

ESSAY

An MCDM Reflection on the FIFA 2014 World Cup Golden Ball Award

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Another World Cup is over and with that another controversy about the rightful winner of the most prestigious award of the tournament, the Golden Ball. The former Argentinian player and current celebrity Diego Maradona was most likely right when he argued that his fellow countryman Lionel Messi should not have accepted the Golden Ball (“Balón de Oro”) award (La Nación, 2014). There was even a viral video of a little girl who was crying because she thought that Messi should have given the Golden Ball award to James Rodriguez from Colombia (youtube, 2014). From a Multi-criteria Decision Making (MCDM) point of view, both Maradona and the little girl were right and in the following article we will attempt to explain why.

Table 1 shows the statistics provided by FIFA for the Golden Ball player candidates. We have taken the FIFA numbers and averaged all the statistics with respect to a single game. For example, James Rodriguez scored 6 goals in 5 games; therefore, his average goals/game score is $6/5 = 1.2$. On the other hand, a player that did not score any goals, such as Philipp Lahm from Germany, has $0/7 = 0$ as his score for the criterion goals/game, as shown below.

AN ANALYTIC HIERARCHY APPROACH

The problem of selecting the Golden Ball award winner from among ten candidates constitutes a classic prioritization problem in the context of multi-criteria decision analysis. The Analytic Hierarchy Process is an ideal methodology to model this decision (Saaty, 1980). Figure 1 shows the selection problem graphically.

The scores from Table 1 were converted into proportional ratings on a scale of 1 to 10. For example, the maximum score for goals/game is 1.2 (James); therefore, whoever has a score of 1.2 score has 10 points. The minimum score is 0 (Lahm and Mascherano); therefore, whoever has this score obtains 0 points. Scores that fall between 0 and 1.2 are allocated points from 1 to 10 proportionally. This same procedure was applied to each of the 8 criteria in Table 1.

Table 1
FIFA 2014 Player Game Average Statistics

	Lionel Messi	Toni Kroos	Arjen Robben	Mats Hummels	Thomas Muller	Philipp Lahm	James Rodriguez	Neymar Jr	Javier Mascherano	Angel Di Maria
COUNTRY	ARG	GER	HOL	GER	GER	GER	COL	BRA	ARG	ARG
GAMES PLAYED	1	1	1	1	1	1	1	1	1	1
C1 Goals Scored	0.6	0.3	0.4	0.3	0.7	0.0	1.2	0.8	0.0	0.2
C2 Assists	0.1	0.6	0.1	0.8	0.4	0.3	0.4	0.2	0.0	0.0
C3 Crosses Success Ratio *	45.5	31.0	38.0	0.0	9.0	46.2	41.7	21.0	0.0	22.4
C4 Passes Complete Ratio *	34.0	84.8	95.0	81.4	62.5	86.3	69.0	72.2	85.6	65.7
C5 Recovered Balls	3.7	2.9	2.7	7.8	1.7	5.6	2.0	3.2	7.0	1.8
C6 Fouls Committed	0.9	1.0	1.4	0.7	2.0	0.4	2.0	1.6	1.3	0.6
C7 Yellow Cards	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.2	0.1	0.2
C8 Red Cards	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

* % remains the same

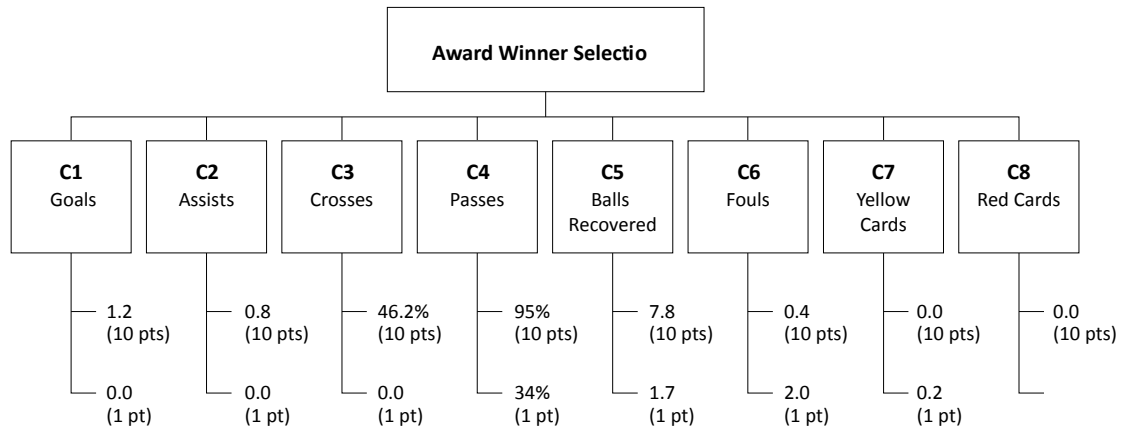


Figure 1. AHP Ratings Model for the Selection of the Golden Ball (“Balon de Oro”) Award Winner

THE “BALON DE ORO” EVALUATION

Finally, the eight criteria and the ten player candidates were entered into Decision Lens™, a commercial software package that operationalizes an Analytic Hierarchy Process Ratings Model, and we proceeded to consider different scenarios in which the criteria have different weights as follows:

Attack Performance

Criteria 1 to 4 (goals, assists, crosses, and passes) can be considered player’s attack performance ratings. Four scenarios are possible depending on which criteria combination (C1, C1 & C2, C1 – C3, C1 – C4) is considered the most important. Figure 2 shows the results. Notice that in all the cases, James Rodriguez is the clear winner. The only exception is in the last scenario (4) where all the attack criteria were considered important. In this case Rodriguez is still the best, but is tied with Toni Kroos who has a higher rate of completed passes.

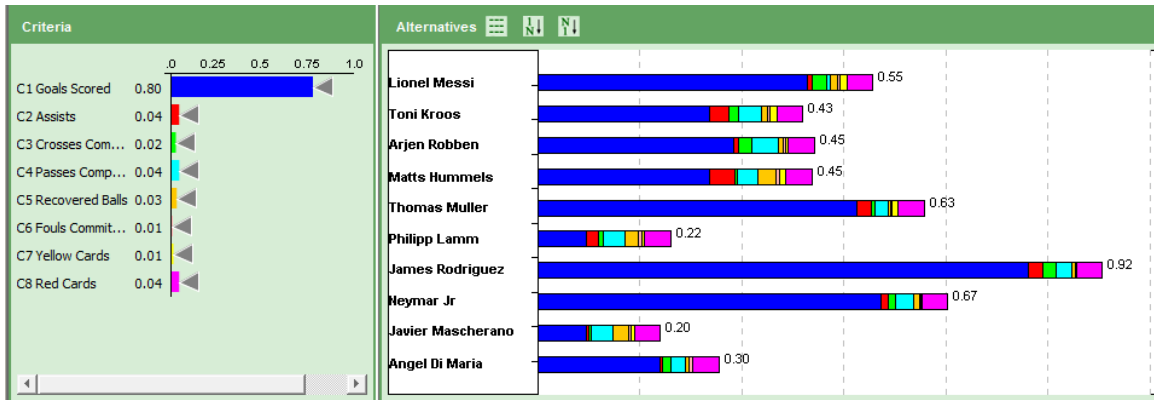


Figure 2a. Scenario 1: C1 – Goals Scored is most important criterion

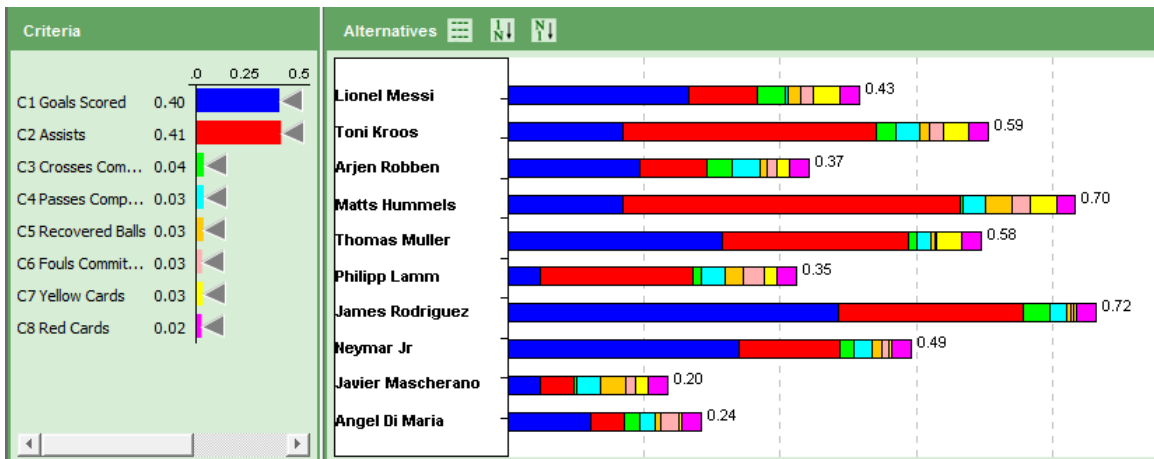


Figure 2b. Scenario 2: C1 Goals and C2 Assists are most important criteria

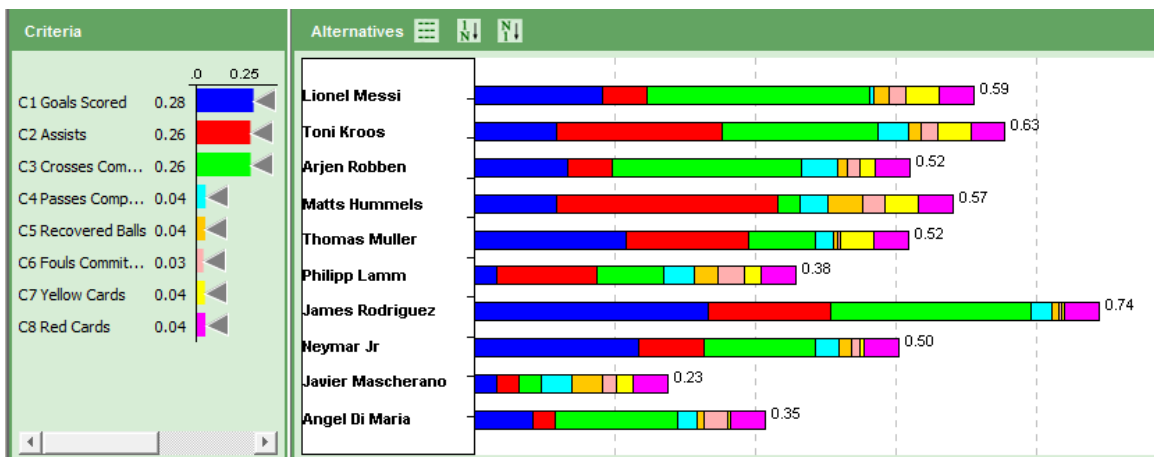


Figure 2c. Scenario 3: C1 Goals, C2 Assists and C3 - Crosses are most important criteria

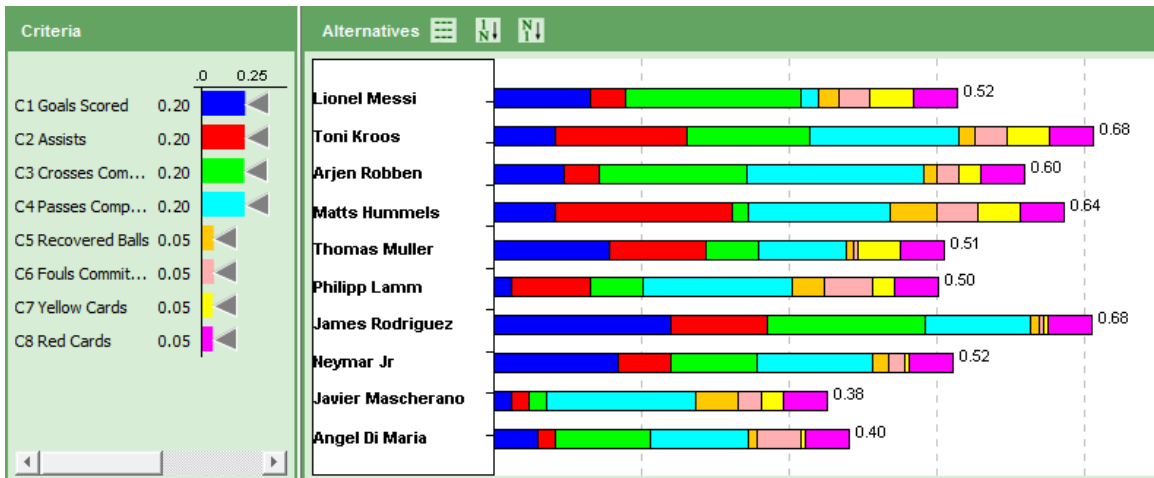


Figure 2d. Scenario 4: C1 Goals, C2 Assists, C3 – Crosses, and C4 – Recovered Balls are most important criteria

Defense Performance

Criteria 4 and 5 (passes completed and balls recovered) can be considered defense performance criteria (yes, C4 is double dipping since passes completed can be considered important performance for both attack and defense). Figure 3 shows that in this case Matts Hummels (Germany) is the clear winner, followed by Mascherano (Argentina).

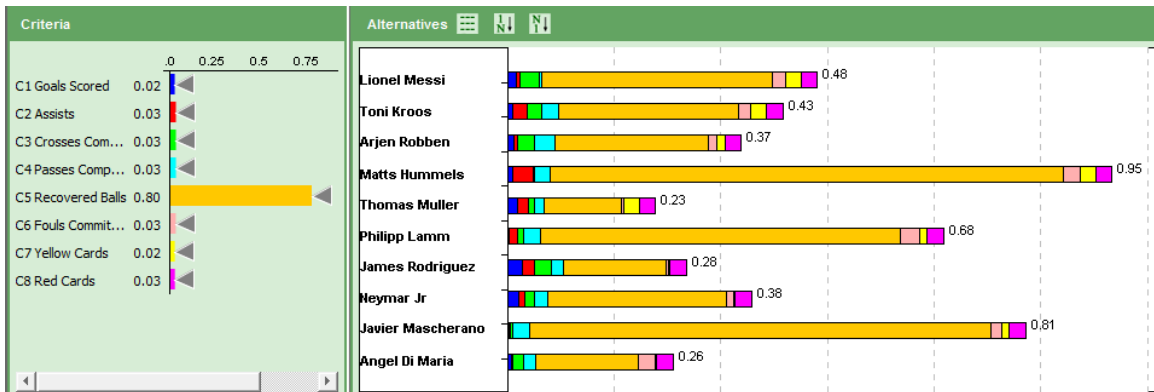


Figure 3a. Scenario 5: C5 – Recovered Balls is the most important criterion

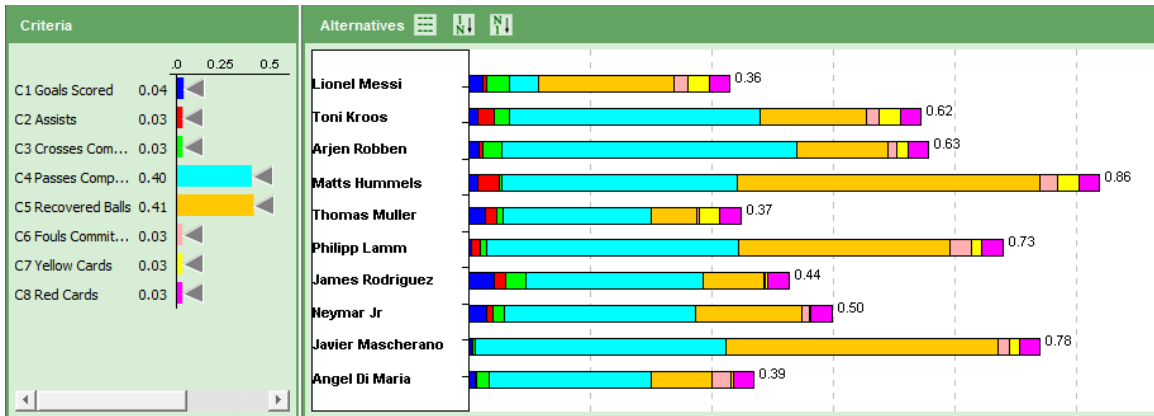


Figure 3b. Scenario 6: C4 – Passes Completed and C5 – Recovered Balls are the most important criteria

Fair Play Performance

Finally, C6 to C8 (fouls, yellow cards, and red cards) can be considered a measure of fair play performance¹. When the results were modeled based on C6 – C8 being the most important criteria, the winner is again Matts Hummels.

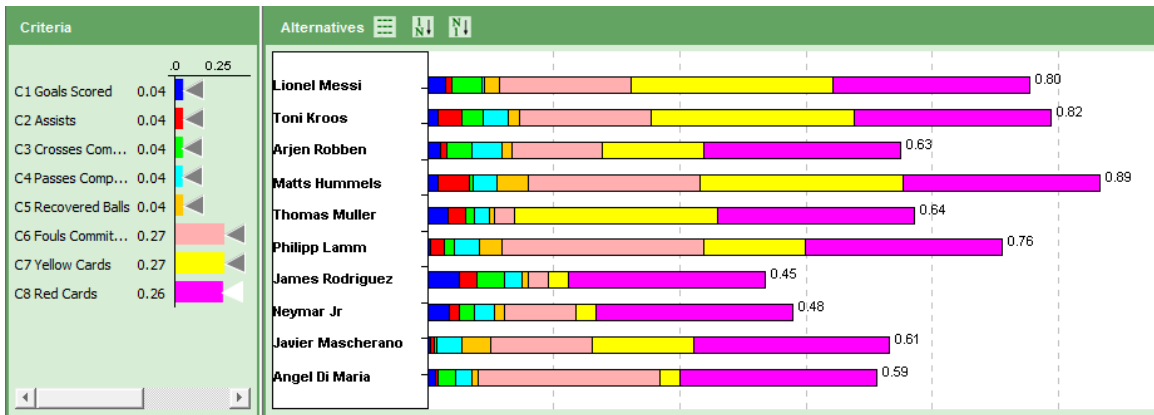


Figure 4. Scenario 7: C6 – Fouls, C7 – Yellow and C8 – Red Cards are the most important criteria

CONCLUSION

This analysis suggests that in any circumstance; that is, any combination of criteria, in which attack performance criteria have greater importance than defense and fair-play performance criteria, James Rodriguez should have been the winner of the “Balon de Oro” award! Although it is not possible to know how FIFA weighs the different criteria, we could not find any scenario, i.e. changing criteria weights, where Lionel Messi could have been a potential winner for this award. Furthermore, given the AHP’s capability to

¹ In this case, the less number of fouls, yellow cards, and red cards average per game, the highest the player rating.

include intangible criteria such as team leadership, public charisma and so forth; we strongly suggest the use of an AHP evaluation approach that can make the award decision as transparent as possible. When half the world is watching this tournament, it is the least that FIFA can do for soccer fans worldwide.

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