## 2012 Olympic Performance Assessment - A European Perspective

by Frank Dick

## ABSTRACT

Planning based on effective debriefing and the practical lessons learned from experiences is the key to sustainable success in any endeavour. As the pinnacle of the competitive challenge for any athlete, the Olympic Games are both an end in themselves and the focus of planning for delivering performance and results objectives. Debriefing after the Games or other major championships and then planning for the next edition are a primary responsibility of national athletics federations and their personnel, particularly the Chief Coach or Performance Director. This article, adapted from a report prepared for European Athletics, provides a documented context for debriefing after the 2012 Olympic Games by bringing together technical and statistical analyses of the athletics events that took place in London. Written by an experienced former head coach, it includes a unique analysis of performance delivery "on the day" that can be used as an indicator of the effectiveness of high-performance policies, coaching and support at the national level. A key finding is that European teams generally did not deliver as effectively as the teams from the USA and Jamaica. The report concludes with ten initial recommendations for federation policy makers, performance directors and elite coaches to consider.

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## Introduction

For the high-performance end of athletics and other Olympic sports, the basic time frame for strategic planning is the four-year Olympic cycle. As the pinnacle of the competitive challenge for any athlete, the Games are both an end in themselves and the focus of planning for delivering performance and results objectives. They are also the basis for measuring the effectiveness of the plans and the preparation work that follows. Moreover, this preparation and the athlete's performance at the Games represent critical learning experiences and, as such, are fundamental resources for designing the next four-year strategic plan.

To maximise the value of the experience it is necessary to debrief and evaluate after the Games. These tasks are a primary responsibility of the national athletics federations and their personnel, particularly the Chief Coach or Performance Director. In this process, consideration must be given to the role delivery of
the athlete, coach, performance scientific and medical professionals, managers, policy makers and all others who may have influenced the final result. With the findings from the process we are equipped to plan for and work towards better results in the future.

Each Olympic Games is, then, a dress rehearsal for the next, and the last step to the podium in London 2012 was the first step to the podium in Rio 2016.

To afford the London 2012 debrief process a documented context and thereby assist federations with their work, this article provides relevant data on the results and performances in the Games together with observations that are mainly focused on the athletes from Europe. It starts with a brief technical evaluation of the competitions and then provides a statistical analysis organised under the following headings:

- Medals
- Finalists
- Age Distribution
- Performance Delivery

Note that the statistical data on performances from both London 2012 and earlier Games are subject to changes due to disqualifications resulting from possible disciplinary actions in the future.

This article concludes with ten initial recommendations for federation policy makers, performance directors and elite coaches in Europe and the rest of the world to consider.

## Technical Evaluation

To add a dimension of understanding to the raw results, the IAAF Member Services Department Director and experienced head coach Elio Locatelli has provided the following brief evaluations of the competitions and rated each event on a scale of 1 to 10 .

## Women's Sprint Events

100m: One of the best ever finals; average time of the eight finalists $=10.87 \mathrm{sec}$
200m: A good competition and a great run by Felix ( 21.88 sec )
400m: Four athletes below 50 sec but this is an event in stagnation
$4 \times 100 \mathrm{~m}$ : The best relay ever; a terrific world record by the USA team
$4 \times 400$ : A poor competition; only the USA team did well with 3:16:87

Evaluation 10
Evaluation 9
Evaluation 7
Evaluation 10
Evaluation 6

## Evaluation 8

Evaluation 5
Evaluation 6

Evaluation 6

Evaluation 8
Evaluation 10

Evaluation 10

Evaluation 7

## Women's Jumping Events

High Jump: Good competition with the winner at 2.05 m and the first four over 2.00 m
Pole Vault: A poor competition; nothing new except a weak Isinbayeva ( 4.70 m )
Long Jump: Generally weak but certainly better than Beijing; great jumps for Reese and Sokolova (both over 7.00m)

Triple Jump: Nobody over 15.00m; this event is in regression
Evaluation 8
Evaluation 5
Evaluation 7

Evaluation 5

## Evaluation 7

Evaluation 8
Evaluation 8

Evaluation 6

## Heptathlon

Best event in depth; 14 athletes over 6,300 points

## Women's Events - Conclusions

Overall, the global trend in performance is positive but there are some events in stagnation and a real issue with the triple jump. The endurance events could use some new faces, especially Europeans, at the top.

It is also becoming increasingly the case that many athletes seem ill prepared for the championship situation, as opposed to oneoff races, and they lack racing competencies having been paced in world circuit races.

## Men's Sprint Events

100m: The best ever final; average time of the first seven athletes $=9.824 \mathrm{sec}$

## Evaluation 10

200m: Five athletes below 20 sec with the first four all recording season's bests 400m: Average time for the finalists $=44.725 \mathrm{sec}$; four finalists under 23 years old
$4 \times 100 \mathrm{~m}$ : The best ever final; a world record and seven teams below 38.50 $4 \times 400 \mathrm{~m}$ : A poor competition

## Men's Endurance Events

800 m : The best ever final; average time of finalists $=1.42 .65$;
Evaluation 10
three finalists under 20 years old
1500m: Disappointing race; the best athletes were injured or not in good condition 5000/10,000m: Races not of particularly high quality;

Evaluation 5
Evaluation 6 one athlete, Farah, dominated passive fields

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3 0 0 0 \text { Steeplechase: Low quality race; best athletes in poor condition}
Marathon: Poor race; best athletes did not participate
20km Walk: Youngest ever and first Chinese walks gold with new OR 1:18:46,
6 \text { inside 1:20 and 13 inside 1:21}
50km Walk: New Olympic record of 3:35:59; 7 inside 3:40, }25\mathrm{ inside 3:50
and 40 inside 4:00
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## Men's Hurdles Events

110m: Dominated by Merritt (who later set a WR 12.80 sec )
400 m : Event in stagnation; the winner was 35 years old

Evaluation 6
Evaluation 6
Evaluation 10

Evaluation 10

## Men's Jumping Events

High Jump: Good competition with the winner at 2.38 m ; the other two medallists
Evaluation 7
Evaluation 6
were both 21 years old
Pole Vault: The medallists were good; the European champs in June seemed to help
Long Jump: Very poor competition; average result of the finalists $=8.10 \mathrm{~m}$
Triple Jump: Good competition; the first four were all okay;
Evaluation 7
three of first four under 23 years old

## Men's Throwing Events

Shot Put: One of the best recent Olympic finals
Hammer Throw: Good competition but average age of the finalists was 33 years old
Discus: One of the best Olympic finals; seven athletes over 65m
Javelin Throw: Generally a poor competition except for the winner, Walcott, who is still a junior athlete

## Decathlon

Thanks to Eaton and the two other medallists, the competition was of high quality

## Men's Events - Conclusions

Overall, the top-level global performance trend seems to be stable. If anything, too many top athletes were injured: Powell (JAM), Lashawn Merritt (USA), Robles (CUB) and Asbel Kiprop (KEN). All the walks were of outstanding quality in depth. But alarm bells should be ringing for the long jump and the endurance events.

In the long jump the global situation beyond the lacklustre results in London can be described as a crisis: compare the 8.30 m aver-
age of the first 10 on the 2012 world list with the 8.34 m of 2002 and the 8.44 m of 1992 !

In the track endurance races the best athletes, excluding Farah, did not seem to be in good form in London (for example Bekele (ETH)) or they are past their prime (for example Lagat (USA) who is now 38 years-old). Here, as with the women, we see a possible negative of effect of the one-day meetings circuit as many male runners with good performances coming into the Games did not do well when asked to run twice or three times in few days.

## Medals

The medal table for the 47 athletics events at London 2012 is given in Table 1. Forty-one countries took home medals, the USA leading the way with nine golds and a total of 29 medals. Although the number of countries taking part in the athletics competition increased to a record 201, the number of countries winning medals stayed at the average of the last three Games.

From the European perspective, six countries ranked in the top 10 places, led by Russia, which was second overall. Great Britain and Germany had relatively strong showings but a notable absence from the table was Spain. The overall trend for the number and percentage of European medals compared to the rest of the world remained down, as it has been since 1988, the first of the recent Games not affected by boycotts (Table 2). It can be added that previously
presented data shows the same 25-year trend of fewer and fewer medals for Europe in the biennial IAAF World Championships in Athletics ${ }^{1}$.

On the one hand, this trend could be said to reflect the globalisation of athletics and the effectiveness of the IAAF Development Programme helping to put countries outside of Europe in the position to win more medals at the world level. On the other hand, it has to be acknowledged that Europe has lost some of its top-level competitiveness across a range of events, mainly on the track: in London, European men took no medals in the sprints and relays, the hurdles, the 800 m or the 1500 m while European women had none in the $100 \mathrm{~m}, 200 \mathrm{~m}$, $4 \times 100 \mathrm{~m}$ or 100 m hurdles. To underline depth of concern in this matter, it is clear that in several events it is not the world that is moving ahead of Europe, it is Europe that is falling away from the world (see box).

## Losing Ground

It is tempting to say that Europe's inability to win medals or produce top performances in certain events is because the rest of the world has moved ahead in terms of performance level. However, in some events the performance level of Europeans has actually declined compared to 20 or 30 years ago and the reality is more of Europe falling behind.

The table below illustrates the negative trend in one event, the men's 5000 m .

| Year | Number of Athletes <br> $13: 40$ or Faster | Best European Junior <br> Performance |
| :---: | :---: | :---: |
| 1984 | 92 | $13: 41.17$ |
| 1994 | 53 | $13: 51.16$ |
| 2004 | 42 | $13: 54.29$ |
| 2012 | 39 | $14: 03.65$ |

As it is highly unlikely that modern Europeans have less physical performance potential than their parent's generation, we can only conclude that other factors are at work: social, training techniques, athlete support systems, competition structure, etc.

There are many questions that must be asked. Are today's athletes as well coached as those in the past? Is there a motivation issue? Has the fitness-mass participation running boom helped or hindered talent identification and development in the endurance events?

Now more than ever it is important to identify the factors contributing to the decline so that actions can be taken to address those over which the sport has some control.

Table 1: London 2012 athletics medal table

| Rank | Country |  | Gold | Silver | Bronze | Total |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | United States | USA | 9 | 13 | 7 | 29 |
| 2 | Russia | RUS | 8 | 5 | 5 | 18 |
| 3 | Jamaica | JAM | 4 | 4 | 4 | 12 |
| 4 | Great Britain \& N.I. | GBR | 4 | 1 | 1 | 6 |
| 5 | Ethiopia | ETH | 3 | 1 | 3 | 7 |
| 6 | Kenya | KEN | 2 | 4 | 5 | 11 |
| 7 | Germany | GER | 1 | 4 | 3 | 8 |
| 8 | Australia | AUS | 1 | 2 | 0 | 3 |
| $9=$ | Dominican Republic | DOM | 1 | 1 | 0 | 2 |
| $9=$ | France | FRA | 1 | 1 | 0 | 2 |
| $9=$ | Poland | POL | 1 | 1 | 0 | 2 |
| $9=$ | Turkey | TUR | 1 | 1 | 0 | 2 |
| 13 | PR of China | PRC | 1 |  | 5 | 6 |
| 14 | Trinidad \& Tobago | TRI | 1 |  | 3 | 4 |
| 15 | Czech Republic | CZE | 1 |  | 1 | 2 |
| $16=$ | Algeria | ALG | 1 |  |  | 1 |
| $16=$ | Bahamas | BAH | 1 |  |  | 1 |
| $16=$ | Croatia | CRO | 1 |  |  | 1 |
| $16=$ | Grenada | GRN | 1 |  |  | 1 |
| $16=$ | Hungary | HUN | 1 |  |  | 1 |
| $16=$ | Kazakhstan | KAZ | 1 |  |  | 1 |
| $16=$ | New Zealand | NZL | 1 |  |  | 1 |
| $16=$ | Uganda | UGA | 1 |  |  | 1 |
| 24 | Ukraine | UKR |  | 1 | 2 | 3 |
| 25 | Cuba | CUB |  | 1 | 1 | 2 |
| 26= | Botswana | BOT |  | 1 |  | 1 |
| 26= | Colombia | COL |  | 1 |  | 1 |
| 26= | Guatemala | GUA |  | 1 |  | 1 |
| 26= | Islamic Republic of Iran | IRN |  | 1 |  | 1 |
| 26= | South Africa | RSA |  | 1 |  | 1 |
| 26= | Slovenia | SLO |  | 1 |  | 1 |
| 26= | Tunisia | TUN |  | 1 |  | 1 |
| 33= | Bahrain | BAH |  |  | 1 | 1 |
| 33= | Canada | CAN |  |  | 1 | 1 |
| 33= | Estonia | EST |  |  | 1 | 1 |
| 33= | Finland | FIN |  |  | 1 | 1 |
| 33= | Italy | ITA |  |  | 1 | 1 |
| 33= | Japan | JAP |  |  | 1 | 1 |
| 33= | Morocco | MOR |  |  | 1 | 1 |
| 33= | Puerto Rico | PUR |  |  | 1 | 1 |
| $33=$ | Qatar | QAT |  |  | 1 | 1 |

Table 2: European medals in athletics at the Olympic Games 1988-2012

|  | Events | Men <br> Medals | \% | Events | Momen <br> Medals | \% |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
| 1988 Seoul | 24 | 40 | 54.8 | 18 | 40 | 74.1 |
| 1992 Barcelona | 24 | 25 | 33.8 | 19 | 28 | 49.1 |
| 1996 Atlanta | 24 | 27 | 37.5 | 20 | 30 | 50.0 |
| 2000 Sydney | 24 | 24 | 33.3 | 22 | 39 | $58.2^{*}$ |
| 2004 Athens | 24 | 29 | 40.3 | 22 | 38 | 57.6 |
| 2008 Beijing | 24 | 24 | 33.3 | 23 | 32 | 46.4 |
| 2012 London | 24 | 19 | 25.7 | 23 | 30 | 43.5 |
| *includes two at 3=in in the women's HJ |  |  |  |  |  |  |

## Finalists

We get a deeper picture of national performances in the athletics events in London by analysing the distribution of finalists (top 8). Table 3 (see page $32 / 33$ ) shows that 70 countries had one or more athletes who placed in the top eight of their events and that the USA led with a total of 303 points, a significant rebound from its 2008 performance (see Table 4). Of interest here are China and Ukraine, $13^{\text {th }}$ and $24^{\text {th }}$ respectively in the medal table but both among the top 10 point scorers, China equalling its combined total from 2004 and 2008.

Russia's 177 points led Europe and was second overall, but its score was down from the previous two Games. Four other European countries were among the top ten point scorers and a total of 28 European countries made the list. Germany's score was up significantly from the previous Games while the downward trend for Italy and Spain is clear.

## Age Distribution

Figures 1 a and 1 b show the age distribution of the London 2012 men's medallists and finalists, respectively, and Figures 2a and 2b (see page 35) show the same for the London 2012 women's medallists and finalists, respectively. We can see that $69 \%$ of the men's medallists were between 21 and 28 years old and 64\% of the men's finalists were in the same peak age range. For the women the peak age range for was a little older, 25 to 29 years, with 64\% of medallists and $52 \%$ of finalists in the range.

There has been a shift in the peak age range in the last 20 years and a clear difference between men and women has emerged since the 1992 Games in Barcelona (Table 5, see page 35). There is also a trend towards more medallists and finalists being outside the peak range. However, from a high-performance point of view, the athlete development pathway should still focus on maximising athlete performance and competitive excellence in the peak age range years.

Table 4: Comparison of top countries ranked by placing points in London 2012 over the last three Olympic Games

| Rank |  | 2004 | 2008 | 2012 |
| :---: | :---: | :---: | :---: | :---: |
| 1 | USA | 233.5 | 207 | 303 |
| 2 | RUS | 192 | 200 | 171 |
| 3 | KEN | 67 | 136 | 112 |
| 4 | JAM | 78 | 120 | 107 |
| 5 | GER | 45 | 43.5 | 95 |
| 6 | ETH | 72 | 76 | 90 |
| 7 | GBR | 69.5 | 72 | 85 |
| 8 | CHN | 31 | 39 | 70 |
| 9 | UKR | 47.5 | 50 | 47 |
| 10 | FRA | 23.5 | 37 | 39 |
| 11 | TRI | 2 | 18 | 35 |
| 12 | CZE | 25 | 23 | 30 |
| 13 | AUS | 34 | 40 | 27 |
| 14 | CUB | 52 | 61 | 25 |
| 15 | CAN | 9.5 | 23 | 22 |
| 16 | POL | 47 | 43 | 21 |
| 17 | TUR | 7 | 16 | 20 |
| 18= | BAH | 29 | 22 | 19 |
| 18= | BEL | 6 | 9 | 19 |
| 20= | RSA | 24 | 14 | 15 |
| Selected others |  |  |  |  |
| $21=$ | ITA | 27 | 20 | 15 |
| 26= | ESP | 36.5 | 31.5 | 12 |

In London, the average age of Europe's men's medallists was notably higher than that for all medallists, 28.36 years versus 25.73 years, and Europe's men's finalists were, on average, older than the average for all finalists. European women's medallists were about the same average age of all medallists while the average age for European finalists was slightly lower than the average for all finalists (Table 6, see page 35).

Table 3：London 2012 athletics placing table ranked by total points（ $1^{\text {st }}=8$ points， $2^{\text {nd }}=7$ points，etc．）

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| $\frac{\underset{V}{c}}{\substack{0}}$ |  | $\tau$ | N | ल | $\nabla$ | $\bigcirc$ | $\bullet$ | N | $\infty$ | $\infty$ | $\bigcirc$ | 닫 | $\sim$ | $\stackrel{m}{\square}$ | $\stackrel{\square}{T}$ | $\stackrel{1}{\sim}$ | $\stackrel{\varphi}{9}$ | $\mathrm{N}$ | $\stackrel{11}{\infty}$ | $\begin{gathered} 11 \\ \infty \\ \hline \end{gathered}$ | $\stackrel{\rightharpoonup}{\mathrm{N}}$ | $\frac{11}{N}$ | $\stackrel{11}{N}$ | $\frac{11}{N}$ | $\left\|\begin{array}{c} 11 \\ \underset{\sim}{4} \end{array}\right\|$ | $\stackrel{11}{4}$ | $\left\|\right\|$ | $\left\|\begin{array}{c} 11 \\ 0 \\ \sim \\ \hline \end{array}\right\|$ | $\stackrel{\infty}{\infty}$ | $\begin{gathered} 11 \\ \underset{N}{\circ} \end{gathered}$ | $\begin{gathered} 11 \\ \underset{\sim}{9} \end{gathered}$ | $\frac{11}{5}$ | $\frac{11}{m}$ | $\frac{11}{m}$ |


| $\sigma$ | $\infty$ | $\infty$ | $\infty$ | $\infty$ | $\infty$ | $\infty$ | N | N | $N$ | N | N | N | $\bigcirc$ | $\bigcirc$ | $\bullet$ | $\bullet$ | $\bullet$ | 10 | 15 | 15 | $\checkmark$ | $\checkmark$ | $\checkmark$ | ळ | $\cdots$ | N | N | N | N | N | N | N | N | N | $\leftharpoondown$ | $\checkmark$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| N |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\tau$ | $\bigcirc$ |  |  |  |  | $\tau$ |  |  | $\tau$ |  |  |  |  |  |  |  |  | N | $\checkmark$ | $\checkmark$ |
| N |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\bigcirc$ | $\checkmark$ |  |  |  |  | $\tau$ |  |  | $\tau$ |  |  |  |  |  |  |  |  | N | $\checkmark$ | $\checkmark$ |
| $\sim$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\sim$ | N |  |  | $\checkmark$ |  | N | N | N | N | $\sim$ | N | $\sim$ | N | $\sim$ |  |  |  |
| $\leftarrow$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\tau$ | $\square$ |  |  | $\sim$ |  | $\tau$ | $\tau$ | $\bigcirc$ | $\tau$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ | $\checkmark$ |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |  |  | $\checkmark$ |  |  |  |  |  |  | $\checkmark$ | - |  | $\tau$ |  | $\tau$ |  |  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |  |  |  | $\leftharpoondown$ | $\bigcirc$ | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | N | $N$ | N | N | N |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  | $\checkmark$ | $\tau$ | $\bigcirc$ | $\bigcirc$ | T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | $\infty$ | $\infty$ | $\infty$ | $\infty$ | $\infty$ | $\infty$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | $\checkmark$ | $\square$ | $\tau$ | $\checkmark$ | $\checkmark$ | $\tau$ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $\frac{\Gamma}{Z}$ | $: \stackrel{c}{4}$ | $\left\|\begin{array}{l} 0 \\ \underset{0}{0} \\ 0 \end{array}\right\|$ | $\underset{\underset{\sim}{\sim}}{\underset{\sim}{z}}$ | $\frac{z}{\underset{I}{Z}}$ | $\begin{gathered} N \\ \mathbb{Y} \end{gathered}$ | $\begin{aligned} & \overleftrightarrow{~} \\ & \stackrel{\rightharpoonup}{\square} \end{aligned}$ | $\begin{array}{\|l\|} \hline 1 \\ 0 \end{array}$ | $\frac{\leftrightarrows}{5}$ | $\underset{\cong}{\underset{\sim}{2}}$ | $\frac{\lambda}{Z}$ | $\underset{\jmath}{\rightrightarrows}$ | $\begin{aligned} & \underset{\sim}{0} \\ & 0 \\ & z \end{aligned}$ | $\begin{array}{\|c} \llcorner \\ \dot{ய} \end{array}$ | $\stackrel{\Upsilon}{\stackrel{~}{\square}}$ |  | $\underset{\sim}{\stackrel{5}{4}}$ | $\stackrel{\omega}{\infty}$ | $\stackrel{\square}{\square}$ | $\geq$ | $\bar{\sim}$ | $\left\lvert\, \begin{aligned} & \underset{\sim}{c} \\ & \underset{\sim}{c} \\ & \hline \end{aligned}\right.$ | $\stackrel{\times}{\underset{\Sigma}{~}}$ | $\left\lvert\, \begin{gathered} \underset{\sim}{\underset{\sim}{\sim}} \\ \underset{\widetilde{N}}{ } \\ \hline \end{gathered}\right.$ | $\left\|\begin{array}{l} \underset{\sim}{4} \\ \underset{\sim}{4} \end{array}\right\|$ | $\stackrel{\imath}{2}$ |  | $\begin{array}{\|c} \rightharpoonup \\ 0 \\ Ш W \end{array}$ | $\left\lvert\, \begin{aligned} & \underset{\sim}{\sim} \\ & 0 \\ & 0 \\ & \hline \end{aligned}\right.$ | $\begin{gathered} \infty \\ \stackrel{\infty}{\infty} \\ \hline \end{gathered}$ | $\left\lvert\, \begin{aligned} & \varrho \\ & \circlearrowleft \end{aligned}\right.$ | $\stackrel{\infty}{N}$ | $\stackrel{z}{\Psi}$ | $\underset{\mathrm{N}}{ }$ | $\frac{0}{\infty}$ | $\stackrel{\llcorner }{2}$ | $\pm$ |
| $\frac{11}{m}$ | $\left\lvert\, \begin{gathered} 11 \\ 0 \\ 0 \end{gathered}\right.$ | $\left\|\begin{array}{c} 11 \\ 10 \\ 0 \end{array}\right\|$ | $\begin{gathered} 11 \\ \stackrel{11}{2} \end{gathered}$ | $\left\|\begin{array}{c} 11 \\ 10 \\ 0 \end{array}\right\|$ | $\left.\begin{array}{\|c} 11 \\ \stackrel{11}{0} \end{array} \right\rvert\,$ | $\begin{gathered} \\| \\ \stackrel{11}{0} \end{gathered}$ | $\frac{11}{7}$ | $\frac{11}{7}$ | $\left.\frac{11}{+} \right\rvert\,$ | $\frac{11}{7}$ | $\frac{11}{5}$ | $\frac{11}{\dot{\sigma}}$ | $\frac{11}{\triangleleft}$ | $\frac{11}{\underset{\sim}{2}}$ | $\stackrel{\prime \prime}{\underset{\sim}{f}}$ | $\begin{array}{\|c\|} 11 \\ 0 \\ 1 \end{array}$ | $\left\|\begin{array}{c} 11 \\ 0 \\ 1 \end{array}\right\|$ | $N$ | $\begin{gathered} 11 \\ N \\ N \end{gathered}$ | $\left\lvert\, \begin{gathered} 11 \\ N \end{gathered}\right.$ | $\begin{gathered} 11 \\ 10 \\ 10 \end{gathered}$ | $\left\|\begin{array}{c} 11 \\ 10 \\ 1 \end{array}\right\|$ | $\left\|\begin{array}{c} 11 \\ 10 \\ 1 \end{array}\right\|$ | $\left\|\begin{array}{l} \infty \\ 1 \\ 1 \end{array}\right\|$ | $\left\|\begin{array}{r} 11 \\ 0 \\ 10 \end{array}\right\|$ | $\left\|\begin{array}{l} 11 \\ 0 \\ 0 \end{array}\right\|$ | $\left\|\begin{array}{l} 11 \\ 0 \\ 0 \end{array}\right\|$ | $\left\|\begin{array}{l} 11 \\ 0 \\ 0 \end{array}\right\|$ | $\left.\begin{aligned} & 11 \\ & 0 \\ & 0 \end{aligned} \right\rvert\,$ | $\left\|\begin{array}{l} 11 \\ 0 \\ 0 \end{array}\right\|$ | $\left\|\begin{array}{l} 11 \\ 0 \\ 0 \end{array}\right\|$ | $\left\|\begin{array}{l} 11 \\ 0 \\ 0 \end{array}\right\|$ | $\left\|\begin{array}{l} 11 \\ 0 \\ 0 \end{array}\right\|$ | $\begin{aligned} & 11 \\ & 0 \\ & 0 \end{aligned}$ | $\left\|\begin{array}{l} 11 \\ 0 \\ 0 \end{array}\right\|$ | 11 |



Figure 1a: Distribution of 2012 men's Olympic athletics medallists by age


Figure 1b: Distribution of 2012 men's Olympic athletics finalists by age


Figure 2a: Distribution of 2012 women's Olympic athletics medallists by age


Figure 2b: Distribution of 2012 women's Olympic athletics finalists by age


Figure 3a: Distribution of 2012 men's Olympic athletics finalists and medallists by age


Figure 3a: Distribution of 2012 women's Olympic athletics finalists and medallists by age

Table 5: Comparison of Peak Age Range for athletics finalists and medallist in the 1992 Olympic Games and the 2012 Olympic Games

| Men |  | Women |  |
| :---: | :--- | :--- | :--- |
| 1992 Barcelona |  |  |  |
| $23-30$ years68.2\% | All Finalists | $24-31$ years | $67.1 \%$ |
| $70.3 \%$ | European Finalists |  | $74.7 \%$ |
| $63.2 \%$ | All Medallists | $79.7 \%$ |  |
| $57.9 \%$ | European Medallists |  | $83.3 \%$ |
| 2012 London |  |  |  |
| $21-28$ years $64.7 \%$ | All Finalists | $25-29$ years | $52.1 \%$ |
| $64.0 \%$ | European Finalists |  | $49.4 \%$ |
| $69.1 \%$ | All Medallists | $64.0 \%$ |  |
| $47.4 \%$ | European Medallists |  | $63.3 \%$ |

Table 6: Average age for athletics finalists and medallists in the 2012 Olympic Games

| Men |  | Women |
| :--- | :--- | :--- |
| 26.60 years | All Finalists | 27.54 years |
| 27.79 | European Finalists | 26.16 |
| 25.73 | All Medallists | 27.24 |
| 28.36 | European Medallists | 27.10 |

## Performance Delivery

The measure of effective high-performance athlete preparation is that the athlete achieves the result/performance objective at the major competition for the season. For the Olympics, this means challenging for a medal or target final position. Whatever the result, the athlete's performance should be his/her season's best. The focus of the athlete, his/her coach and the rest of the support team must be to ensure that the required performance is delivered on the day, not before and not after.

The regularity with which a country's athletes succeed at this task is an important indicator of how effectively the various elements of its highperformance system are functioning. If the effectiveness percentage is not acceptable, the federation needs to examine the role delivery of the personnel mentioned above (athlete, coach, performance scientific and medical professionals, etc.) as well as any other relevant elements such as team selection policy, national competition programme, talent identification system, coach education arrangements, etc.

In Table 7 (see page 38) "delivering on the day" is defined as medals or season's bests (some of the latter may also be personal bests, national records, etc.) in the course of the Games, taking into account every intervention by the country's athletes. The data presented is for a selection of European countries, plus USA as world leaders, Jamaica as a benchmark of excellence and China as a rapidly emerging nation.

A harder line might be taken where athletes who achieved a season's best in a preliminary round but did not medal or get a new seasons on their final appearance, are considered to have not delivered on the day (Table 8, page 39).

The data in the two tables shows that in general Europe fell short compared with the figures recorded by USA and Jamaica, i.e. what we know to be possible. Interestingly, the effectiveness percentage for women was generally higher than for men.

## Recommendations

1. Planning based on effective debriefing and the practical lessons learned is the key to sustainable success in any endeavour. Federation policy makers, performance directors/head coaches and elite coaches should obtain the London 2012 performance delivery effectiveness data for their teams and then identify the factors that can be improved in the coming four-year Olympic cycle and the longer-term. An article entitled "Effective Debrief Matters" has been produced to assist with this process. The IAAF and Area associations could play valuable facilitating roles in this area.
2. Effective performance leadership and coaching at the high-performance end of the sport requires:

- Personnel with competence in coach development and management for high potential and performance athletes.
- A high potential and performance athlete development pathway from junior to peak performance years.
- Management of structures and programmes consistent with meeting performance requirements for success international arena.

Federations should review their policies, appointments, structures and other arrangements to ensure these requirements are met. The IAAF and Area associations could play valuable facilitating roles in this area.
3. There is confusion in practice over the relationship between the roles of "Performance directors/managers/specialists" etc on the one hand and coaches on the other. The situation should be reviewed and an agreed terminology and role-definition should be set out for athletics. It is also recommended that just as there is a code of ethics for coaches, there should be one for performance directors, etc. The IAAF and Area associations could play valuable facilitating roles in this area.
4. Development in the Youth/Junior years is an important foundation for success at senior level. Without a strong programme for these age groups, the senior programme is compromised. The Head Coach for Juniors/Youth should now be considered a high priority appointment for all federations. The IAAF Academy has recognised the importance of this position by creating a dedicated course.
5. The three to four post junior years are a critical period where athletes, through the experience of progressive competition, learn to compete at the highest level and what it takes to deliver performance "on the day" (Figures 3a and 3b). With the peak age range of top performers at the Olympics and world championships tending to become younger, this issue takes on even greater importance. Coaches and policy makers should review their concept of the athlete development pathway for high-performance athletes and adjust their approaches to athlete preparation and the competition structure accordingly. The IAAF and Area associations could play important facilitating roles in this area.
6. Continuously improving an athletes' performances is, of course, a big achievement for coaches, but the crucial focus of highperformance athletics is to produce a top performance under the pressure of the Olympic Games or world championships. We must better prepare coaches to assist athletes with this exacting task. Education and support programmes should be reviewed to ensure they equip coaches for the harder edge of coaching that relates to the realities of "delivering on the day". This is more the art than the science of coaching and as such is more informal or learned from experience than formal or taught through education.
7. The general performance development in the long jump for both men and women has been slow this century. High jump re-
cords also remain unchallenged. Research into the basis for improvement in the jumping events should be commissioned and programmes following the recommendations should be implemented.
8. Track endurance athletes must be better prepared for tournament-style races and the cut and thrust of the Olympic or world championships arenas. Coaches of these events should ensure that their athletes have opportunities to learn how to handle themselves in, and take control of, races that are not one-off paced events.
9. There is a clear trend of European athletes taking ever-smaller shares of Olympic and world championship medals in the track events. This could have negative commercial consequences for the athletics in Europe and the sport worldwide. A Europe-wide strategy to raise standards in the sprints and hurdles events should be designed and delivered as a top priority. A similar strategy for endurance events should follow. It may be in the interest of the sport as a whole that such projects are at least partially supported by the IAAF.
10. Top-level European athletes develop, compete and prepare for major events in a context that includes both national and international (European) aspects. As athletes in the rest of the world improve both their performance level and ability to deliver in major events, Europeans will need to individualise priorities and interests and think collectively about their systems, particularly the shared elements such as the European competition structure, and exchange best practice ideas on athlete preparation. Are the current arrangements and diffusion of expertise the best possible? Are there any ways we can work together so that everyone benefits? As soon as possible, European Athletics should convene a highperformance conference or symposium for performance directors, head coaches, personal coaches of elite athletes and oth-

Table 7: Delivering on the Day - Medals or season best performances achieved at London 2012 for selected countries

| European Country | Athlete Interventions | Medals Won | Season's Bests | Total | Effectiveness |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Russia | $\begin{aligned} & \text { M } 37 \\ & \text { W } 55 \end{aligned}$ | $\begin{array}{r} 2 \\ 16 \end{array}$ | $\begin{aligned} & 8 \\ & 6 \end{aligned}$ | $\begin{aligned} & 10 \\ & 22 \end{aligned}$ | $\begin{aligned} & 27.0 \% \\ & 40.0 \% \end{aligned}$ |
| Great Britain \& NI | $\begin{aligned} & \text { M } 38 \\ & \text { W } 35 \end{aligned}$ | $\begin{aligned} & 4 \\ & 2 \end{aligned}$ | $\begin{aligned} & 4 \\ & 9 \end{aligned}$ | $\begin{array}{r} 8 \\ 11 \end{array}$ | $\begin{aligned} & 21.1 \% \\ & 31.4 \% \end{aligned}$ |
| Germany | $\begin{aligned} & \text { M } 27 \\ & \text { W } 31 \end{aligned}$ | $\begin{aligned} & 4 \\ & 4 \end{aligned}$ | $\begin{aligned} & 1 \\ & 6 \end{aligned}$ | $\begin{array}{r} 5 \\ 10 \end{array}$ | $\begin{aligned} & 18.5 \% \\ & 28.6 \% \end{aligned}$ |
| France | M 28 W 12 | $\begin{aligned} & 2 \\ & 0 \end{aligned}$ | $\begin{aligned} & 4 \\ & 6 \end{aligned}$ | $\begin{aligned} & 6 \\ & 6 \end{aligned}$ | $\begin{aligned} & 21.4 \% \\ & 50.0 \% \end{aligned}$ |
| Poland | $\begin{aligned} & \text { M } 25 \\ & \text { W } 16 \end{aligned}$ | $\begin{aligned} & 1 \\ & 1 \end{aligned}$ | $\begin{aligned} & 1 \\ & 3 \end{aligned}$ | $\begin{aligned} & 2 \\ & 4 \end{aligned}$ | $\begin{array}{r} 8.0 \% \\ 25.0 \% \end{array}$ |
| Ukraine | $\begin{aligned} & \text { M } 30 \\ & \text { W } 42 \end{aligned}$ | $\begin{aligned} & 1 \\ & 2 \end{aligned}$ | $\begin{aligned} & 2 \\ & 6 \end{aligned}$ | $\begin{aligned} & 3 \\ & 8 \end{aligned}$ | $\begin{aligned} & 10.0 \% \\ & 19.0 \% \end{aligned}$ |
| Italy | $\begin{array}{ll} \text { M } 13 \\ \text { W } 15 \end{array}$ | $\begin{aligned} & 1 \\ & 0 \end{aligned}$ | $\begin{aligned} & 1 \\ & 4 \end{aligned}$ | $\begin{aligned} & 2 \\ & 4 \end{aligned}$ | $\begin{aligned} & 15.4 \% \\ & 26.7 \% \end{aligned}$ |
| Finland | $\begin{aligned} & \text { M } 13 \\ & \text { W } 5 \end{aligned}$ | $\begin{aligned} & 1 \\ & 0 \end{aligned}$ | $\begin{aligned} & 2 \\ & 0 \end{aligned}$ | $\begin{aligned} & 3 \\ & 0 \end{aligned}$ | $\begin{array}{r} 23.1 \% \\ 0 \% \end{array}$ |
| Spain | M 27 W 19 | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 3 \\ & 7 \end{aligned}$ | $\begin{aligned} & 3 \\ & 7 \end{aligned}$ | $\begin{array}{r} 11.1 \% \\ 36.8 \% \end{array}$ |
| Sweden | $\begin{aligned} & M 3 \\ & W \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \text { 0\% } \\ & 0 \% \end{aligned}$ |
| Others |  |  |  |  |  |
| USA | M 59 W 60 | $\begin{aligned} & 15 \\ & 14 \end{aligned}$ | $\begin{aligned} & 10 \\ & 17 \end{aligned}$ | $\begin{aligned} & 25 \\ & 31 \end{aligned}$ | $\begin{aligned} & 42.4 \% \\ & 51.7 \% \end{aligned}$ |
| Jamaica | M 19 W 17 | $5$ | $\begin{aligned} & 2 \\ & 4 \end{aligned}$ | $\begin{aligned} & 9 \\ & 9 \end{aligned}$ | $\begin{gathered} 47.4 \% \\ 52.9 \% \end{gathered}$ |
| China | M 24 <br> W 30 | $\begin{aligned} & 3 \\ & 2 \end{aligned}$ | $\begin{aligned} & 3 \\ & 1 \end{aligned}$ | $\begin{aligned} & 6 \\ & 3 \end{aligned}$ | $\begin{aligned} & 25.0 \% \\ & 10.0 \% \end{aligned}$ |

Table 8: Delivering on the Day Extreme - Effectiveness rating based on medals or season season best performances achieved only in the athlete's final appearance at London 2012 for selected countries

| European Country | Athlete Interventions | Medals Won | Season's Bests | Total | Effectiveness |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Russia | $\begin{aligned} & \text { M } 37 \\ & \text { W } 55 \end{aligned}$ | $\begin{array}{r} 2 \\ 16 \end{array}$ | $\begin{aligned} & 7 \\ & 6 \end{aligned}$ | $\begin{array}{r} 9 \\ 22 \end{array}$ | $\begin{aligned} & 24.3 \% \\ & 40.0 \% \end{aligned}$ |
| UK | $\begin{aligned} & \text { M } 38 \\ & \text { W } 35 \end{aligned}$ | $\begin{aligned} & 4 \\ & 2 \end{aligned}$ | $\begin{aligned} & 3 \\ & 4 \end{aligned}$ | $\begin{aligned} & 7 \\ & 6 \end{aligned}$ | $\begin{gathered} 18.4 \% \\ 17.1 \% \end{gathered}$ |
| Germany | $\begin{aligned} & \text { M } 27 \\ & \text { W } 31 \end{aligned}$ | $\begin{aligned} & 4 \\ & 4 \end{aligned}$ | $\begin{aligned} & 1 \\ & 6 \end{aligned}$ | $\begin{array}{r} 5 \\ 10 \end{array}$ | $\begin{aligned} & 18.5 \% \\ & 28.6 \% \end{aligned}$ |
| France | M 28 W 12 | $\begin{aligned} & 2 \\ & 0 \end{aligned}$ | $\begin{aligned} & 4 \\ & 6 \end{aligned}$ | $\begin{aligned} & 6 \\ & 6 \end{aligned}$ | $\begin{aligned} & 21.4 \% \\ & 50.0 \% \end{aligned}$ |
| Poland | $\begin{aligned} & \text { M } 25 \\ & \text { W } 16 \end{aligned}$ | $\begin{aligned} & 1 \\ & 1 \end{aligned}$ | $\begin{aligned} & 1 \\ & 3 \end{aligned}$ | $\begin{aligned} & 2 \\ & 4 \end{aligned}$ | $\begin{array}{r} 8.0 \% \\ 25.0 \% \end{array}$ |
| Ukraine | $\begin{aligned} & \text { M } 30 \\ & \text { W } 42 \end{aligned}$ | $\begin{aligned} & 1 \\ & 2 \end{aligned}$ | $\begin{aligned} & 2 \\ & 6 \end{aligned}$ | $\begin{aligned} & 3 \\ & 8 \end{aligned}$ | $\begin{aligned} & 10.0 \% \\ & 19.0 \% \end{aligned}$ |
| Italy | M 13 <br> W 15 | $\begin{aligned} & 1 \\ & 0 \end{aligned}$ | $\begin{aligned} & 1 \\ & 3 \end{aligned}$ | $\begin{aligned} & 2 \\ & 3 \end{aligned}$ | $\begin{aligned} & 15.4 \% \\ & 20.0 \% \end{aligned}$ |
| Finland | $\begin{gathered} M 13 \\ W 5 \end{gathered}$ | $\begin{aligned} & 1 \\ & 0 \end{aligned}$ | $\begin{aligned} & 1 \\ & 0 \end{aligned}$ | $\begin{aligned} & 2 \\ & 0 \end{aligned}$ | $\begin{array}{r} 15.4 \% \\ 0 \% \end{array}$ |
| Spain | $\begin{array}{ll} \text { M } 27 \\ \text { W } 19 \end{array}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 3 \\ & 7 \end{aligned}$ | $\begin{aligned} & 3 \\ & 7 \end{aligned}$ | $\begin{array}{r} 11.1 \% \\ 36.8 \% \end{array}$ |
| Sweden | $\begin{aligned} & M 3 \\ & W \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \text { 0\% } \\ & 0 \% \end{aligned}$ |
| Others |  |  |  |  |  |
| USA | $\begin{aligned} & \text { M } 59 \\ & \text { W } 60 \end{aligned}$ | $\begin{aligned} & 15 \\ & 14 \end{aligned}$ | $\begin{array}{r} 6 \\ 12 \end{array}$ | $\begin{aligned} & 21 \\ & 26 \end{aligned}$ | $\begin{aligned} & 35.6 \% \\ & 43.3 \% \end{aligned}$ |
| Jamaica | $\begin{aligned} & \text { M } 19 \\ & \text { W } 17 \end{aligned}$ | $\begin{aligned} & 7 \\ & 5 \end{aligned}$ | $\begin{aligned} & 2 \\ & 2 \end{aligned}$ | $\begin{aligned} & 9 \\ & 7 \end{aligned}$ | $\begin{aligned} & 47.4 \% \\ & 41.2 \% \end{aligned}$ |
| China | M 24 <br> W 30 | $\begin{aligned} & 3 \\ & 2 \end{aligned}$ | $\begin{aligned} & 3 \\ & 1 \\ & \hline \end{aligned}$ | $\begin{aligned} & 6 \\ & 3 \end{aligned}$ | $\begin{aligned} & 25.0 \% \\ & 10.0 \% \end{aligned}$ |

ers concerned to discuss these matters. It should also consider other measures that will facilitate a collective approach on an on-going basis.

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1. BARRA, L. (2007). European distance running and television ratings: A problem for world athletics. New Studies in

## REFERENCES

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