Some examples for the great coach effect:

1. Anna Tarrés: 曾经是西班牙花样游泳教练, 2008奥运会带队获得银牌, 2012离开西班牙,辗转多年最后来到中国，2024中国队赢得了花样游泳运动的第一枚金牌，而西班牙这次只获得了铜牌
2. Hugues Obry:曾经是法国Fencing教练，2016带队获得金牌。同年成为中国教练，在2016年获得银牌的Yiwen Sun在他的训练下，于2021年获得了金牌。
3. BLIZNYUK Anastasia:曾是俄罗斯的Rhythmic Gymnastics运动员并获得过金牌，2022年成为中国教练，2024年中国Rhythmic Gymnastics队获得了首枚金牌，（在2012-2021的奥运会中从未获得过奖牌）。
4. 郎平：郎平长期担任中国女排主教练，1996年亚特兰大奥运会带领队伍赢得了银牌。曾执教美国女排，帮助队伍在2008年北京奥运会上夺得银牌。

2016年里约奥运会上，郎平再次出任中国女排主教练，率领中国女排在小组赛表现不佳的情况下，在淘汰赛中强势反弹，时隔12年再次获得奥运会金牌。

每个这样优秀的教练极大概率可以保证在将来的1-2届奥运会中参赛队伍获得枚至少1枚金牌。

选择三个国家来进行：

1. 西班牙可以返聘
2. 中国的排球，女排取得了巨大成就，但是男排还没有取得较大的成绩，而且近期女排有所下滑
3. 德国，曾获得过金牌和银牌，底蕴深厚，现在要么无牌要么铜牌，需要聘请优秀的教练重振。

伟大教练意义：

①体系性改进：优秀的教练不仅专注于提高当前团队的表现，还会致力于建立和完善训练体系、培养年轻人才、改善技术设施等。这些努力会为未来的多届赛事打下坚实的基础，从而增加持续成功的机会。

②战略规划：顶尖教练擅长制定长期的发展战略，包括如何优化备战周期、合理安排比赛日程以及应对不同阶段的竞争压力。这有助于确保队伍在一个较长的时间段内保持竞争力，而不仅仅是在某一场比赛中表现出色。

③心理建设与文化塑造：教练通过建立积极的团队文化和强大的精神面貌，可以帮助运动员们更好地处理压力和挑战，这种内在的力量可以在多个比赛中发挥作用，使团队更稳定地发挥出最佳水平。

Some examples of the great coach effect:

1.Anna Tarrés: Formerly a rhythmic swimming coach for Spain, she led the team to a silver medal at the 2008 Olympics. In 2012, she left Spain and after several years of moving around, she eventually came to China. In 2024, the Chinese team won its first gold medal in rhythmic swimming, while Spain only managed a bronze this time.

2.Hugues Obry: Once a fencing coach for France, he led the team to a gold medal in 2016. In the same year, he became a coach in China, and under his training, Yiwen Sun, who had won a silver medal in 2016, went on to claim the gold in 2021.

3.BLIZNYUK Anastasia: A former gold medalist in rhythmic gymnastics for Russia, she became a coach for China in 2022. In 2024, the Chinese rhythmic gymnastics team won its first-ever gold medal, having not won any medals in the Olympic Games between 2012 and 2021.

4.Lang Ping: Lang Ping has been the head coach of the Chinese women's volleyball team for many years, leading the team to win a silver medal at the 1996 Atlanta Olympics. She also coached the U.S. women's volleyball team, helping them secure a silver medal at the 2008 Beijing Olympics. At the 2016 Rio Olympics, Lang Ping once again took up the position of head coach for the Chinese women's volleyball team, leading the squad to a strong comeback in the knockout stages despite poor performances in the group stage, and winning the Olympic gold medal after 12 years.

Each such excellent coach has a high probability of ensuring that the participating teams win at least one gold medal in the next 1-2 Olympic Games.

Selecting three countries for this purpose:

1.Spain can rehire coaches.

2.China's volleyball, particularly the women's team, has achieved significant success; however, the men's team has not yet achieved major results, and the women's team has shown some decline recently.

3.Germany, with its rich history of winning gold and silver medals, now either wins no medals or bronze medals. It needs to hire excellent coaches to revitalize its performance.

The significance of great coaches: ① Systematic improvement: Outstanding coaches focus not only on enhancing the current team's performance but also on establishing and perfecting training systems, nurturing young talent, and improving technical facilities. These efforts lay a solid foundation for multiple future competitions, thereby increasing the chances of sustained success. ② Strategic planning: Top-tier coaches excel at formulating long-term development strategies, including optimizing preparation cycles, reasonably scheduling competition calendars, and addressing competitive pressures at different stages. This helps ensure that the team remains competitive over a longer period, not just excelling in a single match. ③ Psychological building and cultural shaping: Coaches contribute to building a positive team culture and a strong mental outlook, which can help athletes better handle stress and challenges. This inner strength can play a role across multiple competitions, leading to more stable peak performances from the team.

东道主效应是指体育赛事中，主办地的队伍会凭借东道主的各方面优势，取得超乎寻常的好成绩的现象。为了量化东道主效应，我们使用matlab计算某个东道主国家在历届奥运会中取得的金牌（总奖牌）数量占所有国家总金牌（总奖牌）数量的比例，并绘图直观显示，以下给出了两个典型的例子。

日本：日本曾在1964年和2020年两次举办奥运会，可以看出这两次其奖牌占比非常突出，其他时间内处于波动的状态。



中国仅在2008年举办过一次北京奥运会，可以发现有一个明显的峰，其他时段在相对稳定增长。



东道主效应的量化计算：通过与其他奥运会发挥水平差值的滑动平均，可以计算出增益：，公式的含义：*T*是总步长，*n*是奥运会的场次，是第*n*届奥运会东道主取得金牌数占总金牌数的比例，表示第*n*届奥运会东道主作为非东道主在其他奥运会取得的金牌数所占的平均比例，我们设置*T*=11，计算近44年奥运会的金牌东道主效应

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 年份 | 国家 |  |  |  |
| 1984 | 美国 | 0.3673 | 0.1962 | 0.1711 |
| 1988 | 韩国 | 0.0498 | 0.0196 | 0.0302 |
| 1992 | 西班牙 | 0.0500 | 0.0074 | 0.0426 |
| 1996 | 美国 | 0.1624 | 0.1962 | -0.0338 |
| 2000 | 澳大利亚 | 0.0533 | 0.0269 | 0.0264 |
| 2004 | 希腊 | 0.0199 | 0.0045 | 0.0154 |
| 2008 | 中国 | 0.1589 | 0.0855 | 0.0734 |
| 2012 | 英国 | 0.0957 | 0.0419 | 0.0538 |
| 2016 | 巴西 | 0.0229 | 0.0062 | 0.0167 |
| 2020 | 日本 | 0.0794 | 0.0313 | 0.0481 |
| 2024 | 法国 | 0.0488 | 0.0389 | 0.0099 |

平均值：0.0413，故金牌的东道主效应近似为4.13%

类似地，银牌的东道主效应是0.0257，2.57%，铜牌的东道主效应是0.0046， 0.46%（认为实际可以忽略）

最终的预测结果 = 初始预测结果 × （1 + *AE*）

（下面这俩表不一定要留着）

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 年份 | 国家 |  |  |  |
| 1984 | 美国 | 0.2785 | 0.1466 | 0.1319 |
| 1988 | 韩国 | 0.0427 | 0.0191 | 0.0236 |
| 1992 | 西班牙 | 0.0272 | 0.0126 | 0.0146 |
| 1996 | 美国 | 0.1172 | 0.1466 | -0.0294 |
| 2000 | 澳大利亚 | 0.0833 | 0.0266 | 0.0567 |
| 2004 | 希腊 | 0.0200 | 0.0053 | 0.0147 |
| 2008 | 中国 | 0.0726 | 0.0697 | 0.0029 |
| 2012 | 英国 | 0.0590 | 0.0528 | 0.0062 |
| 2016 | 巴西 | 0.0200 | 0.0077 | 0.0123 |
| 2020 | 日本 | 0.0414 | 0.0321 | 0.0093 |
| 2024 | 法国 | 0.0800 | 0.0406 | 0.0394 |

银 0.0257，2.57%

铜 0.0046， 0.46%（认为实际可以忽略）

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 年份 | 国家 |  |  |  |
| 1984 | 美国 | 0.1234 | 0.1242 | -0.0008 |
| 1988 | 韩国 | 0.0417 | 0.0195 | 0.0222 |
| 1992 | 西班牙 | 0.0067 | 0.0089 | -0.0022 |
| 1996 | 美国 | 0.0839 | 0.1242 | -0.0403 |
| 2000 | 澳大利亚 | 0.0520 | 0.0292 | 0.0228 |
| 2004 | 希腊 | 0.0130 | 0.0053 | 0.0077 |
| 2008 | 中国 | 0.0850 | 0.0507 | 0.0343 |
| 2012 | 英国 | 0.0511 | 0.0527 | -0.0016 |
| 2016 | 巴西 | 0.0167 | 0.0131 | 0.0036 |
| 2020 | 日本 | 0.0422 | 0.0326 | 0.0096 |
| 2024 | 法国 | 0.0572 | 0.0417 | 0.0155 |