6		2	1	21	1	-	-	1	4	6	43	46	12	12	59	64	92%
Lorenzo **Insigne**	24	97'29"	-	6	8	5	1	6	3		5	2	4	1	1	1	1	1	26	28	16	20	43	49	88%
Kalidou **Koulibaly**	26	97'29"	2	7	8	-	4	20	-	1		23	2	-	-	4	0	4	50	54	21	21	71	79	90%
Raúl **Albiol**	33	97'29"	6	7	9	6	1	18	13	2	12		2	1	1	3	14	20	62	65	5	5	81	90	90%
Arkadiusz **Milik**	99	71'54"	-	-	1	2	4	2	-	4	-	1		-	-	-	0	0	7	9	7	7	14	16	88%
Simone **Verdi**	9	25'49"	-	-	3	-	-	2	-	3	1	-	-		-	-	0	0	6	8	3	3	9	11	82%
Dries **Mertens**	14	25'35"	-	2	-	2	-	-	-	-	-	-	-	1		-	1	1	3	4	1	1	5	6	83%
Piotr **Zieliński**	20	12'52"	-	1	1	1	-	-	-	1	2	4	-	2	1		0	0	7	7	6	7	13	14	93%
Total passes received:			25	51	68	42	29	87	52	47	64	82	14	11	6	13	55	82	382	418	154	166	591	666	89%

From		TP	To: Alisson Becker	Virgil Van Dijk	Georginio Wijnaldum	James Milner	Naby Keïta	Roberto Firmino	Sadio Mané	Mohamed Salah	Joe Gomez	Andy Robertson	Trent Alexander-Arnold	Fabinho	Jordan Henderson	Daniel Sturridge	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
			13	4	5	7	8	9	10	11	12	26	66	3	14	15									
Alisson Becker	13	97'29"		10	2	2	-	1	3	-	14	4	5	3	3	1	11	20	37	37	2	2	50	59	85%
Virgil **Van Dijk**	4	97'29"	11		6	9	1	1	-	2	4	9	1	1	5	-	4	9	41	43	5	6	50	58	86%
Georginio **Wijnaldum**	5	97'29"	1	2		2	1	-	1	1	7	8	4	1	5	-	3	3	25	26	5	9	33	38	87%
James **Milner**	7	79'25"	2	6	1		-	4	4	3	3	7	5	-	1	-	5	8	26	26	5	6	36	40	90%
Naby **Keïta**	8	18'59"	-	-	-	-		1	-	-	-	2	1	-	-	-	0	0	3	6	1	1	4	7	57%
Roberto **Firmino**	9	97'29"	-	-	1	1	2		3	3	-	5	3	-	2	-	1	3	13	16	6	11	20	30	67%
Sadio **Mané**	10	92'03"	-	-	3	2	-	5		2	1	2	1	-	1	-	0	3	8	11	9	12	17	26	65%
Mohamed **Salah**	11	97'29"	-	1	2	3	-	3	1		-	-	1	-	3	-	1	2	8	11	5	9	14	22	64%
Joe **Gomez**	12	97'29"	9	11	5	5	-	5	-	4		-	10	-	8	-	5	10	40	43	12	14	57	67	85%
Andy **Robertson**	26	97'29"	3	4	6	4	-	6	10	1	2		-	1	2	-	2	6	26	31	11	13	39	50	78%
Trent **Alexander-Arnold**	66	97'29"	1	3	4	4	2	2	2	10	5	-		-	8	-	5	7	29	39	7	9	41	55	75%
Fabinho	3	18'04"	1	1	-	-	-	-	1	-	1	2	2		-	-	1	3	7	9	0	0	8	12	67%
Jordan **Henderson**	14	78'30"	2	9	3	4	-	1	1	2	5	3	14	1		1	4	5	32	32	10	12	46	49	94%
Daniel **Sturridge**	15	5'26"	-	-	-	-	-	-	-	-	-	-	-	1	-		0	0	1	2	0	0	1	2	50%
Total passes received:			30	47	33	36	6	29	26	28	42	42	47	8	38	2	42	79	296	332	78	104	416	515	81%

TP: Time played PA: Passes attempted PC: Passes completed %: Passing accuracy

01:28:25CET
04 Oct 2018

Passing Distribution

Matchday 3 - Wednesday 24 October 2018

Group C - Anfield - Liverpool

Liverpool FC 4 - 0 FK Crvena zvezda

From		TP	To: 13 Alisson Becker	3 Fabinho	4 Virgil Van Dijk	5 Georginio Wijnaldum	9 Roberto Firmino	10 Sadio Mané	11 Mohamed Salah	12 Joe Gomez	23 Xherdan Shaqiri	26 Andy Robertson	66 Trent Alexander-Arnold	15 Daniel Sturridge	18 Alberto Moreno	20 Adam Lallana	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Alisson Becker	13	95'29"		-	3	-	-	1	-	6	-	3	4	-	-	-	5	8	11	11	1	1	17	20	85%
Fabinho	3	95'29"	-		9	10	12	10	2	10	6	2	8	1	2	-	4	5	54	58	14	15	72	78	92%
Virgil Van Dijk	4	95'29"	2	13		6	3	9	-	14	2	18	1	-	3	-	7	11	53	58	11	13	71	82	87%
Georginio Wijnaldum	5	95'29"	1	9	9		6	1	3	11	8	3	18	1	-	6	3	4	56	61	17	23	76	88	86%
Roberto Firmino	9	95'29"	-	8	2	4		7	2	3	5	7	-	2	2	2	1	1	16	24	27	31	44	56	79%
Sadio Mané	10	95'29"	-	4	6	3	3		4	1	-	11	-	-	-	1	1	1	25	28	7	13	33	42	79%
Mohamed Salah	11	74'55"	-	1	-	1	1	4		1	1	2	2	-	-	1	1	1	7	8	6	9	14	18	78%
Joe Gomez	12	95'29"	2	12	17	13	5	-	3		7	3	17	-	1	3	8	11	66	72	9	14	83	97	86%
Xherdan Shaqiri	23	70'08"	-	1	1	3	4	2	5	2		4	4	-	-	-	2	3	21	26	3	7	26	36	72%
Andy Robertson	26	83'57"	1	8	13	7	5	12	1	3	1		1	-	-	-	2	5	36	44	14	15	52	64	81%
Trent Alexander-Arnold	66	95'29"	1	6	4	7	8	2	3	8	9	-		1	-	2	7	12	33	39	11	12	51	63	81%
Daniel Sturridge	15	20'34"	-	-	-	-	2	1	-	-	-	1	-		-	2	1	1	4	4	1	1	6	6	100%
Alberto Moreno	18	11'32"	-	2	1	1	3	2	-	-	-	-	-	1		1	2	2	6	6	3	3	11	11	100%
Adam Lallana	20	25'21"	-	-	-	6	2	-	1	2	-	-	2	2	-		0	0	6	7	9	10	15	17	88%
Total passes received:			7	64	65	61	54	51	24	61	39	54	57	8	8	18	44	65	394	446	133	167	571	678	84%

From		TP	To: 82 Milan Borjan	3 Branko Jovičić	5 Miloš Degenek	7 Nenad Krstičić	11 Lorenzo Ebecilio	14 Slavoljub Srnić	15 Srđan Babić	30 Filip Stojković	31 El Fardou Ben Nabouhane	77 Marko Gobeljić	99 Richmond Boakye	20 Goran Čaušić	21 Veljko Simić	29 Dušan Jovančić	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Milan Borjan	82	95'29"		1	9	-	-	1	5	2	1	1	1	-	1	-	5	18	17	17	0	0	22	35	63%
Branko Jovičić	3	76'56"	1		10	2	2	1	8	1	5	7	-	-	-	1	1	1	27	31	10	13	38	45	84%
Miloš Degenek	5	95'29"	4	3		2	4	-	2	10	2	1	2	1	-	-	3	8	27	29	1	4	31	41	76%
Nenad Krstičić	7	95'29"	-	2	1		3	3	1	1	3	-	1	2	-	2	0	3	10	11	9	12	19	26	73%
Lorenzo Ebecilio	11	66'16"	-	3	1	1		1	-	5	3	1	5	-	-	-	1	2	11	18	8	9	20	29	69%
Slavoljub Srnić	14	95'29"	-	1	1	2	3		-	-	2	1	3	-	-	1	1	1	3	10	10	14	14	25	56%
Srđan Babić	15	95'29"	5	6	2	2	-	3		2	2	7	1	-	-	-	3	7	20	23	7	10	30	40	75%
Filip Stojković	30	95'29"	-	2	4	-	3	-	1		-	1	3	1	1	1	3	6	10	13	4	8	17	27	63%
El Fardou Ben Nabouhane	31	82'08"	-	1	-	1	3	3	-	-		2	4	-	-	1	0	1	13	14	2	4	15	19	79%
Marko Gobeljić	77	95'29"	-	4	1	2	1	6	3	-	1		4	-	-	-	0	3	13	21	9	14	22	38	58%
Richmond Boakye	99	95'29"	-	4	-	1	4	5	2	-	2	3		2	-	-	3	3	10	12	10	15	23	30	77%
Goran Čaušić	20	18'33"	-	-	-	1	-	1	-	3	-	1	1		1	-	0	1	5	6	3	3	8	10	80%
Veljko Simić	21	13'21"	-	-	-	-	-	-	-	-	-	1	-	-		-	0	0	1	1	0	0	1	1	100%
Dušan Jovančić	29	29'13"	-	1	-	-	-	2	-	1	-	-	1	1	-		0	0	2	3	4	4	6	7	86%
Total passes received:			10	28	29	14	23	26	22	25	21	26	26	7	3	6	20	54	169	209	77	110	266	373	71%

TP: Time played PA: Passes attempted PC: Passes completed %: Passing accuracy

00:52:22CET
25 Oct 2018

Passing Distribution

Matchday 4 - Tuesday 6 November 2018

Group C - Stadion Rajko Mitić - Belgrade

FK Crvena zvezda 2 - 0 Liverpool FC

From		TP	To: Milan Borjan	Miloš Degenek	Nenad Krstičić	Milan Pavkov	Slavoljub Srnić	Marko Marin	Milan Rodić	Dušan Jovančić	Filip Stojković	El Fardou Ben Nabouhane	Vujadin Savić	Branko Jovičić	Goran Čaušić	Marko Gobeljić	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	%
Milan **Borjan**	82	96'07"		1	-	2	2	-	4	2	-	1	3	-	1	-	5	28	8	8	3	3	16	39	41%
Miloš **Degenek**	5	96'07"	3		2	1	1	1	3	2	1	1	1	-	-	-	1	4	11	15	4	4	16	23	70%
Nenad **Krstičić**	7	73'51"	-	4		-	2	4	2	3	2	3	2	-	-	-	0	0	12	16	10	12	22	28	79%
Milan **Pavkov**	9	96'07"	-	1	2		-	-	-	1	-	3	-	-	2	1	0	0	5	7	5	6	10	13	77%
Slavoljub **Srnić**	14	96'07"	-	1	2	-		1	1	-	1	1	-	-	-	1	0	0	4	7	4	4	8	11	73%
Marko **Marin**	17	64'27"	-	-	-	3	1		3	2	1	3	3	-	-	-	3	3	6	8	7	9	16	20	80%
Milan **Rodić**	23	96'07"	-	1	4	3	2	2		3	-	4	-	-	-	-	4	6	11	14	4	7	19	27	70%
Dušan **Jovančić**	29	96'07"	1	2	2	-	-	3	2		4	1	2	1	-	1	0	2	13	20	6	6	19	28	68%
Filip **Stojković**	30	59'54"	1	-	-	-	-	-	-	2		-	2	-	-	-	0	4	4	8	1	2	5	14	36%
El Fardou **Ben Nabouhane**	31	96'07"	-	1	-	1	4	5	-	3	2		-	-	2	-	3	3	6	10	10	12	18	24	75%
Vujadin **Savić**	90	96'07"	6	2	2	-	-	-	-	2	2	1		-	-	-	1	3	11	13	3	3	15	19	79%
Branko **Jovičić**	3	22'16"	-	-	-	-	-	-	1	-	-	-	-		-	-	0	0	1	2	0	0	1	2	50%
Goran **Čaušić**	20	31'40"	-	-	1	1	-	-	1	-	-	1	-	-		-	0	1	2	2	2	2	4	5	80%
Marko **Gobeljić**	77	36'13"	-	-	-	-	-	-	-	-	-	-	-	-	-		0	1	0	0	0	1	0	2	0%
Total passes received:			11	13	15	11	12	16	17	20	13	19	13	1	5	3	17	55	94	130	59	71	169	255	66%

From		TP	To: Alisson Becker	Virgil Van Dijk	Georginio Wijnaldum	James Milner	Sadio Mané	Mohamed Salah	Daniel Sturridge	Adam Lallana	Andy Robertson	Joël Matip	Trent Alexander-Arnold	Roberto Firmino	Joe Gomez	Divock Origi	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	%
Alisson Becker	13	96'07"		7	1	4	-	-	1	-	1	5	1	-	2	-	3	5	17	17	2	2	22	24	92%
Virgil **Van Dijk**	4	96'07"	1		9	13	5	1	1	4	24	12	-	1	9	-	12	14	59	63	9	11	80	88	91%
Georginio **Wijnaldum**	5	96'07"	1	11		7	7	2	1	2	14	6	4	-	12	2	10	11	47	47	12	15	69	73	95%
James **Milner**	7	96'07"	-	8	5		4	3	1	8	18	17	9	-	8	-	13	19	55	59	13	15	81	93	87%
Sadio **Mané**	10	96'07"	-	1	2	5		5	1	5	7	1	-	1	6	2	2	2	23	28	11	14	36	44	82%
Mohamed **Salah**	11	96'07"	-	-	1	2	2		2	1	1	-	1	1	1	-	3	3	6	10	3	6	12	19	63%
Daniel **Sturridge**	15	46'04"	1	-	1	2	-	1		-	-	-	3	-	-	-	0	1	7	9	1	2	8	12	67%
Adam **Lallana**	20	79'37"	-	1	3	4	3	3	-		7	2	2	1	2	-	1	1	16	19	11	17	28	37	76%
Andy **Robertson**	26	96'07"	1	14	12	16	3	1	3	3		3	-	9	-	-	5	8	42	49	18	25	65	82	79%
Joël **Matip**	32	96'07"	2	22	6	14	3	4	3	1	-		6	1	9	-	2	7	62	67	7	7	71	81	88%
Trent **Alexander-Arnold**	66	46'04"	-	-	2	6	-	4	1	5	-	4		-	-	-	0	0	16	21	6	7	22	28	79%
Roberto **Firmino**	9	50'03"	-	1	5	2	2	-	-	1	3	-	-		1	1	3	4	10	11	3	5	16	20	80%
Joe **Gomez**	12	50'03"	2	2	6	7	15	-	-	3	-	10	-	1		1	3	5	38	42	6	8	47	55	85%
Divock **Origi**	27	16'30"	-	1	-	-	-	-	-	-	-	-	-	3	-		0	0	0	0	4	4	4	4	100%
Total passes received:			8	68	53	82	44	24	14	33	75	60	26	18	50	6	57	80	398	442	106	138	561	660	85%

TP: Time played PA: Passes attempted PC: Passes completed %: Passing accuracy

22:38:19CET
06 Nov 2018

Passing Distribution

Matchday 5 - Wednesday 28 November 2018

Group C - Parc des Princes - Paris

Paris Saint-Germain 2 - 1 Liverpool FC

From		TP	To: 1 Gianluigi Buffon	2 Thiago Silva	3 Presnel Kimpembe	4 Thilo Kehrer	5 Marquinhos	6 Marco Verratti	7 Kylian Mbappé	9 Edinson Cavani	10 Neymar	11 Ángel Di María	14 Juan Bernat	13 Dani Alves	17 Eric Maxim Choupo-Moting	25 Adrien Rabiot	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Gianluigi **Buffon**	1	98'32"		3	6	4	1	2	-	-	1	-	1	-	2	-	7	16	8	8	5	5	20	29	69%
Thiago Silva	2	98'32"	3		2	12	18	6	-	1	-	2	1	-	-	-	4	5	34	37	7	8	45	50	90%
Presnel **Kimpembe**	3	98'32"	2	3		1	13	7	-	1	4	2	5	-	-	-	1	4	29	33	8	9	38	46	83%
Thilo **Kehrer**	4	98'32"	3	13	-		2	2	2	1	1	4	1	2	1	-	1	1	21	24	10	12	32	37	86%
Marquinhos	5	98'32"	3	14	15	4		7	3	-	7	-	4	1	-	-	4	4	41	44	13	15	58	63	92%
Marco **Verratti**	6	98'32"	-	3	4	4	9		5	1	11	4	5	2	1	-	3	4	27	28	19	19	49	51	96%
Kylian **Mbappé**	7	86'39"	-	-	1	-	-	2		1	7	3	2	1	-	-	1	3	6	8	10	12	17	23	74%
Edinson **Cavani**	9	67'05"	-	2	-	-	1	1	-		3	-	1	-	-	-	0	0	6	8	2	3	8	11	73%
Neymar	10	98'32"	-	-	2	-	1	11	12	2		1	4	2	2	-	2	5	13	15	22	28	37	48	77%
Ángel **Di María**	11	66'44"	-	1	-	1	3	2	2	1	4		1	-	-	-	0	0	6	6	9	10	15	16	94%
Juan **Bernat**	14	98'32"	-	-	3	1	2	4	3	1	9	1		-	-	-	0	1	14	15	10	13	24	29	83%
Dani Alves	13	31'48"	-	-	-	2	-	-	2	-	-	-	-		-	1	0	0	2	3	3	4	5	7	71%
Eric Maxim **Choupo-Moting**	17	31'27"	-	1	-	-	-	-	-	-	2	-	3	-		-	0	0	3	4	3	3	6	7	86%
Adrien **Rabiot**	25	11'53"	-	-	-	-	-	-	-	-	-	-	-	-	-		0	0	0	0	0	0	0	0	0%
Total passes received:			11	40	33	29	50	44	29	9	49	17	28	8	6	1	23	43	210	233	121	141	354	417	85%

From		TP	To: 13 Alisson Becker	4 Virgil Van Dijk	5 Georginio Wijnaldum	6 Dejan Lovren	7 James Milner	9 Roberto Firmino	10 Sadio Mané	11 Mohamed Salah	12 Joe Gomez	14 Jordan Henderson	26 Andy Robertson	8 Naby Keïta	15 Daniel Sturridge	23 Xherdan Shaqiri	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Alisson Becker	13	98'32"		7	1	10	-	-	-	-	1	5	8	-	-	-	10	16	20	21	2	2	32	39	82%
Virgil **Van Dijk**	4	98'32"	4		10	15	2	5	4	2	3	9	13	1	-	-	9	11	48	50	11	12	68	73	93%
Georginio **Wijnaldum**	5	68'01"	-	5		6	2	2	1	-	5	2	9	-	-	-	1	2	22	23	9	9	32	34	94%
Dejan **Lovren**	6	98'32"	9	15	4		9	1	-	2	8	6	2	-	1	1	0	4	54	56	4	4	58	64	91%
James **Milner**	7	79'13"	-	1	-	5		4	4	9	4	-	6	-	-	-	4	6	21	28	8	10	33	44	75%
Roberto **Firmino**	9	72'50"	-	1	3	1	1		-	2	2	5	4	-	-	-	1	2	12	16	6	9	19	27	70%
Sadio **Mané**	10	98'32"	-	2	1	1	1	1		1	1	1	5	3	-	-	1	1	12	14	4	7	17	22	77%
Mohamed **Salah**	11	98'32"	-	-	-	-	4	4	-		1	3	-	-	-	-	0	1	7	9	5	6	12	16	75%
Joe **Gomez**	12	98'32"	4	3	1	8	4	2	2	5		4	-	-	-	3	2	6	23	24	11	11	36	41	88%
Jordan **Henderson**	14	98'32"	2	5	1	8	6	2	5	4	4		15	4	-	4	4	4	44	49	12	12	60	65	92%
Andy **Robertson**	26	98'32"	-	15	10	-	5	5	11	1	2	4		5	1	2	4	8	43	46	14	21	61	75	81%
Naby **Keïta**	8	30'31"	-	-	-	-	-	-	-	-	3	2	4		2	-	0	0	7	9	4	5	11	14	79%
Daniel **Sturridge**	15	25'42"	-	-	-	-	-	-	-	1	-	1	2	1		-	1	1	0	0	4	5	5	6	83%
Xherdan **Shaqiri**	23	19'19"	1	1	-	1	-	-	-	-	3	1	1	-	-		0	1	6	7	2	3	8	11	73%
Total passes received:			20	55	31	55	34	26	27	27	37	43	69	14	4	10	37	63	319	352	96	116	452	531	85%

TP: Time played PA: Passes attempted PC: Passes completed %: Passing accuracy

00:41:20CET
29 Nov 2018

Passing Distribution

Matchday 6 - Tuesday 11 December 2018

Group C - Anfield - Liverpool

Liverpool FC 1 - 0 SSC Napoli

From		TP	To: Alisson Becker 13	Virgil Van Dijk 4	Georginio Wijnaldum 5	James Milner 7	Roberto Firmino 9	Sadio Mané 10	Mohamed Salah 11	Jordan Henderson 14	Andy Robertson 26	Joël Matip 32	Trent Alexander-Arnold 66	Fabinho 3	Dejan Lovren 6	Naby Keïta 8	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Alisson Becker	13	97'10"		4	1	4	1	3	1	6	3	13	3	-	-	-	8	15	31	31	1	1	40	47	85%
Virgil **Van Dijk**	4	97'10"	6		1	2	1	-	2	2	11	6	2	-	-	-	5	9	24	25	4	4	33	38	87%
Georginio **Wijnaldum**	5	97'10"	-	-		4	3	2	6	5	1	5	7	1	1	-	2	3	21	25	12	17	35	45	78%
James **Milner**	7	87'19"	1	1	3		2	2	6	9	12	3	5	-	-	-	3	5	31	39	10	12	44	56	79%
Roberto **Firmino**	9	81'49"	-	-	6	4		-	9	6	1	-	1	-	-	-	2	4	11	18	14	14	27	36	75%
Sadio **Mané**	10	97'10"	-	1	1	2	6		1	3	7	-	2	1	-	1	3	3	13	16	9	11	25	30	83%
Mohamed **Salah**	11	97'10"	-	-	8	-	7	3		2	1	1	9	-	-	-	0	0	21	27	10	13	31	40	78%
Jordan **Henderson**	14	97'10"	1	5	5	5	5	4	1		7	7	8	-	-	-	7	8	29	33	13	16	49	57	86%
Andy **Robertson**	26	97'10"	2	9	3	10	5	7	4	6		1	-	-	-	-	3	8	38	41	6	11	47	60	78%
Joël **Matip**	32	97'10"	15	8	6	4	5	1	5	3	1		5	-	-	-	10	18	38	41	5	5	53	64	83%
Trent **Alexander-Arnold**	66	92'16"	1	1	6	2	4	-	8	5	2	8		-	-	-	4	8	26	36	7	8	37	52	71%
Fabinho	3	9'51"	-	-	-	-	-	-	-	-	1	-	-		-	-	0	0	1	3	0	0	1	3	33%
Dejan **Lovren**	6	4'54"	-	-	-	-	-	-	-	-	-	-	-	-		1	0	0	1	1	0	0	1	1	100%
Naby **Keïta**	8	15'21"	-	-	1	-	-	-	1	-	-	-	-	-	-		0	0	0	0	2	3	2	3	67%
Total passes received:			26	29	41	37	39	22	44	47	47	44	42	2	1	2	47	81	285	336	93	115	425	532	80%

From		TP	To: David Ospina 25	Allan 5	Mário Rui 6	José Callejón 7	Fabián Ruiz 8	Dries Mertens 14	Marek Hamšík 17	Nikola Maksimović 19	Lorenzo Insigne 24	Kalidou Koulibaly 26	Raúl Albiol 33	Piotr Zieliński 20	Faouzi Ghoulam 31	Arkadiusz Milik 99	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
David **Ospina**	25	97'10"		-	2	1	-	-	1	6	1	6	11	-	2	-	11	24	17	17	2	2	30	43	70%
Allan	5	97'10"	1		-	6	2	4	3	5	3	1	11	-	1	1	1	3	27	32	10	14	38	49	78%
Mário Rui	6	72'19"	3	2		-	9	1	6	-	2	3	2	1	-	-	3	9	17	24	9	12	29	45	64%
José **Callejón**	7	97'10"	1	2	-		4	1	5	6	2	-	4	2	-	2	3	5	22	25	4	9	29	39	74%
Fabián Ruiz	8	64'34"	-	1	11	-		2	6	-	9	3	1	-	-	-	1	2	11	15	21	30	33	47	70%
Dries **Mertens**	14	69'59"	-	-	1	1	2		3	-	-	-	-	-	-	-	0	1	4	7	3	4	7	12	58%
Marek **Hamšík**	17	97'10"	2	7	5	4	8	2		5	2	8	11	2	6	1	10	15	38	43	15	20	63	78	81%
Nikola **Maksimović**	19	97'10"	2	6	-	5	-	-	3		2	-	16	-	1	2	3	4	25	33	9	11	37	48	77%
Lorenzo **Insigne**	24	97'10"	-	3	6	4	7	2	4	2		-	-	1	1	-	4	5	15	18	11	15	30	38	79%
Kalidou **Koulibaly**	26	97'10"	3	5	3	1	5	1	3	1	1		11	1	4	-	5	7	29	32	5	9	39	48	81%
Raúl **Albiol**	33	97'10"	7	12	5	3	1	-	16	16	6	9		-	-	1	7	14	59	61	10	10	76	85	89%
Piotr **Zieliński**	20	32'36"	-	-	1	2	-	-	4	-	1	-	-		2	2	1	1	7	8	4	5	12	14	86%
Faouzi **Ghoulam**	31	24'51"	-	1	-	-	-	-	6	-	3	1	-	3		1	2	3	4	7	9	13	15	23	65%
Arkadiusz **Milik**	99	27'11"	-	-	-	-	-	-	-	-	2	1	1	1	-		0	2	5	5	0	1	5	8	62%
Total passes received:			19	39	34	27	38	13	60	41	34	32	68	11	17	10	51	95	280	327	112	155	443	577	77%

TP: Time played PA: Passes attempted PC: Passes completed %: Passing accuracy

00:24:26CET
12 Dec 2018

Passing Distribution

Round of 16 1st leg - Tuesday 19 February 2019

Anfield - Liverpool

Liverpool FC 0 - 0 FC Bayern München

From		TP	To: Alisson Becker	Fabinho	Georginio Wijnaldum	Naby Keïta	Roberto Firmino	Sadio Mané	Mohamed Salah	Jordan Henderson	Andy Robertson	Joël Matip	Trent Alexander-Arnold	James Milner	Divock Origi	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
			13	3	5	8	9	10	11	14	26	32	66	7	27									
Alisson Becker	13	95'44"		6	1	1	-	-	-	2	3	15	1	-	-	2	3	24	25	3	3	29	31	94%
Fabinho	3	95'44"	6		-	8	-	2	-	6	13	13	2	5	-	6	11	40	42	9	11	55	64	86%
Georginio **Wijnaldum**	5	95'44"	-	2		1	2	1	9	4	3	1	4	-	1	1	1	15	18	12	17	28	36	78%
Naby **Keïta**	8	76'40"	-	6	4		5	4	2	6	3	1	-	-	-	1	1	17	22	13	17	31	40	78%
Roberto **Firmino**	9	77'00"	-	-	5	8		2	5	5	2	1	3	-	-	3	3	15	16	13	16	31	35	89%
Sadio **Mané**	10	95'44"	-	2	2	1	3		1	1	4	1	-	-	-	2	2	5	6	8	10	15	18	83%
Mohamed **Salah**	11	95'44"	-	-	4	3	5	1		1	-	1	1	1	1	0	1	8	13	10	16	18	30	60%
Jordan **Henderson**	14	95'44"	1	8	5	6	4	1	3		7	11	12	-	1	5	7	42	46	12	18	59	71	83%
Andy **Robertson**	26	95'44"	4	7	3	3	2	6	3	5		2	1	2	1	7	12	27	31	5	7	39	50	78%
Joël **Matip**	32	95'44"	10	13	3	4	2	2	4	5	2		7	1	-	12	14	31	36	10	12	53	62	85%
Trent **Alexander-Arnold**	66	95'44"	1	2	3	1	6	-	4	5	2	10		-	-	4	9	25	30	5	15	34	54	63%
James **Milner**	7	19'04"	-	3	-	-	-	3	1	-	2	-	2		-	1	1	6	6	4	4	11	11	100%
Divock **Origi**	27	18'44"	-	-	-	-	-	-	-	-	-	-	-	-		0	0	0	0	0	1	0	1	0%
Total passes received:			22	49	30	36	29	22	32	40	41	56	33	9	4	44	65	255	291	104	147	403	503	80%

From		TP	To: Manuel Neuer	Niklas Süle	Mats Hummels	Thiago Alcántara	Javi Martínez	Robert Lewandowski	James Rodríguez	Serge Gnabry	David Alaba	Kingsley Coman	Joshua Kimmich	Franck Ribéry	Rafinha	Renato Sanches	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
			1	4	5	6	8	9	11	22	27	29	32	7	13	35									
Manuel **Neuer**	1	95'44"		10	9	6	1	4	1	-	8	-	6	-	-	-	20	35	23	23	2	3	45	61	74%
Niklas **Süle**	4	95'44"	24		21	4	-	1	1	1	2	-	22	-	-	-	3	3	70	73	3	3	76	79	96%
Mats **Hummels**	5	95'44"	11	21		6	4	1	2	-	6	2	2	-	-	1	2	6	46	47	8	8	56	61	92%
Thiago Alcántara	6	95'44"	2	5	8		4	-	11	8	7	4	8	3	-	-	4	4	42	47	14	16	60	67	90%
Javi Martínez	8	95'44"	1	2	5	3		1	4	1	2	2	4	-	1	-	0	0	21	27	5	8	26	35	74%
Robert **Lewandowski**	9	95'44"	-	-	-	-	-		3	-	2	2	3	1	-	-	1	1	7	12	3	4	11	17	65%
James Rodríguez	11	88'13"	-	4	1	11	7	4		3	2	5	4	-	-	-	4	4	23	27	14	15	41	46	89%
Serge **Gnabry**	22	91'46"	1	5	-	3	-	-	4		-	-	6	-	-	-	2	3	11	15	6	8	19	26	73%
David **Alaba**	27	95'44"	-	-	5	3	-	1	3	1		14	-	-	-	-	2	5	15	20	10	13	27	38	71%
Kingsley **Coman**	29	81'52"	-	1	1	4	2	1	8	-	4		1	-	-	-	2	2	15	16	5	9	22	27	81%
Joshua **Kimmich**	32	95'44"	5	21	1	6	5	-	4	14	-	1		-	-	-	4	4	41	44	12	13	57	61	93%
Franck **Ribéry**	7	13'52"	-	-	-	1	-	1	-	-	-	-	-		-	2	0	1	1	1	3	4	4	6	67%
Rafinha	13	3'58"	-	-	-	1	-	-	-	-	-	-	1	-		-	0	0	2	2	0	0	2	2	100%
Renato Sanches	35	7'31"	-	-	-	-	-	-	-	-	-	-	-	2	-		0	0	1	2	1	2	2	4	50%
Total passes received:			44	69	51	48	23	14	41	28	33	30	57	6	1	3	44	68	318	356	86	106	448	530	85%

TP: Time played PA: Passes attempted PC: Passes completed %: Passing accuracy

23:49:23CET
19 Feb 2019

Passing Distribution

Round of 16 2nd leg - Wednesday 13 March 2019

Fußball Arena München - Munich

FC Bayern München 1 - 3 Liverpool FC

Liverpool FC win 3 - 1 on aggregate

From		TP	To: 1 Manuel Neuer	4 Niklas Süle	5 Mats Hummels	6 Thiago Alcántara	7 Franck Ribéry	8 Javi Martínez	9 Robert Lewandowski	11 James Rodríguez	13 Rafinha	22 Serge Gnabry	27 David Alaba	18 Leon Goretzka	29 Kingsley Coman	35 Renato Sanches	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	%
Manuel **Neuer**	1	95'05"		6	10	3	1	1	-	-	1	1	3	-	-	-	4	12	22	22	0	0	26	34	76%
Niklas **Süle**	4	95'05"	12		16	10	-	3	-	2	16	4	2	1	-	2	7	10	52	53	9	10	68	73	93%
Mats **Hummels**	5	95'05"	3	18		17	5	3	3	6	6	-	8	2	1	1	10	15	53	56	10	11	73	82	89%
Thiago Alcántara	6	95'05"	2	8	14		4	12	1	10	13	3	9	-	3	2	14	19	48	50	19	22	81	91	89%
Franck **Ribéry**	7	62'47"	-	1	2	-		1	2	2	2	2	7	-	-	-	3	4	9	12	7	13	19	29	66%
Javi Martínez	8	73'48"	3	4	3	7	3		3	11	8	2	-	-	-	-	1	3	24	25	19	21	44	49	90%
Robert **Lewandowski**	9	95'05"	-	-	1	1	3	1		-	1	1	1	-	-	-	0	0	3	5	6	9	9	14	64%
James Rodríguez	11	80'07"	1	4	2	13	5	7	1		4	2	2	-	2	-	1	2	25	28	17	19	43	49	88%
Rafinha	13	95'05"	2	19	3	11	1	7	3	7		9	-	1	-	2	2	3	47	50	16	18	65	71	92%
Serge **Gnabry**	22	95'05"	-	2	-	3	-	1	1	4	4		-	-	-	3	0	1	10	12	8	11	18	24	75%
David **Alaba**	27	95'05"	3	-	2	4	9	2	4	4	-	-		1	7	3	5	7	25	29	9	12	39	48	81%
Leon **Goretzka**	18	21'17"	-	-	-	3	-	-	-	-	2	-	-		1	-	0	0	4	4	2	2	6	6	100%
Kingsley **Coman**	29	32'18"	-	-	-	1	-	1	-	1	-	-	3	-		5	0	0	7	8	4	5	11	13	85%
Renato Sanches	35	14'58"	-	-	1	2	-	-	-	-	3	1	4	-	2		2	3	9	11	2	2	13	16	81%
Total passes received:			26	62	54	75	31	39	18	47	60	25	39	5	16	18	49	79	338	365	128	155	515	599	86%

From		TP	To: 13 Alisson Becker	4 Virgil Van Dijk	5 Georginio Wijnaldum	7 James Milner	9 Roberto Firmino	10 Sadio Mané	11 Mohamed Salah	14 Jordan Henderson	26 Andy Robertson	32 Joël Matip	66 Trent Alexander-Arnold	3 Fabinho	20 Adam Lallana	27 Divock Origi	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	%
Alisson Becker	13	95'05"		8	1	-	-	-	-	-	5	4	2	3	-	-	7	18	16	16	0	0	23	34	68%
Virgil **Van Dijk**	4	95'05"	4		1	10	-	1	-	2	7	5	3	4	-	1	6	7	25	25	7	8	38	40	95%
Georginio **Wijnaldum**	5	95'05"	1	-		1	4	2	10	-	1	2	6	1	-	-	2	4	16	16	10	13	28	33	85%
James **Milner**	7	88'55"	1	7	-		3	2	2	1	9	2	4	2	-	-	3	7	25	31	5	7	33	45	73%
Roberto **Firmino**	9	84'33"	-	1	4	3		5	5	-	5	-	3	3	-	-	1	1	18	21	10	12	29	34	85%
Sadio **Mané**	10	95'05"	-	-	1	2	1		4	-	2	3	2	1	-	-	1	1	9	12	6	10	16	23	70%
Mohamed **Salah**	11	95'05"	-	-	8	-	6	3		-	1	-	4	1	-	-	0	0	16	18	7	13	23	31	74%
Jordan **Henderson**	14	12'33"	-	-	-	1	-	-	-		3	-	1	-	-	-	0	0	4	5	1	1	5	6	83%
Andy **Robertson**	26	95'05"	-	5	2	10	7	6	1	1		2	3	2	-	-	8	10	24	25	7	10	39	45	87%
Joël **Matip**	32	95'05"	9	3	7	2	2	1	4	-	-		12	3	-	-	3	6	35	36	5	6	43	48	90%
Trent **Alexander-Arnold**	66	95'05"	-	-	4	2	5	1	6	-	2	4		4	-	-	4	11	21	34	3	7	28	52	54%
Fabinho	3	82'32"	1	2	2	3	3	1	1	-	5	5	2		-	-	3	5	20	23	2	2	25	30	83%
Adam **Lallana**	20	6'10"	-	-	-	-	-	-	-	-	-	-	-	-		1	0	0	0	0	1	1	1	1	100%
Divock **Origi**	27	10'32"	-	-	-	-	-	1	1	-	-	-	-	-	-		0	0	1	1	1	1	2	2	100%
Total passes received:			16	26	30	34	31	23	34	4	40	27	42	24	0	2	38	70	230	263	65	91	333	424	79%

TP: Time played PA: Passes attempted PC: Passes completed %: Passing accuracy

23:48:06CET
13 Mar 2019

Passing Distribution

Quarter-finals 1st leg - Tuesday 9 April 2019

Anfield - Liverpool

Liverpool FC 2 - 0 FC Porto

From		TP	To: Alisson Becker 13	Fabinho 3	Virgil Van Dijk 4	Dejan Lovren 6	James Milner 7	Naby Keïta 8	Roberto Firmino 9	Sadio Mané 10	Mohamed Salah 11	Jordan Henderson 14	Trent Alexander-Arnold 66	Daniel Sturridge 15	Divock Origi 27	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Alisson Becker	13	94'01"		4	7	8	3	1	-	-	-	-	3	-	-	4	4	21	21	1	1	26	26	100%
Fabinho	3	94'01"	2		15	11	11	12	5	-	8	6	10	1	-	9	12	57	60	15	19	81	91	89%
Virgil **Van Dijk**	4	94'01"	4	18		22	22	14	-	-	2	6	5	1	2	9	12	76	78	11	13	96	103	93%
Dejan **Lovren**	6	94'01"	2	11	20		2	2	1	-	6	6	**23**	-	-	3	5	60	65	10	10	73	80	91%
James **Milner**	7	94'01"	1	11	13	-		13	5	8	1	-	3	-	4	4	8	42	45	13	15	59	68	87%
Naby **Keïta**	8	94'01"	-	8	12	3	13		4	4	4	7	2	-	-	4	5	38	42	15	19	57	66	86%
Roberto **Firmino**	9	82'02"	-	1	1	2	1	3		6	2	3	3	-	-	0	0	11	14	11	16	22	30	73%
Sadio **Mané**	10	73'47"	-	-	-	-	4	5	4		2	1	-	-	-	0	1	7	9	9	13	16	23	70%
Mohamed **Salah**	11	94'01"	-	2	-	-	-	-	3	3		12	6	-	-	0	0	10	16	16	22	26	38	68%
Jordan **Henderson**	14	94'01"	-	6	2	4	3	2	7	1	9		13	-	-	3	7	28	31	16	19	47	57	82%
Trent **Alexander-Arnold**	66	94'01"	3	5	4	16	4	2	3	-	9	11		-	-	11	19	38	52	8	9	57	80	71%
Daniel **Sturridge**	15	11'59"	-	-	-	-	-	-	-	-	-	-	1		-	0	0	0	0	1	1	1	1	100%
Divock **Origi**	27	20'14"	-	-	-	-	2	-	-	-	1	1	-	-		1	1	1	1	2	2	4	4	100%
Total passes received:			12	66	74	66	65	54	32	22	44	53	69	2	6	48	74	389	434	128	159	565	667	85%

From		TP	To: Iker Casillas 1	Maxi Pereira 2	Éder Militão 3	Óliver Torres 10	Moussa Marega 11	Alex Telles 13	Jesús Corona 17	Danilo 22	Otávio 25	Felipe 28	Francisco Soares 29	Bruno Costa 6	Yacine Brahimi 8	Fernando 37	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Iker **Casillas**	1	94'01"		1	1	1	5	2	5	1	-	3	3	-	1	-	11	25	12	12	0	0	23	37	62%
Maxi Pereira	2	77'26"	2		-	2	-	-	6	5	4	6	1	-	1	-	0	0	20	24	7	8	27	32	84%
Éder Militão	3	94'01"	2	1		3	-	1	1	2	-	3	2	3	1	-	1	1	15	19	3	3	19	23	83%
Óliver Torres	10	73'53"	-	-	3		5	7	5	1	2	1	1	-	2	-	4	8	13	19	10	12	27	39	69%
Moussa **Marega**	11	94'01"	-	1	-	2		4	-	-	3	-	1	-	-	1	2	3	5	7	5	8	12	18	67%
Alex Telles	13	94'01"	-	-	1	7	1		1	3	2	-	1	1	3	-	0	2	7	11	13	17	20	30	67%
Jesús **Corona**	17	94'01"	1	11	-	1	-	1		4	8	3	1	-	1	-	1	5	17	20	13	17	31	42	74%
Danilo	22	94'01"	-	4	2	2	2	2	3		3	8	1	1	-	-	2	6	18	20	8	9	28	35	80%
Otávio	25	94'01"	-	2	1	2	5	-	6	-		1	3	1	1	2	1	3	14	19	9	18	24	40	60%
Felipe	28	94'01"	5	4	1	1	3	-	3	2	2		1	-	-	-	4	9	15	18	3	7	22	34	65%
Francisco **Soares**	29	62'30"	-	-	-	1	2	3	2	1	2	-		-	-	-	1	2	2	5	8	9	11	16	69%
Bruno Costa	6	20'08"	-	-	1	-	-	-	1	1	2	1	-		1	1	0	0	3	3	5	6	8	9	89%
Yacine **Brahimi**	8	31'31"	-	-	-	4	-	3	-	-	-	-	-	1		-	0	0	3	4	5	6	8	10	80%
Fernando	37	16'35"	-	-	-	-	1	-	1	-	1	-	-	-	-		0	0	1	1	2	3	3	4	75%
Total passes received:			10	24	10	26	24	23	34	20	29	26	15	7	11	4	27	64	145	182	91	123	263	369	71%

TP: Time played PA: Passes attempted PC: Passes completed %: Passing accuracy

00:00:29CET
10 Apr 2019

Passing Distribution

Quarter-finals 2nd leg - Wednesday 17 April 2019

Estádio do Dragão - Porto

FC Porto 1 - 4 Liverpool FC

Liverpool FC win 6 - 1 on aggregate

From		TP	To: Iker Casillas 1	Éder Militão 3	Yacine Brahimi 8	Moussa Marega 11	Alex Telles 13	Héctor Herrera 16	Jesús Corona 17	Danilo 22	Otávio 25	Felipe 28	Pepe 33	Bruno Costa 6	Francisco Soares 29	Fernando 37	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Iker **Casillas**	1	94'07"		4	-	1	3	2	1	2	-	10	6	-	-	1	6	12	22	22	2	2	30	36	83%
Éder Militão	3	94'07"	4		5	1	1	8	7	6	1	11	-	-	1	1	5	8	27	32	14	17	46	57	81%
Yacine **Brahimi**	8	82'33"	-	4		1	2	5	5	3	2	-	-	-	2	-	1	2	16	18	7	10	24	30	80%
Moussa **Marega**	11	94'07"	-	2	1		1	2	3	-	-	-	1	-	-	-	2	3	5	7	3	6	10	16	62%
Alex Telles	13	94'07"	-	1	7	1		2	2	5	-	1	5	-	3	-	4	9	16	24	7	7	27	40	68%
Héctor **Herrera**	16	94'07"	2	9	3	3	2		4	1	2	8	4	-	2	-	3	5	27	29	10	16	40	50	80%
Jesús **Corona**	17	79'38"	2	5	3	5	1	3		2	1	-	1	-	1	-	0	3	14	16	10	13	24	32	75%
Danilo	22	94'07"	1	3	9	2	4	5	5		2	8	5	-	2	-	4	7	33	33	9	11	46	51	90%
Otávio	25	47'11"	-	1	1	1	-	2	1	-		4	1	-	-	-	0	0	6	9	5	6	11	15	73%
Felipe	28	94'07"	17	10	2	-	3	5	3	4	3		8	-	2	-	8	19	41	47	8	9	57	75	76%
Pepe	33	94'07"	6	4	3	5	6	3	2	6	2	7		-	1	-	12	16	26	28	7	7	45	51	88%
Bruno Costa	6	11'34"	-	-	-	-	-	1	-	1	-	-	-		-	-	0	0	1	1	1	1	2	2	100%
Francisco **Soares**	29	46'56"	-	-	1	-	-	2	2	2	-	-	-	-		1	0	1	4	5	4	8	8	14	57%
Fernando	37	14'29"	-	1	-	-	-	-	-	-	-	-	-	-	-		0	1	0	2	1	1	1	4	25%
Total passes received:			32	44	35	20	23	40	35	32	13	49	31	0	14	3	45	86	238	273	88	114	371	473	78%

From		TP	To: Alisson Becker 13	Fabinho 3	Virgil Van Dijk 4	Georginio Wijnaldum 5	James Milner 7	Sadio Mané 10	Mohamed Salah 11	Andy Robertson 26	Divock Origi 27	Joël Matip 32	Trent Alexander-Arnold 66	Roberto Firmino 9	Joe Gomez 12	Jordan Henderson 14	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Alisson Becker	13	94'07"		6	3	7	2	-	-	7	1	7	4	-	2	-	10	21	29	29	0	0	39	50	78%
Fabinho	3	94'07"	2		1	1	2	1	1	5	-	2	2	-	1	2	2	7	13	24	5	7	20	38	53%
Virgil **Van Dijk**	4	94'07"	4	4		3	6	3	-	6	1	4	-	2	-	-	2	4	22	25	9	9	33	38	87%
Georginio **Wijnaldum**	5	94'07"	3	1	1		2	2	8	-	-	7	4	1	2	3	2	3	23	25	9	13	34	41	83%
James **Milner**	7	94'07"	1	2	2	2		3	1	5	-	1	4	8	-	2	6	10	20	26	5	6	31	42	74%
Sadio **Mané**	10	94'07"	-	2	1	-	5		2	2	1	-	2	2	-	1	1	1	11	14	6	11	18	26	69%
Mohamed **Salah**	11	94'07"	-	-	1	5	2	2		2	-	2	-	3	2	2	3	6	13	14	5	6	21	26	81%
Andy **Robertson**	26	72'24"	2	3	3	2	7	4	5		6	1	1	1	-	-	4	5	21	24	10	10	35	39	90%
Divock **Origi**	27	47'11"	-	1	-	1	3	-	-	4		-	-	-	-	-	0	0	3	4	6	9	9	13	69%
Joël **Matip**	32	94'07"	7	4	6	3	1	2	2	-	1		3	1	6	1	5	7	28	31	4	5	37	43	86%
Trent **Alexander-Arnold**	66	67'55"	-	2	1	2	1	2	5	1	-	2		1	-	-	5	12	11	16	1	4	17	32	53%
Roberto **Firmino**	9	46'56"	-	1	2	1	4	5	3	1	-	-	1		1	2	0	0	13	14	8	9	21	23	91%
Joe **Gomez**	12	26'12"	2	1	-	3	-	1	2	-	-	2	-	-		4	1	2	13	14	1	2	15	18	83%
Jordan **Henderson**	14	21'43"	-	-	2	2	4	2	5	-	-	-	-	2	1		2	3	14	14	2	3	18	20	90%
Total passes received:			21	27	23	32	39	27	34	33	10	28	21	21	15	17	43	81	234	274	71	94	348	449	78%

TP: Time played PA: Passes attempted PC: Passes completed %: Passing accuracy

00:02:36CET
18 Apr 2019

Passing Distribution

Semi-finals 1st leg - Wednesday 1 May 2019

Camp Nou - Barcelona

FC Barcelona 3 - 0 Liverpool FC

From		TP	To 1 Marc-André ter Stegen	3 Gerard Piqué	4 Ivan Rakitić	5 Sergio Busquets	7 Philippe Coutinho	9 Luis Suárez	10 Lionel Messi	15 Clément Lenglet	18 Jordi Alba	20 Sergi Roberto	22 Arturo Vidal	2 Nélson Semedo	11 Ousmane Dembélé	26 Carles Aleñá	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Marc-André **ter Stegen**	1	99'23"		8	-	2	-	1	1	4	3	5	5	-	-	-	11	20	16	16	2	2	29	38	76%
Gerard **Piqué**	3	99'23"	12		2	20	-	-	1	9	2	10	5	1	-	-	6	9	46	46	10	12	62	67	93%
Ivan **Rakitić**	4	99'23"	3	3		13	5	2	6	4	8	2	5	2	1	1	6	7	35	37	14	19	55	63	87%
Sergio Busquets	5	99'23"	1	11	9		-	-	8	4	8	7	12	3	1	-	8	10	38	42	18	19	64	71	90%
Philippe **Coutinho**	7	62'41"	-	-	2	1		4	6	-	3	-	1	-	-	-	1	2	11	14	5	10	17	26	65%
Luis Suárez	9	95'52"	-	-	2	1	2		1	-	5	3	3	-	-	-	0	1	9	10	8	12	17	23	74%
Lionel **Messi**	10	99'23"	-	2	5	1	3	4		-	4	3	4	1	1	-	3	3	14	22	11	18	28	43	65%
Clément **Lenglet**	15	99'23"	4	6	8	8	1	-	-		4	-	4	-	-	-	2	4	24	25	9	9	35	38	92%
Jordi Alba	18	99'23"	1	1	8	4	5	8	5	6		1	4	-	-	-	2	5	24	27	17	23	43	55	78%
Sergi Roberto	20	96'08"	4	11	5	4	-	4	6	1	-		8	1	-	-	2	3	29	31	13	15	44	49	90%
Arturo **Vidal**	22	99'23"	1	10	5	8	3	2	7	5	7	6		-	-	-	4	5	39	42	11	14	54	61	89%
Nélson **Semedo**	2	36'42"	1	1	-	-	-	-	1	-	-	4	-		-	-	0	1	4	4	3	3	7	8	88%
Ousmane **Dembélé**	11	3'31"	-	-	-	-	-	-	1	-	-	-	-	-		-	0	0	1	2	0	0	1	2	50%
Carles **Aleñá**	26	3'15"	-	-	-	-	-	-	-	-	-	-	1	-	-		0	0	1	1	0	0	1	1	100%
Total passes received:			27	53	47	62	19	25	43	33	44	41	52	8	3	1	45	70	291	319	121	156	457	545	84%

From		TP	To 13 Alisson Becker	3 Fabinho	4 Virgil Van Dijk	5 Georginio Wijnaldum	7 James Milner	8 Naby Keïta	10 Sadio Mané	11 Mohamed Salah	12 Joe Gomez	26 Andy Robertson	32 Joël Matip	9 Roberto Firmino	14 Jordan Henderson	27 Divock Origi	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Alisson Becker	13	99'23"		4	16	-	5	2	-	-	5	5	8	-	-	-	8	10	34	34	3	3	45	47	96%
Fabinho	3	99'23"	1		5	4	7	-	2	7	14	6	7	1	1	-	5	7	46	51	4	8	55	66	83%
Virgil **Van Dijk**	4	99'23"	6	4		1	5	3	1	1	3	10	8	-	1	3	6	9	35	35	5	5	46	49	94%
Georginio **Wijnaldum**	5	81'05"	-	2	-		5	-	4	4	2	1	1	-	2	-	1	1	17	19	3	7	21	27	78%
James **Milner**	7	87'02"	1	2	1	3		-	6	7	5	19	7	-	3	-	10	14	36	42	8	12	54	68	79%
Naby **Keïta**	8	23'09"	1	2	1	2	2		-	1	-	5	1	-	-	-	1	1	9	11	5	6	15	18	83%
Sadio **Mané**	10	99'23"	1	3	-	-	3	1		1	1	5	-	-	1	-	1	3	11	12	4	9	16	24	67%
Mohamed **Salah**	11	99'23"	-	5	-	4	2	1	2		5	3	1	-	2	-	2	4	18	23	5	12	25	39	64%
Joe **Gomez**	12	99'23"	2	10	2	-	2	1	4	7		1	7	-	9	-	1	3	33	42	11	14	45	59	76%
Andy **Robertson**	26	99'23"	2	5	7	4	12	4	7	2	2		2	2	5	2	7	10	39	47	10	13	56	70	80%
Joël **Matip**	32	99'23"	13	8	6	1	6	2	2	1	10	1		1	9	-	5	10	47	50	8	9	60	69	87%
Roberto **Firmino**	9	18'18"	-	1	-	-	-	-	-	-	-	2	-		2	-	2	2	2	2	1	2	5	6	83%
Jordan **Henderson**	14	76'14"	-	6	-	3	3	-	2	6	7	4	3	-		-	3	5	21	24	10	17	34	46	74%
Divock **Origi**	27	12'21"	-	-	2	-	-	-	-	-	-	1	1	1	-		0	0	3	3	2	2	5	5	100%
Total passes received:			27	52	40	22	52	14	30	37	54	63	46	5	35	5	52	79	351	395	79	119	482	593	81%

TP: Time played PA: Passes attempted PC: Passes completed %: Passing accuracy

00:29:57CET
02 May 2019

Passing Distribution

UEFA CHAMPIONS LEAGUE

Semi-finals 2nd leg - Tuesday 7 May 2019

Anfield - Liverpool

Liverpool FC 4 - 0 **FC Barcelona**

Liverpool FC win 4 - 3 on aggregate

From		TP	To: Alisson Becker 13	Fabinho 3	Virgil Van Dijk 4	James Milner 7	Sadio Mané 10	Jordan Henderson 14	Xherdan Shaqiri 23	Andy Robertson 26	Divock Origi 27	Joël Matip 32	Trent Alexander-Arnold 66	Georginio Wijnaldum 5	Joe Gomez 12	Daniel Sturridge 15	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Alisson Becker	13	98'56"		2	8	2	-	-	-	3	-	6	-	-	-	-	2	7	18	18	1	1	21	26	81%
Fabinho	3	98'56"	1		7	8	4	3	7	7	2	2	6	2	-	-	7	10	36	37	6	7	49	54	91%
Virgil **Van Dijk**	4	98'56"	2	6		5	4	4	1	6	2	7	2	1	-	-	7	11	31	32	2	4	40	47	85%
James **Milner**	7	98'56"	3	6	4		10	-	4	5	4	-	1	8	-	-	3	7	37	40	5	8	45	55	82%
Sadio **Mané**	10	98'56"	1	3	-	4		2	2	-	1	-	1	-	-	-	1	2	8	11	5	13	14	26	54%
Jordan **Henderson**	14	98'56"	1	4	1	2	2		6	2	3	6	8	-	-	-	2	6	21	25	12	15	35	46	76%
Xherdan **Shaqiri**	23	93'46"	-	5	1	1	1	5		-	1	4	11	1	-	-	2	5	19	24	9	16	30	45	67%
Andy **Robertson**	26	49'00"	1	1	3	10	-	1	2		-	1	-	-	-	-	1	4	11	12	7	10	19	26	73%
Divock **Origi**	27	88'53"	-	-	-	1	-	3	4	-		-	1	1	-	-	2	2	2	6	6	10	10	18	56%
Joël **Matip**	32	98'56"	5	4	6	3	-	6	2	-	2		**14**	-	-	-	5	6	27	28	10	12	42	46	91%
Trent **Alexander-Arnold**	66	98'56"	-	5	2	3	2	13	8	-	1	2		1	-	-	5	14	24	35	8	14	37	63	59%
Georginio **Wijnaldum**	5	49'56"	-	2	3	5	3	-	1	-	1	-	-		-	-	1	1	9	9	5	5	15	15	100%
Joe **Gomez**	12	10'03"	-	-	-	-	-	-	-	-	-	-	-	-		-	0	0	0	0	0	0	0	0	0%
Daniel **Sturridge**	15	5'10"	-	-	-	-	1	-	-	-	-	-	-	-	-		0	0	1	1	0	0	1	1	100%
Total passes received:			**14**	**38**	**35**	**44**	**27**	**37**	**37**	**23**	**17**	**28**	**44**	**14**	**0**	**0**	**38**	**75**	**244**	**278**	**76**	**115**	**358**	**468**	**76%**

From		TP	To: Marc-André ter Stegen 1	Gerard Piqué 3	Ivan Rakitić 4	Sergio Busquets 5	Philippe Coutinho 7	Luis Suárez 9	Lionel Messi 10	Clément Lenglet 15	Jordi Alba 18	Sergi Roberto 20	Arturo Vidal 22	Nélson Semedo 2	Arthur 8	Malcom 14	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Marc-André **ter Stegen**	1	98'56"		9	-	1	-	-	-	9	-	4	-	1	-	-	5	15	18	19	1	1	24	35	69%
Gerard **Piqué**	3	98'56"	4		-	12	-	-	-	6	3	2	2	11	4	-	4	7	31	35	9	11	44	53	83%
Ivan **Rakitić**	4	83'42"	3	5		**14**	2	2	5	4	13	3	2	-	-	-	6	8	36	39	11	17	53	64	83%
Sergio Busquets	5	98'56"	-	6	12		3	-	7	11	12	11	9	-	7	2	7	9	56	60	17	21	80	90	89%
Philippe **Coutinho**	7	63'07"	-	1	3	1		-	3	-	10	-	-	-	-	-	2	3	9	14	7	10	18	27	67%
Luis Suárez	9	98'56"	-	-	1	4	1		3	-	3	3	-	-	-	1	0	2	5	6	11	13	16	21	76%
Lionel **Messi**	10	98'56"	-	1	7	3	3	4		1	7	7	3	-	1	-	5	7	22	24	10	18	37	49	76%
Clément **Lenglet**	15	98'56"	6	1	9	9	2	-	1		10	2	-	-	3	1	5	9	29	30	10	12	44	51	86%
Jordi Alba	18	98'56"	-	3	9	3	8	6	10	6		1	5	-	2	2	1	2	35	43	19	27	55	72	76%
Sergi Roberto	20	98'56"	4	6	4	8	-	-	8	1	4		10	7	3	-	2	2	37	40	16	18	55	60	92%
Arturo **Vidal**	22	78'03"	-	4	4	5	1	-	10	-	3	6		-	-	-	2	3	20	23	11	12	33	38	87%
Nélson **Semedo**	2	35'49"	-	6	-	7	-	-	-	-	-	6	-		2	1	0	1	19	23	3	4	22	28	79%
Arthur	8	20'53"	-	2	1	5	-	-	2	3	2	2	-	6		-	2	2	14	16	7	7	23	25	92%
Malcom	14	15'14"	-	-	-	1	-	-	-	1	2	1	-	3	-		0	0	8	9	0	0	8	9	89%
Total passes received:			**17**	**44**	**50**	**73**	**20**	**12**	**49**	**42**	**69**	**48**	**31**	**28**	**22**	**7**	**41**	**70**	**339**	**381**	**132**	**171**	**512**	**622**	**82%**

TP: Time played PA: Passes attempted PC: Passes completed %: Passing accuracy

00:31:04CET
08 May 2019

Passing Distribution

Final - Saturday 1 June 2019

Estadio Metropolitano - Madrid

Tottenham Hotspur FC 0 - 2 Liverpool FC

From		TP	To: Hugo Lloris 1	Kieran Trippier 2	Danny Rose 3	Toby Alderweireld 4	Jan Vertonghen 5	Heung-Min Son 7	Harry Winks 8	Harry Kane 10	Moussa Sissoko 17	Dele Alli 20	Christian Eriksen 23	Eric Dier 15	Fernando Llorente 18	Lucas Moura 27	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Hugo **Lloris**	1	97'06"		7	4	13	16	-	3	1	3	1	-	-	1	-	11	24	34	34	4	4	49	62	79%
Kieran **Trippier**	2	97'06"	3		2	5	2	3	5	2	2	2	11	4	1	1	8	14	28	36	7	8	43	58	74%
Danny **Rose**	3	97'06"	1	1		1	9	3	5	2	-	8	1	1	2	2	5	5	25	28	6	8	36	41	88%
Toby **Alderweireld**	4	97'06"	14	10	4		20	3	4	-	2	1	1	1	-	1	12	21	47	49	2	2	61	72	85%
Jan **Vertonghen**	5	97'06"	13	2	11	25		1	5	-	4	1	2	2	1	-	4	10	59	62	4	4	67	76	88%
Heung-Min **Son**	7	97'06"	-	1	-	1	2		-	2	1	5	4	-	-	-	1	1	6	9	9	11	16	21	76%
Harry **Winks**	8	67'20"	3	7	5	6	4	1		-	7	6	3	-	-	-	3	4	29	33	10	12	42	49	86%
Harry **Kane**	10	97'06"	-	1	1	-	-	3	1		-	1	1	-	-	-	1	3	5	7	2	3	8	13	62%
Moussa **Sissoko**	17	75'30"	5	2	2	5	5	1	6	-		2	3	-	-	-	7	8	17	19	7	9	31	36	86%
Dele **Alli**	20	83'00"	-	1	3	-	-	8	4	1	2		7	1	-	1	0	1	9	14	19	21	28	36	78%
Christian **Eriksen**	23	97'06"	-	6	2	3	2	5	5	2	2	6		-	-	1	2	7	20	22	12	16	34	45	76%
Eric **Dier**	15	21'36"	-	-	-	1	2	-	-	-	-	1	3		-	-	0	2	6	7	1	1	7	10	70%
Fernando **Llorente**	18	14'06"	-	-	-	-	-	-	-	1	-	-	-	-		1	0	0	0	2	2	2	2	4	50%
Lucas **Moura**	27	29'46"	-	1	-	-	-	1	-	-	1	1	-	-	-		0	1	2	2	2	2	4	5	80%
Total passes received:			39	39	34	60	62	29	38	11	24	35	36	9	5	7	54	101	287	324	87	103	428	528	81%

From		TP	To: Alisson Becker 13	Fabinho 3	Virgil Van Dijk 4	Georginio Wijnaldum 5	Roberto Firmino 9	Sadio Mané 10	Mohamed Salah 11	Jordan Henderson 14	Andy Robertson 26	Joël Matip 32	Trent Alexander-Arnold 66	James Milner 7	Joe Gomez 12	Divock Origi 27	Long PC	Long PA	Medium PC	Medium PA	Short PC	Short PA	Total PC	Total PA	Total %
Alisson Becker	13	97'06"		3	8	-	-	1	-	1	6	4	1	2	-	-	8	18	18	18	0	0	26	36	72%
Fabinho	3	97'06"	1		1	-	-	2	-	3	4	1	1	1	-	1	1	2	11	16	3	3	15	21	71%
Virgil **Van Dijk**	4	97'06"	6	-		1	-	-	1	2	5	6	1	1	-	1	5	6	17	20	2	2	24	28	86%
Georginio **Wijnaldum**	5	63'59"	-	1	-		2	1	2	2	2	-	2	-	-	-	1	1	4	4	7	8	12	13	92%
Roberto **Firmino**	9	59'57"	-	2	-	-		2	2	1	2	-	-	-	-	-	0	0	2	4	7	9	9	13	69%
Sadio **Mané**	10	91'24"	-	-	-	3	1		3	1	7	-	1	-	-	-	0	2	7	9	9	11	16	22	73%
Mohamed **Salah**	11	97'06"	-	-	-	-	2	1		1	-	-	1	1	-	1	0	0	2	8	5	9	7	17	41%
Jordan **Henderson**	14	97'06"	-	2	1	-	-	4	4		2	1	3	-	-	2	3	5	12	14	4	5	19	24	79%
Andy **Robertson**	26	97'06"	3	3	2	3	2	8	1	1		-	1	1	-	1	3	9	19	25	4	5	26	39	67%
Joël **Matip**	32	97'06"	2	2	4	1	1	1	-	-	1		2	-	-	2	3	7	10	11	3	3	16	21	76%
Trent **Alexander-Arnold**	66	97'06"	1	-	-	-	2	2	2	2	-	1		-	-	1	2	10	7	14	2	6	11	30	37%
James **Milner**	7	33'07"	-	-	1	-	-	-	-	-	1	-	1		-	1	2	3	1	3	1	1	4	7	57%
Joe **Gomez**	12	5'42"	-	-	-	-	-	-	-	-	-	-	-	-		-	0	1	0	0	0	0	0	1	0%
Divock **Origi**	27	37'09"	-	-	-	-	-	2	1	1	-	-	-	-	-		1	2	1	4	2	2	4	8	50%
Total passes received:			13	13	17	8	10	24	16	15	30	13	14	6	0	10	29	66	111	150	49	64	189	280	68%

TP: Time played PA: Passes attempted PC: Passes completed %: Passing accuracy

00:09:35CET
02 Jun 2019