

# FIH World Ranking System

*An explanation*

# Rationale for changing from the previous TOURNAMENT based World Ranking system

## Pros of old system

- Established system used since 2003, originally devised to allocate teams into pools at tournaments
- Ranked top teams from different continents with a good level of accuracy
- Worked well for top 20 nations who played in all FIH and Continental level events so gained ranking points 2-3 times per year
- Points were won over a 4 year period so strong results provided positive ranking scoring for a number of years

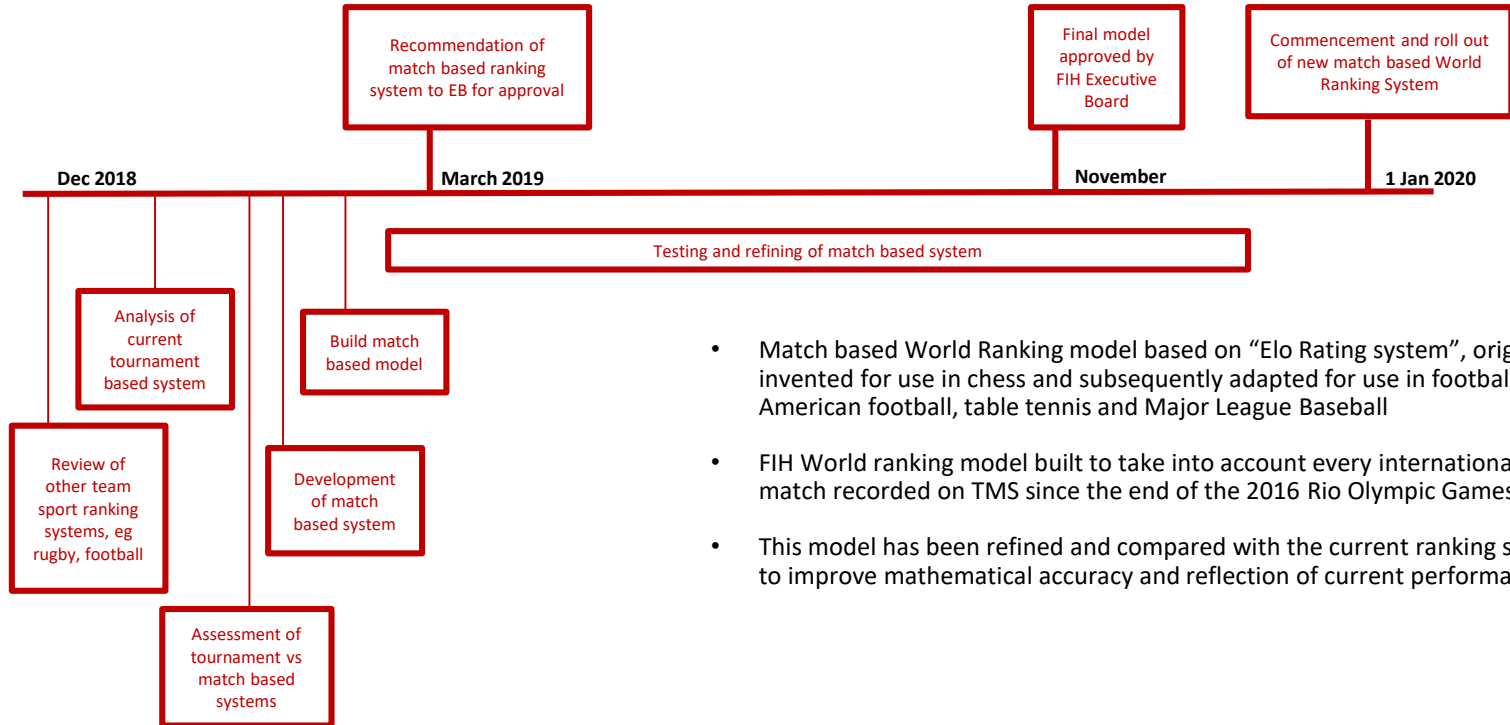
## Cons of old system

- Limited number of opportunities to win points each year (1 or less for lower ranked nations)
- Required a degree of subjectivity to determine the relative strengths of the 5 continents in order to calculate continental ranking points
- Ranking points degraded slowly over a 4 year period and points were only gained a few times each year, resulting in a ranking system that was slow to change or reflect current performance levels
- Nations who played international matches but did not take part in FIH tournaments had no ranking so the World Ranking table did not reflect all nations that play international hockey
- 60%+ of international matches had no ranking points on them
- System was not easy to understand

## Principles of new MATCH based World Ranking system

- Increase opportunities for all National Associations to gain ranking points
  - Dynamic ranking system that better reflects current performance
  - Remove subjectivity wherever possible and create a system that is fair to all without the need for Continental weighting
  - Encourages playing international matches
  - Encourages targeting highest profile tournaments for best performance
  - Does not bias based on wealth of National Association or geographic proximity to other nations
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- We built a model using every official international match result from the end of the Rio Olympic Games
  - We ran it live in the background during the whole of 2019, using all 2019 official international match results
  - Having refined it further during 2019, we are confident it is a fair system that reflects current performance, so it will be reset and rolled out on January 1, 2020

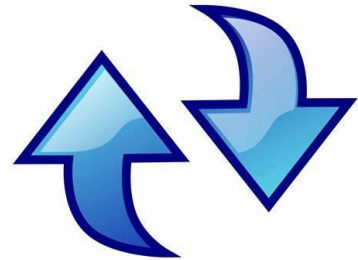
# World Ranking system – development process



- Match based World Ranking model based on “Elo Rating system”, originally invented for use in chess and subsequently adapted for use in football, American football, table tennis and Major League Baseball
- FIH World ranking model built to take into account every international match recorded on TMS since the end of the 2016 Rio Olympic Games
- This model has been refined and compared with the current ranking system to improve mathematical accuracy and reflection of current performance

## The model explained

- Based on the Elo rating system, which is used as the basis of many other sports ranking systems
- When 2 nations play against each other, a number of ranking points are exchanged between them
- In every match, the number of points gained by one team is exactly matched by the number of points lost by the other
- Teams will win more points for beating teams ranked above them, and therefore teams will lose more points for losing to a team ranked below them
- Teams will win less points for beating teams ranked below them, and therefore teams will lose less points for losing to a team ranked above them
- If a draw occurs, the lower ranked team will gain a small number of points and the higher ranked team will lose the same number of points
- The number of points exchanged is dependant on the result of the match (win, lose, shootout win/loss or draw), the importance of the match (part of a major tournament, or a test series for example), and the relative difference in ranking points between the teams before the match



## World Ranking system – a match based algorithm

$$P(\text{after}) = P(\text{before}) + R * W * I$$

- $P_{(\text{after})}$  = Number of World Ranking points after match
- $P_{(\text{before})}$  = Number of World Ranking points before match
- R = match result (10 for a win, 5 for a shootout win, 1 for a draw)
- W = Weighting (1 minus the difference in ranking points [winner – loser] or in the case of a draw [lower ranked – higher ranked], of the 2 teams, divided by 1000\*)
- I = Importance (Each type of tournament and match is given a weighting depending on the importance of the match. There is no difference in Importance between continents)

\*If the difference in ranking points before the match is greater than 1000, then a maximum Weighting of 2 is applied if the lower ranked team wins, or 0 if the higher ranked team wins. This is to not discourage higher ranked nations from playing against lower ranked nations for the risk of losing lots of points

### Weighting (W) example calculation

Team A have 500 pts pre match  
Team B have 1000 pts pre match

If Team A win:  
Weighting =  $1 - ((500-1000)/1000) = 1.5$

If Team B win:  
Weighting =  $1 - ((1000-500)/1000) = 0.5$

In the case of a draw:  
Weighting =  $1 - ((500-1000)/1000) = 1.5$

### Event Importance (I)

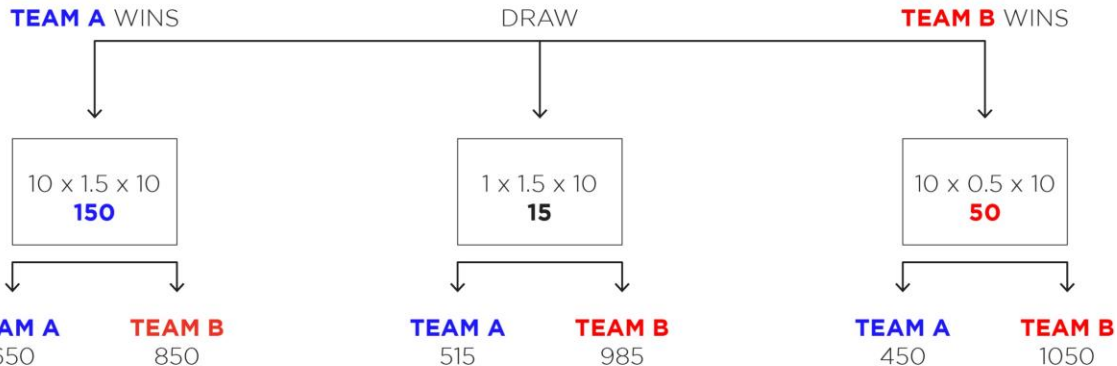
World Cup	10
Olympic Games	10
WC/OG Qualifier	6
Cont. Champs.	6
FIH Pro League	5
Continental qualifier	3
Cont. Champs. Div 2	3
3+ team invitational	2
Cont. Champs. Div 3	2
One off Test match	1
Cont Champs Div 4	1

# FIH NEW RANKING SYSTEM - WORLD CUP EXAMPLE

Points Before

**TEAM A** 500 vs **TEAM B** 1000

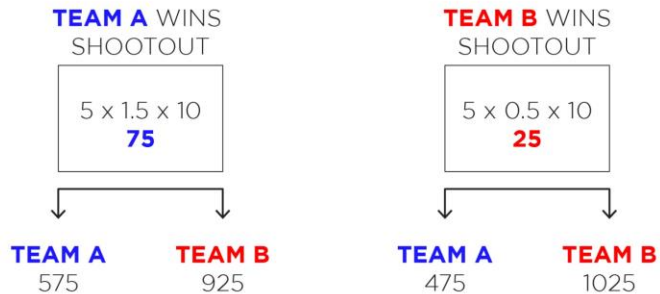
Points Exchanged



Points After

## SHOOTOUT WIN/LOSS

Points Exchanged



Points After

## Points to note

- The number of ranking points that each Nation starts the new ranking system on January 1, 2020, is the number of points they had in the old system on this date
- Every international match that is sanctioned, appears on the FIH Tournament Management System (TMS) and that international caps are awarded for, from January 1 2020, has ranking points exchanged
- Non ranking training matches can still be played between nations, but they do not appear on TMS, will not have caps awarded and therefore will have no ranking points exchanged
- The currently agreed Great Britain formula will be used to allocate match Weightings and the distribution of rankings points between Nations, determined by the proportion of players from England, Wales and Scotland playing in each Great Britain match
- This new system has been run in the background as a test during 2019 and has been shown to be much more dynamic and immediately reflective of current form than the existing World Ranking system



## Key dates for when World Rankings will be used

Date	Description of use of rankings at this time
January 1, 2020	Launch of new World Ranking System
Midnight CET, August 7, 2020 (Completion of Olympic Games)	Continental quotas for 2022/23 World Cup qualification
Midnight CET, November 30, 2021	Nations qualified for 2022 Commonwealth Games
March 31*, 2022 (Completion of WC qualifiers)	Pools for World Cup tournaments
Midnight CET, 17 July, 2022 (Completion of Women's World Cup)	Continental quotas for 2024 Olympic Games women's qualification
Midnight CET, 31 January, 2023 (Completion of Men's World Cup)	Continental quotas for 2024 Olympic Games men's qualification

\* Date subject to confirmation of dates of WC qualifiers. The final day of the WC qualifiers will be the date used for calculation of WC pools

## Contact details

If you have questions on the new World Ranking system, please contact:

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