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In a Peak Fitness Condition?

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Published in:

International Journal of Sport Management and Marketing

Publication date:

2010

Document version

Final published version

Citation for pulished version (APA):

Storm, R. K., & Nielsen, K. (2010). In a Peak Fitness Condition? The Danish Elite Sports Model in International Perspective: Managerial Efficiency and Best Practice in Achieving International Sporting Success. *International Journal of Sport Management and Marketing*, 7(1/2), 104-118.

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In a peak fitness condition? The Danish elite sports model in an international perspective: managerial efficiency and best practice in achieving international sporting success

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Abstract: *Purpose:* According to international findings, nations today face diminishing returns on investment when it comes to elite sports. As the power struggles to win medals in international tournaments have intensified in the last couple of years, and the financial investments have increased, the market has adapted by raising the price of a medal. As a direct consequence, managerial efficiency can be a 'non-financial' tool for nations to enhance the chances of success. Taking the Danish case as a point of departure, the article addresses the Danish elite sports model with the question: 'to what extent is it suited for future challenges?'

Methodology: The article is based on a research evaluation of Team Danmark¹ conducted by the authors and provides a literature review on factors leading to international sporting success, combined with an analysis of the development of the international sporting arms race.

Findings: The analysis finds the Danish elite sports organisation, Team Danmark, well prepared and fit for future challenges. Still, certain areas are in need of improvement in order to strengthen the managerial efficiency.

Keywords: international elite sports; sporting arms race; medal portfolio; managerial efficiency; Team Danmark.

Reference to this paper should be made as follows: Storm, R. and Nielsen, K. (2010) 'In a peak fitness condition? The Danish elite sports model in an international perspective: managerial efficiency and best practice in achieving international sporting success', *Int. J. Sport Management and Marketing*, Vol. 7, Nos. 1/2, pp.104–118.

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Klaus Nielsen is a Professor of Institutional Economics at Birkbeck, University of London, UK having previously held a number of academic positions in his native Denmark, including a Professorship in Social Science at Roskilde University. His research interests include institutional theory; social capital, innovation and competitiveness; socio-economic discourse; and sport sociology and the economics of sports. He has prepared a number of policy papers and published several articles and research reports in the field of sport. He was a co-author of the white paper that led to the establishment of Team Danmark (the Danish Elite Sports Organization and the equivalent of Sport England and USOC). He has prepared research reports for Team Danmark and has been a member of its research committee. He was a member of the board of the Danish Institute for Sports Studies in 2005–2008.

1 Introduction

As it has become increasingly more difficult to win medals in international tournaments – such as the Olympics – the new global sporting arms race seems to be a case of growing concern in a series of nations these days. According to De Bosscher (2007), Houlihan and Green (2008) and Oakley and Green (2001) a growing number of nations are developing medal capabilities thus joining the international competition for medals in elite sports. As the pressure for gold is rising, the market clears by raising the over all price of a medal (De Bosscher, 2007). This forces national governments and elite sports bodies aimed at bettering their elite sports results, to reflect on funding and management. Two fundamental questions arise: Firstly, “to what extent do we wish to be part of this game?”, and secondly, “Are there any managerial shortcuts capable of giving us a competitive advantage in the quest for international sporting success?” Seen from a political perspective, it seems obvious that the answer to the first question is a matter of prioritising between different public revenue streams.²

From the perspective of elite sports bodies and athletes there is no end to the level of funding that is necessary. As pointed out by Heinilä (1982), the totalisation process in international elite sports takes form as a spiral of competition in which the level of performance, and hence the resources necessary for achieving the future levels of performance, are never ending: “ (...) the winner of today may very well be the loser of tomorrow and in order to avoid this fate the winner is continually forced to improve his performance capacity” (p.21). A constant pressure on the political level for a higher level of funding is the direct consequence.

In Denmark as well as in Norway and Sweden, the Olympics in Beijing has initiated a political discussion of the level of funding to elite sports raising the argument that the global sporting arms race demands allocation of more resources and funding just to keep pace with the international development.

The Danish elite sports institution, Team Denmark, has estimated that a rise in its public financial portfolio of around 50–70 million Danish kroner³ (approx. a rise of 25%–30% of the current budget) is fundamental for maintaining the current level of performance resulting in seven medals at the 2008 Olympics in China.⁴ However, seen in a wider perspective, this is far from sufficient. In a few more years, more resources are deemed necessary to keep the pace.

This brings the second question of managerial efficiency in focus. As there is a diminishing return on investment when it comes to funding on elite sports (De Bosscher *et al.*, 2008), it becomes important to implement models of elite sports development that holds comparative advantages in terms of efficiency.

But what is the ideal model and what are the critical factors leading to international sporting success? How is a small nation, like Denmark, suited for the future challenges? And how can Denmark gain competitive advantage in a global sporting arms race characterised by growing monetary investments?

These are the fundamental questions to be answered in this article which is being structured as follows: First we give a brief literature review on factors leading to international sporting success. Second we evaluate the Danish elite sports model against these factors by integrating an analysis of the development of the Danish medal portfolio in the Olympics going back to 1948. Finally we sum up by giving some conclusive remarks on how the Danish elite sports organisation, Team Denmark, can improve its managerial efforts in the future.

1.1 Critical factors leading to international sporting success

A range of factors affect a nation's medal capability. According to De Bosscher *et al.* (2008) these can be identified at three distinct levels: macro-level, meso-level and micro-level. With regard to managerial efficiency some of these levels are easier to influence than others. For nations taking a strategic approach to international elite sporting success it is to focus on the factors that are easily influenced.

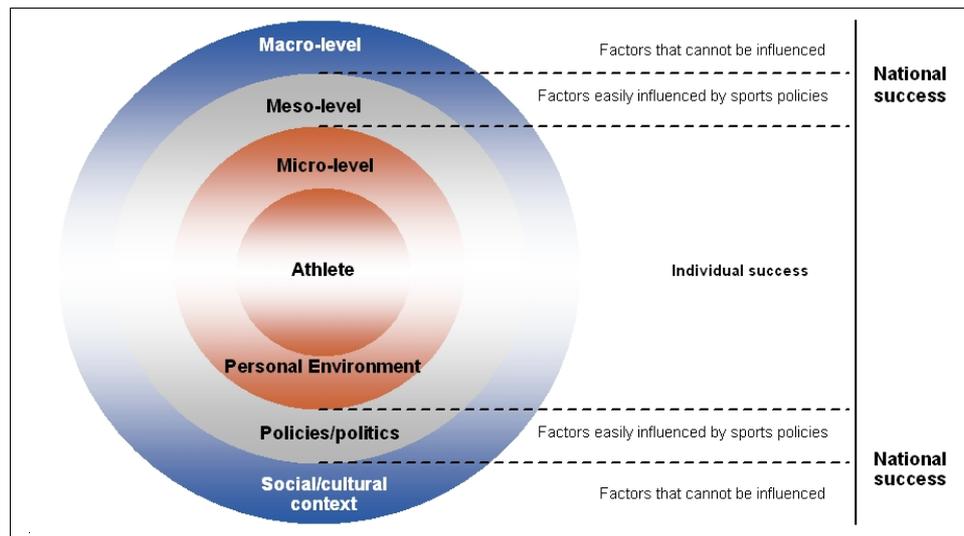
The point of departure is the athlete (placed at the centre of the model) and his/her relations to the surrounding factors constructing the overall 'room of opportunity' for creating international sporting success.

1.1.1 Macro-level

Several studies (Stamm and Lamprecht, 2001; De Bosscher *et al.*, 2003; De Bosscher, 2007; De Bosscher *et al.*, 2008; Storm, 2008b) point to the fact, that macro level factors, in the model named: 'Social/cultural context',⁵ account for a significant part of the international sporting success potential of a given nation (or athlete).⁶ Factors like economic welfare (Gross Domestic Product (GDP)), population size, and geographic and climatic variation add up to explain approximately 50% of a nation's medal portfolio. This is reflected in the medal rankings at the Olympics in Beijing. The top three nations

have consistently been the top nations for decades: China (enormous population size, see Hong, 2008), USA (enormous economic strength, see Sparvero *et al.*, 2008) and Russia (large pool of natural resources, see Hong, 2008).

Figure 1 Factors determining sporting success (see online version for colours)



Sources: The figure is from De Bosscher *et al.* (2008, p.17). See also: De Bosscher (2007, p.45)

1.1.2 Meso-level

This does not mean, however, that other nations cannot be successful in the Olympics.⁷ Although the macro factors are difficult to come across, there is a growing consensus among scientists that the macro level factors are becoming less significant to predict international sporting success:

“The principal reason for this view is that as nations become strategic in the way in which they produce elite athletes, they rely less on uncontrollable variables and more on variables which are widely regarded as being components of an elite sports development system.” (De Bosscher *et al.*, 2008, p.18)

The controllable variables are located at the meso-level as illustrated in the model above. These factors are subject to more or less immediate change in the short and middle-term as they can be affected by elite sports policies, *i.e.*, politically initiated strategic programmes aimed at improving the framework surrounding the elite athletes. Focal points at this level are the responsibilities and roles of different elite sports agencies, the administrative and managerial efforts of these agencies, the quality of training and the international competition opportunities, the level of provision and access to elite sport facilities, and so on.

1.1.3 Micro-level

It must be added as well, that the micro-level factors are subject to change in the short term. Talent, parents, friends, the training partners, hard work and improved training methods all influence the chances of individual success. Still, though, this is of limited value should the national framework be insufficient in relation to reaching a competitive elite sports level compared to other nations:

“Having the talent, spirit and the dedication are of course still essential in international elite sport, but factors at the meso-level are having an increasing impact on an individual athletes chances of success.” (De Bosscher *et al.*, 2008, p.20)

1.2 Policy factors (meso-level)

Taking these points to the fore, questions of managerial efficiency must primarily be answered at the meso-level focusing on the sport policy factors that affect the total quality of a nation’s elite sport programme. Operational answers to these questions can be developed by means of the findings by Houlihan and Green (2008) in a study that integrates the conclusions of the four most important international studies of sports policy factors leading to international success.⁸ Six critical factors are identified. In the following the Danish elite sports model will be evaluated on the basis of these six factors:

- 1 ‘Funding’
- 2 ‘Talent development and talent identification’
- 3 ‘Clear understanding of the role of different agencies and simplicity of administration’
- 4 ‘International competition opportunities’
- 5 ‘Facilities’
- 6 ‘Sports science and sports medicine support services’.

The first critical factor is ‘*Funding*’. The best predictor of output appears to be the absolute allocation of financial resources to elite sports (De Bosscher *et al.*, 2008, p.122; De Bosscher, 2007, p.245; UK Sport, 2006, p.16; Oakley and Green, 2001; Hogan and Norton, 2000). The significance of funding for international sporting success even seems to be growing. Oakley and Green concludes:

“The world of international sport is changing. Not only in terms of commercialism, but also in the increasing importance and hence funding that governments are placing on international success.” (Oakley and Green, 2001, p.84)

This is similar to the findings of Houlihan and Green:

“(…) for countries to establish and then sustain a successful elite sport development system in the early twenty first century they have to ‘Pay up! Pay up! And play the game!’” (2008, p.291).

The second critical factor of growing significance is: *'Talent identification and talent development'*. Some of the most developed countries in this respect are Japan, Australia and China taking a very strategic approach (Houlihan and Green, 2008; Oakley and Green, 2001). In these countries children are screened in the schools to pair them with a discipline relevant for their respective physical talents.

Spain has also established a 'scout-system' identifying talents as early as possible using sophisticated computer models to predict adult stature and suitability for different sports based on junior performance (Oakley and Green, 2001, p.259). A variant of this is seen in New Zealand with an ambitious talent development programme integrated in the elite sports model (Collins, 2008, p.233).

Especially a small country like Denmark needs to give attention to this as you cannot rely on the small population size to give a high number of talents without taking a strategic approach:

"Although much more in-depth analysis at the sports-specific level is necessary, this finding may suggest that an effective method by which smaller nations can gain competitive advantage is via talent identification and development." (UK Sport, 2006, p.16)

The third critical factor is *'Simplicity of administration and clear understanding of the role of different agencies'*. In order to avoid duplication or conflict (Oakley and Green, 2001, p.258) it is important that the different agencies, responsible for different aspects of elite sports development, share a common understanding. Different elite sports systems differ radically in relation to degree of administrative centralisation and government intervention.

An example of a high level of government intervention and centralisation is the Chinese system with a clear hierarchical chain of command (Hong, 2008). Another example is to be found in France where the national commission for elite sports takes the necessary decisions of support, approves the national elite sport training centres and decides which of the nations athletes that are entitled to financial support (Houlihan and Green, 2008, p.151ff). More surprising, perhaps, also New Zealand has a centralised structure (Collins, 2008, p.239).

An example of a more decentralised structure exists in Belgium (De Bosscher *et al.*, 2008, p.81) and especially in the USA, where no overall coordination of the development of elite sport is to be found. USA are in this respect to be seen as an extreme case based on laissez faire-capitalism as 'regulatory' mechanism (Sparvero *et al.*, 2008, p.269).

According to UK Sport (2006, p.4, see also De Bosscher *et al.*, 2008, p.21) the available research does not show any consensus regarding the necessity for centralisation or strong intervention in elite sports management by governments: Rather, well functioning channels of communication, clear division of labour and simplicity of administration are crucial for success.

"(...) it is more important to have a good communication system and clear task descriptions. Furthermore, Oakley and Green identify the importance of simplicity of administration through common sporting and political boundaries as another important item." (De Bosscher *et al.*, 2008, p.21)

The fourth critical factor is *'Competition opportunities'*. This factor stresses the importance of a competition calendar fitting the needs of the elite athletes. This reflects the necessity to travel and participate in relevant national as well as international

competitions to prepare for prestigious events such the Olympics. The aim is to test the athlete's abilities under the highest possible pressure as often as possible (De Bosscher *et al.*, 2008, p.115; De Bosscher, 2007, p.8.)

According to De Bosscher *et al.* (2008, p.114ff) international tournaments held on national ground can help improve the athletes' abilities in this respect as they will be given high level competition experience without having to leave their national context. In this sense, the home advantages of hosting major sport events can be seen as a comparative advantage.

The fifth critical factor is '*Elite facility provision*'. This refers to a country's ability to provide and give access to specialised facilities for training. Facilities and results are clearly correlated, *e.g.*, De Bosscher and De Knop (2002) find a significant positive correlation between the number of tennis courts and international tennis results.

However, provision of facilities is not necessarily enough. High specialisation and high standards for the specific purpose are crucial. Access for 24 h a day seems to be another key factor. Often the problem of access takes form as a tension between mass participation and the specific needs of elite sport athletes. In Australia the provision of facilities for swimming is excellent, but the access for elite swimmers was insufficient for a long period of time (Houlihan and Green, 2008, p.6; Green and Houlihan, 2006, p.170). In New Zealand, which just recently joined the international sporting arms race, the provision of facilities has traditionally been based on the enhancement of mass participation, not the specific needs of elite athletes (Collins, 2008, p.237).

As the provision of facilities for training and competition often is based on public funding – setting a pressure for mass access to the facilities – this tension seems to be a problem facing elite sport management of several nations (Green and Houlihan, 2006, p.172f). In Denmark, privileged elite access to top-level facilities exists in localised elite sports villages. However, the responsibility for elite facility provision is placed at the municipal level, while overall responsibility for elite sports development is to be found at state level. Some managerial problems with regard to facilities are the result hereof which we will elaborate later.

Finally, the international research identifies '*Sports science and medicine support services*' as a core element in a managerially efficient elite sports model. Still, though, it is only throughout the last decade, that nations aiming at international sporting success have focussed upon sports science and medicine support services (Houlihan and Green, 2008):

“Up until the mid-1990's, public sector investment in elite sport was directed towards facility development and direct financial support for athletes.” (p.8)

Apart from the former east-bloc countries, the science- and medicine-led development of performance enhancing methods has developed relatively slowly as a consequence. Until recently, the funding for such purposes has been limited in the western countries (Green and Houlihan, 2006, p.176f).

Today, especially Australia has a big and integrated programme with research covering biomechanics, nutrition, sports physiology and sports psychology (UK Sport, 2006, p.5). Systematic gathering and dissemination of information is characteristic of a scientific approach to elite sport development. In this respect, Japan can be mentioned as a model of excellence, which, according to Yamamoto (2008), is characterised by a

sporting 'CIA' using all accessible information in a highly systematic way. Furthermore De Bosscher *et al.* (2008) points to Norway as a pioneer nation due to its large pool of funding for research and a multidisciplinary approach (p.119).

2 The Danish case

These findings bring us to the concrete case of the Danish elite sports model, Team Danmark, and the performance of the model measured against the identified success factors. The questions are: how successful is the Danish model, and what changes are relevant in order to improve managerial efficiency?

2.1 The Danish elite sports model

The Danish elite sports model was traditionally characterised by decentralisation and cooperation in a formal hierarchy with private top and lower level federations and clubs and nation-level umbrella organisations. Since 1984, this has been supplemented by a public organisation responsible for elite sports development, Team Danmark.

The Danish elite sports organisation is a product of the Danish act on improvement of elite sport.⁹ Although this act gives the primary responsibility for elite sports development to Team Danmark, the institution is highly dependent on the federations responsible for the sports disciplines as well as the umbrella organisation covering federations organising all elite sports disciplines in Denmark (National Olympic Committee and Sports Confederation of Denmark). Having the responsibility for the provision of facilities for top level sports as well as mass participation, the municipalities are also to be seen as an important partner for Team Danmark.

Being responsible for the overall framework and planning of the development of Danish elite sport, and distributing financial support from the budget portfolio onto the federations, Team Danmark is the principal actor in Danish elite sport (Løvstrup and Hansen, 2002). Even though the sports federations receive other state funding and gain income from sponsors to varying degrees, the majority of them are heavily dependent on the financial resources provided by Team Danmark.

The current discussion on the development of Danish elite sports post-Beijing is centred around two main questions: First, a question of whether the level of public funding available for Team Danmark is sufficient for keeping up with the pace in the international sporting arms race; and second, whether Team Danmark should follow the international trend supporting only the (most internally competitive) Olympic sports – meaning a more narrow and performance orientated approach to elite sport development – in the future.

Taking a closer look at the Danish medal portfolio from 1948 to today, we will return to these questions later in the article.

2.2 The Danish medal portfolio

Denmark may not seem as successful in elite sports as the other Nordic countries. Denmark certainly does not have as glorious a past as former Olympic super powers, Sweden and Finland, and the Danish medal portfolio is currently dwarfed by Norway that

supplements its dominant position in winter sports with superior results in the Summer Olympic Games compared to Denmark. However, Denmark has a strong position in its two major team sports. Denmark is the smallest nation that has ever won the European championships in football (1992); Denmark is the reigning European champion in team handball for men and has won three successive Olympic gold medals (1996–2004) in team handball for women. In addition, Danish elite sports have consistently had top level international results in sports such as badminton, sailing, rowing and cycling. At the Olympic Summer Games, the Danish medal portfolio has been remarkable stable (see Table 1). Denmark has won 6–8 medals in 10 out of the 16 Olympic Games after World War II, including the last 5 games. No other country has experienced a similar stability.¹⁰ The total number of medals divided by mill inhabitants has consistently placed Denmark among the top 10–15 nations in the world.

Table 1 Danish medals in the Olympic Summer Games 1948–2008

<i>Year</i>	<i>Gold</i>	<i>Silver</i>	<i>Bronze</i>	<i>Total</i>
1948	5	7	8	20
1952	2	1	3	6
1956	1	2	1	4
1960	2	3	1	6
1964	2	1	3	6
1968	1	4	3	8
1972	1	0	0	1
1976	1	0	2	3
1980	2	1	2	5
1984	0	3	3	6
1988	2	1	1	4
1992	1	1	4	6
1996	4	1	1	6
2000	2	3	1	6
2004	2	0	6	8
2008	2	2	3	7

Actually, it seems that Denmark has slightly improved its standing in the last two Olympic Games with eight and seven medals, respectively. However, this is an effect of luck and chance and not a sustainable long-term trend. The Danish medal portfolio in world championships or similar events in the Olympic sports disciplines in the years in-between the Olympic Games reveals a much more dire situation. The average total number of Danish medals in the 3 last periods in-between Olympic Games has decreased significantly (1997–1999: 12 medals; 2001–2003: 7 medals; 2005–2007: 5 medals).

Top 8-points show a similar trend.¹¹ This calculation includes rankings from no. 4 to no. 8 in addition to medals. It gives an indicator of the capability of nations to compete at the highest level that is more reliable than number of medals. The total sum of Danish

top-8 points in the Olympics Games have decreased significantly (1996: 108; 2000: 92; 2004: 98; 2008: 87). The decrease in total top-8 points in world championships or similar events in the Olympic sports disciplines in the years in-between the Olympic games has been even more pronounced.

The decreasing overall trend originates from a significant deterioration of the international standing of most of the sports where Denmark has traditionally won most of its medals in the Olympics and other top level competitions. This is so with sailing and badminton, in particular. Only team handball and rowing have maintained their international standings.

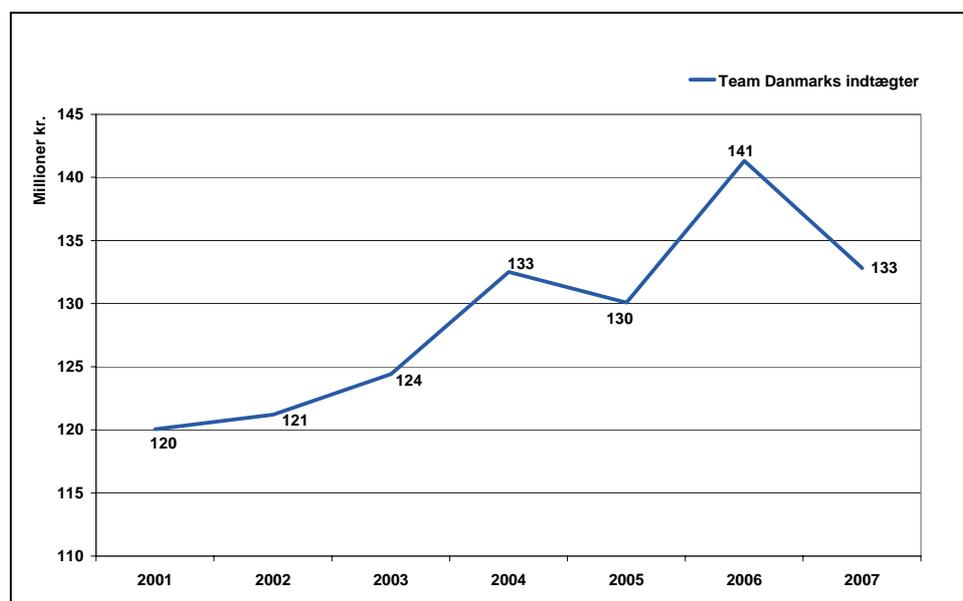
In sum, the stability in the total number of Danish medals at the recent Olympics Games gives a wrong impression of the long-term trend in the competitiveness of Danish elite sports which is evidently declining.

2.3 Funding for elite sport in Denmark

The weakened competitiveness of Danish elite sports identified above arise from several structural problems, the most significant being the stagnation of funding compared to other nations taking part in the international sporting arms race.

As can be seen from the Figure 2, the growth in the budget for Team Denmark has been relatively slow compared to other nations. According to De Bosscher *et al.* (2008, p.112), Canada and the Netherlands increased their elite sport budget 70% and 90%, respectively, from 1999 to 2003. The budget increase was 30% in Norway and 45% in the UK in the same period. Many other nations have also increased their budgets significantly such as China prior to the 2008 Olympics.

Figure 2 The revenues of Team Denmark 2001–2007 (one US\$ equals approx five Danish kroner) (see online version for colours)



The revenue figures in Figure 2 only cover Team Danmark¹² and do not give a full picture of the total funding to elite sport in Denmark. Municipality funding of elite sports in their local areas add up to approximately 30 mio. Danish kroner (2007)¹³ in total. The municipals are also responsible for providing training and competition facilities for the elite athletes. Unfortunately, no statistics is available to give a precise picture of the amount of funding for this purpose. A supplementary source of public funding are 10 mio. Danish kroner per year aimed especially at talent development in the period 2008–2012. In addition, also the Danish sports federation use part of their public financial support on elite sports. Whereas, the municipal funding is increasing and the new talent development funding adds resources, the public funding of the sports federation is stagnating as does the support for Team Danmark and the elite sports funding of the sports federations can be assumed to be stagnating as well.

Besides the problem of funding, our study of Team Danmark identifies areas with a potential for improved managerial efficiency. Below, these areas are related to the critical factors for international sporting success identified above. Improvement in these areas requires action by the elite sports institution itself rather than public intervention.

2.4 Potential for improvement of managerial efficiency

The evaluation of Team Danmark identifies five areas where managerial efficiency in the use of funds can be improved.

2.4.1 Simplification of administrative procedures

With regard to administrative procedures, our research finds that Team Danmark generally works in a proper manner with a serious approach to elite sports development. The institution is well suited to a pro-active way of development elite sports in Denmark. However, there seems to be an ineffective use of resources when it comes to coordination with the federations supported by Team Danmark.

Currently, both the consultants from Team Danmark responsible for contact to the federations and the administrative personnel in the federations spend too much time on administrative procedures. This takes away resources from the development schemes and the efforts directed towards the needs of the athletes. In particular, the federations consider the control mechanisms too bureaucratic. The administrations of support criteria are neither simple nor smooth and simplification is required.

2.4.2 The roles of different agencies

Secondly, we identify a need for clarifying the tasks of the different agencies in respect of talent development. Our research finds that the different agencies do not have a clear and compatible understanding of the division of responsibilities in this respect. Some federations see Team Danmark in charge of talent development while others put themselves in charge. It leaves the impression that Team Danmark and the federations are not working in the same direction. Duplication of efforts as well as gaps of missing efforts follows.

2.4.3 Talent development

Another key finding in our research stresses a side effect of the current elite sports model that needs to be adjusted some way or another. Team Danmark has to some extent followed the international trend of adopting an increasingly performance oriented approach as far as support of federations is concerned. The demands for medals have been strengthened and the federations fear cutbacks in funding should the expected goals of performance not be fulfilled.

Unfortunately, this has a negative side effect. In the race for the next medal the federations invest too many of their resources into efforts to secure the best possible conditions for their current top athletes. In other words they put their faith in the ability of the best athletes to secure future funding. This takes away resources for the development of new talents which makes it more difficult to create the necessary flow in talent development. The problem does not exist in the Danish national sports, soccer and team handball, where talent recruitment and development is well structured and highly developed. However, in many other sports the process of lifting the talents to the international level lacks funding, resources and focus. This problem can affect the long term capabilities of Danish elite sports to keep up with the pace in the international sporting arms race.

Splitting the money support in a performance oriented portfolio and a basis support aimed especially at talent development programmes is a possible solution to this problem.

2.4.4 Facilities and competition opportunities

Our findings show that the Danish elite sports facilities are not fully up to international standards. Team Danmark has only limited means to improve the situation. The primary responsibility for sports facilities is located at the municipal level in Denmark. This brings the classic problem concerning the tension between mass participation and elite access to facilities to the fore. As local tax payers do not always want to pay for elite sports facilities, municipal politicians often prioritise mass access to facilities over elite sports access.

A new initiative trying to establish a more formal cooperation between Team Danmark and the municipalities is a step in the right direction although far from sufficient.

With regard to competition opportunities Denmark has a disadvantage as a small country (5.5 mill. inhabitants). In most sports, the national level of competition is too low to provide the best Danish athletes with the necessary level of competition.

This brings the athletes in a situation where they need to travel frequently to relevant international tournaments to compete and prepare for future challenges. An increased sum of money must be allocated for this purpose in the future.

2.4.5 Sports science and sport medicine support

Sports Science and Sport Medicine Support concern the systematic gathering and dissemination of scientific information in a wide range of areas. Sports nutrition, talent identification and talent development, sports psychology and sports physiology, biomechanics and so on, are main areas in this respect.

What matters in this respect are the availability of resources, and the long term return of investment. Team Danmark has to find a balance between its efforts to support the application of already existing knowledge in the short term and its long-term investment in research to develop new knowledge in the future. Here it seems important to have a more long term perspective than at present.

Danish sport medicine support is comparable to the highest international standards and is well supported by research.

The application of new research findings and the development of new projects point are generally at a high level. However, in one field adjustment and improvement are much needed. In the field of sports psychology the efforts seem to lack a significant focus.

International research finds the use of information and knowledge a key factor to keep the pace in the international sporting arms race. A more structured and pro-active use of the information already gathered by Team Danmark from the federations could help create a more fruitful and strategic approach to elite sport development in Denmark. At the moment this information is merely used for decisions regarding the inclusion or exclusion of the federations in the support portfolio chosen by Team Danmark. However, the analysis of the gathered information could be used in a pro-active way to identify relevant projects for future development.

2.5 Conclusion and perspectives for the future

The key findings from our study of Team Danmark can be summarised in five main conclusions:

- 1 Given the present circumstances Team Danmark must generally be considered fit for the purpose of developing elite sports in Denmark.
- 2 Still, though, Denmark is losing ground in the international sporting arms race. This is primarily due to the relative decline of funding of Danish elite sports compared to other nations in the international sporting arms race.
- 3 More funds for elite sports is an obvious response to this development. Of course, this competes not only with funding of mass sports but also with other worthy causes and is a question of political priorities. Increased funding could take form of more public funding but private funding through sponsorships and media rights is another option. If maintenance or improvement of Denmark's position in the international sporting arms race is the political goal, then growing funding appears necessary.
- 4 The alternative would be to adopt a more realistic approach to the sporting goals taking into account population, GDP) and funding to Team Danmark. Such an approach could be supported by explicit benchmarking based, for instance, on a market share approach, as outlined by UK Sport (2006) and De Bosscher (2007), to measure the Danish sporting success.
- 5 Another option is to rely on the efforts of Team Danmark to sharpen its focus and to improve efficiency in the use of resources, especially in the areas identified above. As the price of a medal is rising, managerial efficiency becomes still more important in efforts to win medals in the future.

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Notes

- 1 The evaluation (Storm, 2008b) is a multidisciplinary study consisting of in-depth qualitative interviews, focus groups and a large survey addressing various aspects of Team Danmark and its relations to stakeholders (elite sports federations and elite sports athletes) in the Danish elite sports environment. Furthermore, the evaluation examined the literature on factors leading to international sporting success and analysed the development of Danish medal standings going back to the 1948 Olympics. Link to report (Danish title): <http://www.idan.dk/vidensbank/forskningoganalyser/stamkort.aspx?publikationID=3f0ecb07-2020-4b80-8094-9aa100c380ed&/Vidensbank/Soegning.aspx?currentstart=0&ResultPrPage=5&Kortvisning=False&Forskningoganalyser=True&IdansLinks=True&forskere=False&HeleIdanDK=False&fra=-2147483648&til=-2147483648&emne=&kategori=&forsker=&publikationstype=&word=team> (March 2009).
- 2 This is the case outside USA. With the exception of USA all nations participating in the international sporting arms race provide significant public funding to national elite sport (Sparvero *et al.*, 2008).
- 3 One US\$ equals approximately five Danish kroner.
- 4 Two gold, two silver and three bronze.
- 5 It seems odd, that macro-factors are labelled 'social/cultural context' as these factors also contains geographic and climatic variation. A more correct label would be: 'Social/Cultural/Environmental context'.
- 6 Please see De Bosscher (2007, p.46ff) for an extended review on macro-factors leading to international sporting success.
- 7 Please see De Bosscher (2007, p.80ff) for an extensive review on meso-level factors.
- 8 The four studies are: Digel, 2002a–b; Green and Houlihan, 2005; Oakley and Green, 2001; UK Sport, 2006.
- 9 According to the revised act of elite sport improvement, passed through the Danish Parliament in 1994, Team Danmark is responsible for the overall planning of elite sports in Denmark. This includes the following main tasks: Overall planning; responsibility for a culturally and politically sound development of elite sports, provision of optimal training and coaching possibilities for athletes; responsibility for a sound development of athletes, both physically, personally, and socially; talent recruitment and development; individual financial support for athletes; research and communication of research results; counselling of athletes on educational issues; employment support and social support; counselling and financial support for national federations; cooperation with municipal authorities regarding elite sports, *e.g.*, in relation to facilities; cooperation with media and sponsors, and sales of media rights and other services.
- 10 The deviation of the total number of medals from the average number in all games in all post-war games without major countries being absent is 27% for Denmark. Among the small Western European countries Belgium comes closest with an average deviation of 40%.
- 11 Rankings no. 1–8 in Olympic sports disciplines are given 8, 7, 6, 5, 4, 3, 2 and 1 points, respectively.
- 12 Around 75% of the overall budget comes from public funding from state monopoly lotteries. Twenty-five percent are profits from sale of TV rights and income from Team Danmark's own sponsorship and marketing divisions.
- 13 These elite support organisations collect money from local sponsors. Often the respective municipality is a sponsor itself.