

**Organizational Structures and Performance
Measurement of National Anti-Doping Organizations
(NADOs) – A Comparative Analysis**

Final Report

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List of Abbreviations

AAF	-	Adverse Analytical Findings
ADAMS	-	Anti-Doping Administration and Management System
ADBG	-	Austrian Anti-Doping legislation
ADRV	-	Anti-Doping Rule Violations
ASADA	-	Australian Sports Anti-doping Authority
ATF	-	Atypical Findings
CCES	-	Canadian Centre for Ethics in Sport
CEO	-	Chief Executive Officer
CND	-	Commissie Naleving Dopingsancties
DACH	-	Germany, Austria, Switzerland
DCO	-	Doping Control Officers
DDCS	-	Dependent Doping Control System
DFSD	-	Drug Free Sport Directorate
DOSB	-	German Olympic Sports Federation
e.g.	-	Exempli gratia
EPO	-	Erythropoietin
ESA	-	Erythropoiesis Stimulating Agent
Et al	-	Et alia
Etc.	-	Et cetera
FIS	-	International Ski Federation
FTEs	-	Full-Time Equivalent
GC/C/IRMS	-	Gas Chromatograph/Carbon/Isotope Ratio Mass Spectrometry
HBOC	-	Haemoglobin Based Oxygen Carrier
HBT	-	Homologous Blood Transfusion
HGH	-	Human Growth Hormone
IAAF	-	International Association of Athletics Federations
IC	-	International Committee
IDCS	-	Independent Doping Control System
i.e.	-	id est
IFs	-	International Sports Federations
INT	-	Interviewees
IOC	-	International Olympic Committee
IPC	-	International Paralympic Committee
ISO	-	International Organization for Standardization
MedApp	-	Medication App
m	-	Million
MP	-	Member of Parliament
MSCD	-	Most similar cases design
NADA	-	National Anti-Doping Agency
NADO	-	National Anti-Doping Organization
NDBP	-	Non-Departmental Public Body
NSFs	-	National Sports Federations
ÖADR	-	Austrian Independent Anti-Doping Law Commission

ÖFB	-	Austrian Football Association
OOB	-	Out-of-Competition
ÖSV	-	Austrian Ski Federation
RUSADA	-	Russian Anti-Doping Agency
TUE	-	Therapeutic Use Exemptions
UNESCO	-	United Nations Educational, Scientific and Cultural Organization
UK	-	United Kingdom
UKAD	-	United Kingdom National Anti-Doping Organization
USADA	-	United States Anti-Doping Agency
vs.	-	versus
WADA	-	World Anti-Doping Agency
WADC	-	World Anti-Doping Code

Executive Summary

The relationship between organizational structures and the performance of organizations is highly contested, especially for public organizations. Therefore, this research project on the organizational structures and performance measurement of National Anti-Doping Organizations can only be exploratory. The aim of the project is to explore if and how organizational features of NADOs influence their performance, and how these findings can and should lead to practical recommendations for NADOs and for WADA. In order to achieve these aims we used existing data, interview data, and a comparative research strategy. Moreover, we incorporated concepts and results from organizational theory and public management research, which have dealt with these kinds of problems for many years.

Our research strategy and overall findings are:

1. We calculated an organizational performance index for selected NADOs based on a weighted ranking scheme for selected indicators. The index includes NADOs' input, output and performance data, but until now this index measures formalities and norms (inputs and some outputs) rather than actual performance (outcomes).
2. The reason for this is that existing data sources are limited and difficult to compare. Furthermore, until now WADA and NADOs have only been able to provide very little information about the outcomes and impacts of their efforts against doping.
3. In addition to the "hard data" of the index, we analyzed individual perceptions of performance by interviewing officials from a number of NADOs. The evidence from the interviews suggests that NADO officials perceive and define performance differently. This is typical for public organizations with complex goals.
4. Based on the interviews, we developed a list of relevant criteria that officials see as relevant for the performance of NADOs. We distinguished between managerial, organizational, regulative, resource and market structure related factors.
5. We used concepts and research from other policy fields with similar problems (e.g., drug abuse, education, anti-corruption, etc.) to interpret our findings and found that NADOs have a lot in common with other public agencies undertaking complex tasks.

Following on from this, our recommendations are:

1. Besides numerical measurement methods, WADA ought to consider alternative methods reflecting the complexity of a wide range of anti-doping tasks. Furthermore, the respective measurement tools have to be improved. Existing measurement tools to assess performance are insufficient to determine NADOs' performance adequately, and thus alternative (qualitative) methods need to be taken into account (e.g., monitoring, peer reviews, supervision, auditing, etc.).
2. One of the core problems is measuring performance in relation to outcomes. A possible solution to this problem would be to learn from similar policy fields, such as anti-corruption, and develop a "Doping Perception Index" focusing on how various informed stakeholders and experts perceive doping violations.

3. WADA ought to think about the development of a harmonized reporting system, which provides data on anti-doping measures (controls, sanctions and prevention). To ensure comparability, there should be a precise and consensual definition of data content (i.e., functional equivalents, etc.).
4. Selective understandings of performance inhibit an overall accepted performance measurement system. Thus, WADA and NADOs ought to make joint efforts to develop a more coherent and, as far as possible, standardized definition comprising controlling, sanctions, and prevention measures.
5. The organizational performance index is an instrument mainly measuring formal compliance rather than performance as such. Therefore we recommend WADA goes beyond this approach and enacts measures or policies for enhancing and proving existing and new accountability relationships (e.g., inspections, mentoring, supervision, comparison, etc.).
6. We strongly suggest using concepts and research from other policy fields with similar problems (e.g., drug abuse, education, anti-corruption, etc.) to further enhance knowledge in the field and create useful recommendations.

1 Introduction

The fight against athletes' doping has been top of the agenda all over the world in recent years. Massive doping scandals, such as those of Lance Armstrong, Eufemiano Feuntes and Ben Johnson, have not only led to growing amounts of financial resources being spent on fighting doping internationally, but have also increased public awareness of anti-doping policies. Since the late 1980s, the network implementing anti-doping policies has developed from a private concern of the International Olympic Committee (IOC) with relatively little funding, into a global movement receiving extensive funding and media attention.

The leading organization in the global anti-doping network is the World Anti-Doping Agency (WADA), which was established in 1999. As an independent agency composed and funded by both sports federations and national governments, WADA aims to harmonize the global anti-doping policy framework (Hanstad, Skille & Loland, 2010). WADA has made great progress by publishing the World Anti-Doping Code (WADC) in 2003, as well as establishing international standards and models of best practice. The WADC was intended to be the 'fundamental and universal document upon which the World Anti-Doping Program in sports is based' (Article 3.2). In the meantime, the code has already been revised twice. To date, more than 660 sports organizations have accepted the WADC. Besides organizations like the IOC, the International Paralympic Committee (IPC), Olympic Sport International Federations (IFs), and National Anti-Doping Organizations (NADOs) are committed to the WADC's implementation. In 2003, WADA recommended that every state should establish a NADO as a best practice model.

Since 2003, NADOs have become a cornerstone for the implementation of the WADC. They are among the most important actors responsible for the implementation of international regulations. According to WADA, NADOs are funded by governments or externally, and they are responsible for testing national athletes in-competition and out-of-competition, as well as athletes from other countries if they are competing within national borders. Hence, they adjudicate anti-doping rules violations and they promote anti-doping education (WADA, n.d.).

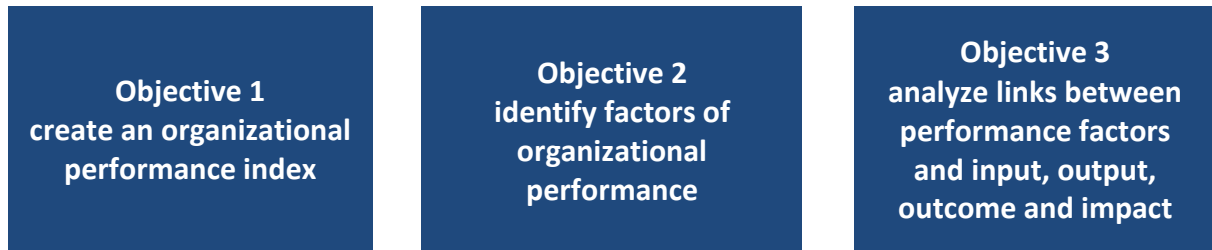
Despite the importance of their role and presence around the globe, a comparative empirical analysis of the implementation of anti-doping policies in general, and the performance of NADOs in particular, does not yet exist. To close this gap, the research team at the University of Potsdam has conducted a research project addressing the following three significant research questions:

1. How do NADOs try to prevent athletes from using performance-enhancing drugs, and how do they control and sanction the use of prohibited drugs effectively?
2. What factors affect the organizational performance of NADOs?
3. How do environmental and internal factors of NADOs in different countries correlate with their performance data?

Thus, it is important to understand how NADOs implement the WADC and national legislation, while considering their respective national contexts and institutional environment. Therefore, the project pursued the following three main objectives (see figure 1): (1) to create an organizational performance index of selected NADOs, (2) to identify

factors of organizational performance, and (3) to analyze the links between the performance factors and input, output, outcome and impact data.

Figure 1: The Project's Three Main Objectives



To analyze organizational performance, we have selected five NADOs, namely those in Austria (*Nationale Anti-Doping Agentur Austria GmbH*), Germany (*Nationale Anti-Doping Agentur Deutschland*), the Netherlands (*Stichting Anti-Doping Autoriteit Nederland*), Norway (*Anti-Doping Norge*) and the United Kingdom (*UK Anti-Doping*). The present report includes the main results of our research in detail, and describes the different parts of the project and how they contribute to answer the research questions presented above.

Firstly, we developed an organizational performance index while taking into account several limiting factors. Hence, there are several pitfalls to be addressed in this study. Secondly, based on our preliminary findings, we identified factors that affect the organizational performance of NADOs. They are qualitative findings without claiming generalizability and representativeness. However, they provide a strong basis for further research about performance measurement, accountability relations and unintended consequences in the anti-doping field. Thirdly, we analyzed the links between the identified performance factors and input, output, outcome and impact data.

The study thus contributes to the general assessment of NADOs' performance while also critically assessing its methods and instruments. We followed a mixed methods research approach (Tashakkori & Teddlie, 2003; Kelle, 2006) to tackle our research questions. Current research has produced many textbooks that pinpoint the advantages and disadvantages of qualitative and quantitative research (Pierce, 2008). Due to the imperfections of both research approaches, using a combination of both of them and the so-called triangulation of empirical results seems to be the most appropriate way for empirical social research. Thus, on the one hand, we collected qualitative data based on half-structured expert interviews with key informants, and analyzed existing data on the other, which gave us a broad overview of the institutional environment and the performance of NADOs.

The report is divided into five chapters. In chapter one, we describe the theoretical approach, and provide a short overview of existing research about organizational factors of performance and organizational features of NADOs in chapter two. We then explain the methodological approach in chapter three. Chapter four serves as the main part of the report and includes the description and analysis of the empirical results. In the fifth chapter, these results are summarized and we make recommendations for future policy development and research.

2 State of Research and Theoretical Approaches

Scientific research on the organization and the performance of NADOs is very limited and may even be called non-existent. We identified an increased interest in WADA's structures and its key role in the international organizational architecture of the fight against doping. Since the early 2000s, most of the academic analyses on anti-doping governance have focused on WADA. Houlihan (1999), for example, classified WADA as the central and essential part of the international anti-doping regime. He investigates a range of aspects concerning WADA in his publications, including WADA's public-private dimensions and the role of compliance. Hanstad, Smith, and Waddington (2008) took a different path and examined the historical creation of WADA. They explain the ineffectiveness of the IOC's earlier anti-doping efforts despite seeking a central role in governing anti-doping, which ultimately led to the creation of an independent body. Henne (2010) examined WADA's organizational structure as a hybrid organization operating between formal law and informal regulation, and they also analyzed the events that led to WADA's establishment.

One of the scarce studies on National Anti-Doping Organizations was conducted by Houlihan and Preece (2007). By looking at the Drug-Free Sport Directorate (DFSD), a predecessor of the UK National Anti-Doping Organization (UKAD), they focused on questions of the DFSD's independence and accountability to its stakeholders. Taking a different stance, Hanstad et al. (2010) looked at the harmonization of national anti-doping policies, especially those associated with the adoption of the World-Anti-Doping Code. By analyzing one specific aspect, namely the implementation of a whereabouts information system, their findings revealed that significant variations prevailed in the implementation of the World-Anti-Doping Code, even among NADOs considered to be among the global frontrunners in the struggle against doping. Another study by Hanstad and Loland (2005) explicitly referred to organizational factors in the fight against doping and highlighted the importance of independence and close coordination, albeit failing to indicate how these criteria are to be met. At present, there is no comprehensive study providing an analysis of connections between the organizational factors of the different NADOs and their performance in creating a doping-free environment.

Factors of organizational performance are commonly separated into internal and external variables affecting the performance of public sector organizations (Moynihan and Pandey 2005). Boyne (2003) identifies five factors influencing the performance of public sector organizations, namely resources, regulation, market structure, organizational structure, and management (Boyne, 2003, p. 369ff.). In our project, we applied this framework to NADOs and we identified the main factors of their performance as both doping controls and prevention (see table 1).

The application of this distinction helps us to understand the extent to which a performance factor, (e.g., management) is seen as a relevant factor by actors in the field of anti-doping. To explore these factors based on the perceptions of individual actors, qualitative and quantitative research methods may help to identify causal relationships and processes of influence. Therefore, it is necessary to create a model of the main aspects of complex performance relationships (Boyne, Meier, O'Toole, & Walker, 2005, p. 635).

Table 1: Performance Factors

Factors Influencing Performance	Expected Relationship
Management (leadership, culture, HR management, strategy process and content)	Generally positive
Market structure (competition, institutional environment)	Positive
Organizational structure (size, centralization, formalization)	Generally positive
Regulation (laws, audits, inspections, financial controls, performance indicators)	Mixed
Resources (financial resources, planning stability)	Positive

Source: see Boyne (2003)

According to Boyne (2003), we assume that managerial influences, organizational structures, market structures and (sufficient) resources may influence the performance of NADOs positively. In terms of regulations, the relations are not as clear as for the other factors. Regulations may influence performance positively by clarifying duties and responsibilities. Nonetheless, they may also trigger negative effects due to increased inflexibility and administrative burdens. This leads to the following five working assumptions:

- A1: If adequate elements of internal management and steering are implemented within NADOs, we expect perceived performance-enhancing effects.
- A2: If the market structure is supportive of NADOs, we expect perceived performance-enhancing effects.
- A3: If the organizational structure of NADOs is adequate, we expect perceived performance-enhancing effects.
- A4: If regulations in the field of anti-doping are present and are enforced, we expect perceived performance-enhancing effects.
- A5: If resources are adequate to fulfill NADOs tasks, we expect perceived performance-enhancing effects.

It is important to note that these five assumptions cannot be tested in a classical statistical sense because this would require a dataset in which qualitative information is combined with valid information on output and outcomes. Although the measurement of outcomes would be partly possible, the links between different variables, or to be more precise the causality between factors and performance, may only be understood based on qualitative analyses. This implies that we focus mainly on the perceptions of NADOs' management staff, which give valuable insight and provide 'thick description' regarding the relevance of factors of performance.

3 Methodology

The following chapters provide the methodology used for the case selection, research process, and treatment of data collection.

3.1 Case Selection

The overall research design of our project is of a comparative nature. Based on the ideas of the most similar cases design (MSCD; Teune & Przeworski, 1970; Peters, 1998), we have identified five cases from Western European countries that are relevant for our research. So far, virtually no comparative assessment of NADOs in terms of organizational performance exists, consequently our case selection is necessarily an exploratory one (George & Bennett, 2005, p. 395). We chose the NADOs in Austria (*Nationale Anti-Doping Agentur Austria GmbH*), Germany (*Nationale Anti-Doping Agentur Deutschland*), the Netherlands (*Stichting Anti-Doping Autoriteit Nederland*), Norway (*Anti-Doping Norge*) and the United Kingdom (*UK Anti-Doping*) for our investigation. Through this case selection, we expected to gain maximum leverage in answering our research questions. For example, all five selected NADOs have extensive preventive programs targeting athletes at different levels, yet there are sufficient differences to support the expectation that such a relative comparison will yield practical results. Additionally, all selected NADOs had already agreed to assist the team in Potsdam during the data collection and research phase before the project had even started. Further reasons for the case selection included the geographical proximity of the NADOs to each other (in order to keep the costs of this study to a minimum), their more-than-average interest in anti-doping research, and their willingness to disseminate the anticipated results to other Anti-Doping Organizations.

Last but not least, organizational research in other areas (i.e., welfare regimes or administrative reforms; Esping-Andersen, 1990; Pollitt & Bouckaert, 2011) suggests that these countries are a good sample promising valid causal inferences about the factors of organizational performance. Regarding anti-doping issues, the selected countries differ in the structure of their nation's sports system, and in the practices of their NADOs in the areas of prevention, doping controls and sanctions. These facts are a promising starting point for analyzing external and internal factors of NADOs' performance. Although there are other very interesting cases like Australian Sports Anti-doping Authority (ASADA), United States Anti-Doping Agency (USADA), and Canadian Centre for Ethics in Sport (CCES), we had to restrict ourselves for pragmatic reasons. Adding more cases would also have increased complexity, which is particularly problematic for qualitative research due to it allowing only a small number of cases.

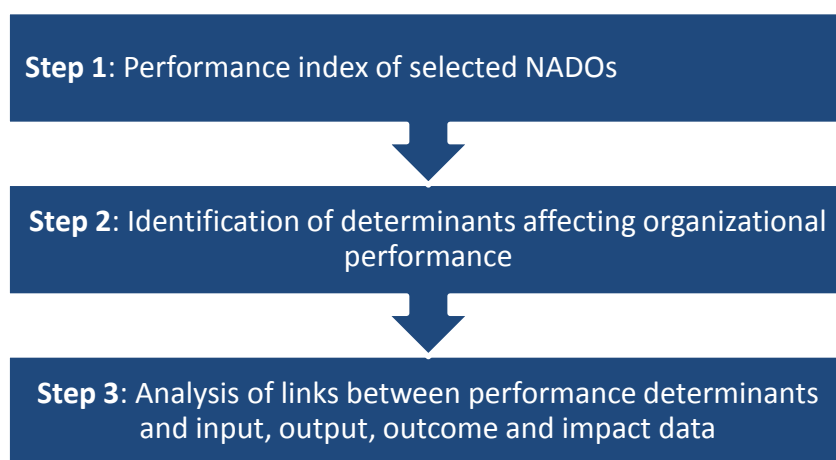
3.2 The Research Process

The research project is based on a three-step procedure. The first step demonstrates the calculation of an organizational performance index as a possible starting point for a performance benchmark. The second step includes the theoretical and empirical identification of different factors – internal or external – potentially influencing the

organizational performance of NADOs. And finally, in the third step, we analyze possible links and interrelations between the identified performance factors and input, output, outcome and impact (see figure 2).

The purpose of this comparative approach is to answer the question of how NADOs prevent athletes from using performance-enhancing drugs effectively, and how they control and sanction the use of prohibited drugs. Such a research approach requires both contextual consideration and extensive data collection. Furthermore, the research design also allows us to draw conclusions regarding the correlation between the environmental and internal factors of NADOs in different countries and their respective performance data.

Figure 2: Overall Methodological Structure of the Research Project



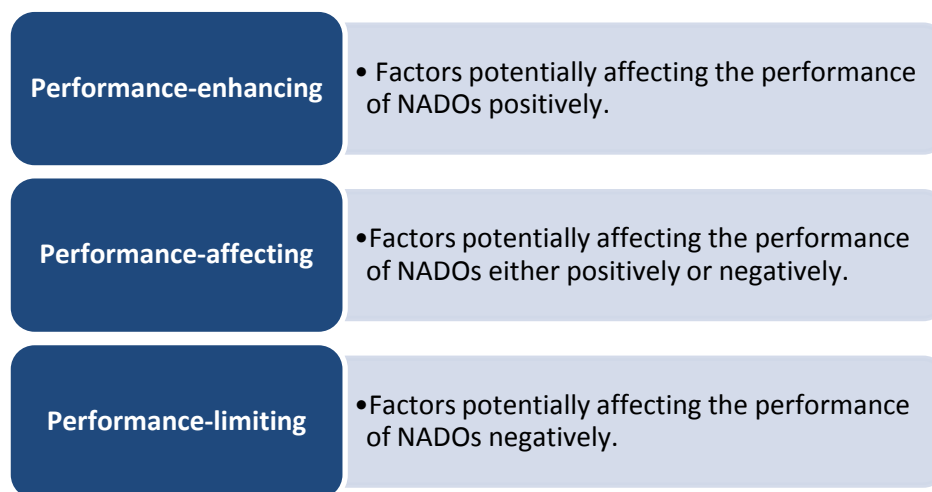
After developing the organizational performance index and discussing its shortcomings, different factors affecting the organizational performance of NADOs are presented in the following section. These factors were identified and developed from our systematic and qualitative analysis of the expert interviews and are organized along the systematic approach suggested by Boyne. In this analysis, performance factors can only function as heuristic factors for further analysis. This heuristic character may be attributed to incomplete data, the qualitative approach, and the lack of a common definition for the organizational performance of NADOs, but it is also an overall feature of organizational performance. There is no common and simple theory linking organizational factors to performance, especially in complex, public organizations.

In order to determine relevant performance factors, we systematically analyzed the empirical material collected, taking several steps in the process. Firstly, using the performance scheme of Boyne (2003), we assigned relevant interview passages to the five variables: management, regulation, resources, market structure, and organizational structure. In the second step, contextual links between individual passages were marked. Thirdly, the respective sets of passages were assigned to individual performance factors. This step was especially challenging because of a need for definition criteria. Taking into account that some factors were still missing, we clustered them along the lines of signal phrases.

Such individual factors had to be named at least by two different NADOs in a similar context in order to be considered relevant for this study.

In the final step, the factors were then categorized as performance-enhancing, performance-affecting and performance-limiting effects according to their respective effects on NADOs' performance (see figure 3). There are two decisive criteria relevant for ranking these factors: (1) the frequency certain criteria were mentioned, and (2) the attribution of signal words, such as "most important" or "one of the greatest [...]" to the respective factor. Each factor's position reflects its importance within the three performance categories (performance-enhancing, performance-affecting, performance-limiting). In chapter four, the presentation of performance factors always begins with performance-enhancing factors.

Figure 3: Distinction between Different Performance Factors and their Effects



3.3 Data Collection

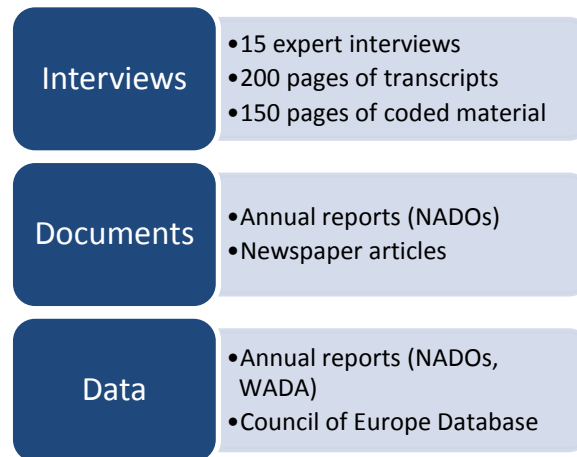
In conducting our empirical research we rely on a mixed methods approach, which requires two different procedures for data collection. Hence, our database consists of qualitative and quantitative data sources.

In the qualitative part of this study, we conducted key informant and half-structured expert interviews. We talked to NADOs' top officials, namely the CEOs and heads of the prevention and sanctioning departments, or staff of equal rank. All in all, we conducted $n = 15$ in-depth interviews and several background interviews. Although the latter cannot be used directly for our empirical research, they gave us valuable insight into the organizational problems of anti-doping policies. The conducted interviews were categorized and coded and then analyzed by systematic content analysis.

Aiming for maximum comparability of results, we used the same interview structure and similar questions for each interview conducted. The interviews were recorded with the explicit permission of our interview partners. Afterwards, we transcribed and categorized the empirical material with individual codes. This latter categorization process was essential for the subsequent analysis and interpretation of the results. Consequently, our project

resulted in an accumulation of over 200 pages of interview transcripts and more than 150 pages of coded material (see figure 4). To grant anonymity to the interview partners, we refer to “INT” and not their names when our results are based on direct or indirect quotes from the interviews. This is necessary to reduce the risk of deanonymization.

Figure 4: Empirical Sources and Material



The quantitative data were drawn from various sources (e.g., WADA, Council of Europe, NADO reports, etc.) and had to meet three criteria. Firstly, they had to be available for all selected cases to be comparable to each other. Secondly, the selected indicators had to be classified as input, output or outcome data. Thirdly, all data had to be put into context. Ideally, they are in line with the implementation practice of WADA rules (WADA, 2008, p. 2) and provide insights into a doping-free sport in general (prevention), the identification of doped athletes (controls) and sanctions for doping violations (sanctions). Based on these data, we were able to calculate our organizational performance index.

4 Results

The key results of our study are presented in three parts: the organizational performance of NADOs, the identified performance factors and the analysis of the links between performance factors, and input, output, as well as outcome and impact.

4.1 Organizational Performance of NADOs – Quantitative Results

The following three sections focus on the construction of our own organizational performance index and address the general difficulties and limitations of measuring the performance of NADOs. Finally, implications and suggestions for further developments are discussed.

4.1.1 Organizational Performance Index

Indices are well-known instruments for measuring complex phenomena and are widely used in research. Nevertheless, their conception is always contested and there seems to be no “best” or single “one-size-fits-all” solution. Although the idea of an organizational performance index on NADOs is innovative and new, the overall criticism on indices also holds true with respect to NADOs and the organizational performance index. Accordingly, the instrument needs to be put under close scrutiny.

The organizational performance index broadly consists of five different categories and includes data on: (1) the institutional environment, (2) resources, (3) research and information, (4) control and sanctions, and (5) actual performance (see figure 5). Each of these categories consists of two to seven individual criteria. The data relevant for these different criteria were drawn from the database of the Council of Europe (2010) and from WADA statistics (2014). We focused on using recently published data, however, the Council of Europe has not yet published data for the period from 2012 to 2014, and its website is currently unavailable due to an overall update.

Our index was conceptualized on the basis of ordinal data. Thus, all information provided by the different data sources was organized according to a coded structure. High values reveal positive relations to performance, whereas low values reveal the contrary. Hence, each variable – either a respective text or number – has been transformed (recoded) into this structure. Afterwards, all variables assigned to a specific criterion were aggregated applying the so-called mean-tie-method, whereby the coded values are put into a ranking system. Each case is ranked according to the original coding scheme (high values are ranked highly). If two or more cases have the same original code, they receive the average of their respective ranking positions (e.g., three cases with an identical score of 1 do not receive the ranking positions 1 to 3, but get the average of the positions 1, 2 and 3, resulting in a ranking score of 2). This method is applied to all variables in the index.

After calculating the ranking scores for each case and for each variable, the data had to be aggregated following an equal weighting procedure. If a category consists of four criteria, each of these criteria has a value of one-fourth attributed to it. Deviations from this weighting procedure are possible, but are not applied here. They may be considered

relevant for further research and modifications to the index model (see below). Similar rules were applied to all aggregation of data. Consequently, each of the five categories (see above) has a value of one one-fifth attributed to it. The overall organizational performance index therefore consists of possible scores ranging between 1 and 10¹. Nevertheless, it is highly unlikely that any case would actually receive either the lowest or the highest scores in all categories combined.

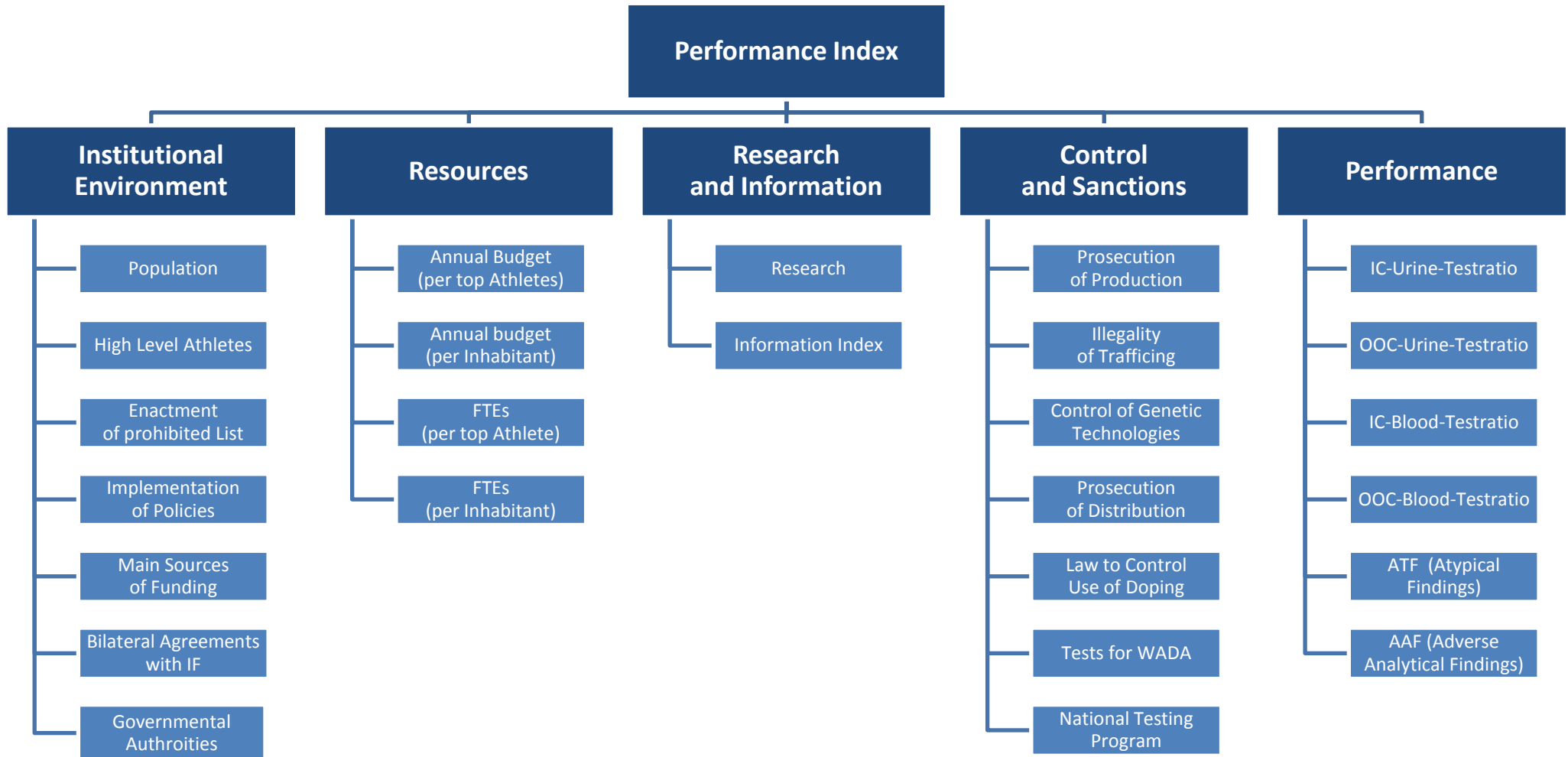
We included the population variable as a factor affecting the institutional environment of each NADO because each respective country's population forms the overall pool of possible athletes and potential subjects to doping tests and prevention. Furthermore, we also incorporated the respective share of top athletes in the overall population. In addition to these variables, we included the enactment and implementation of lists of prohibited substances (so-called prohibited lists) and of anti-doping policies, as well as the main sources of funding, bilateral agreements with international sports associations, and cooperation with governmental authorities. We assume that all these factors affect each NADO's performance positively, except for the variables concerning the overall population, because large athlete pools require increased coordination and testing efforts.

To represent the index category of resources, we assessed the total budget for each NADO (in €m) and show total staff figures (measured as full-time equivalents, abbreviated FTEs). Although staff figures and the respective overall budget correlate highly, both were included here because we assume that this relationship is not as straightforward as it may seem when looking at other organizations. The costs and numbers of testing and prevention measures may vary substantially, and thus may demand large amounts of resources. Hence, we calculated two ratios to get standardized measures. The first relates the annual budget to the number of top athletes and per inhabitant respectively. The second ratio relates the number of FTEs to the number of top athletes and per inhabitant respectively.

The third category of the index – research and information – is composed of a variable measuring whether research on anti-doping issues is conducted in the country and relies on a so-called information index. This index summarizes all existing tools NADOs use to inform athletes and the public interested in sports and anti-doping measures. If any of these instruments (e.g., mailings, newsletters, etc.) existed, they were coded 1, and 0 if they did not. Therefore, higher aggregated scores reveal a wider range of information tools compared to lower scores. Again, high scores in the category reveal high organizational performance.

¹ The range of scores would increase with each new case because the number of possible ranking positions would increase accordingly. However, due to aggregated data and correlations between different variables, a maximum score would never be reached. This makes it difficult to interpret the results. A standardization of the index would help to interpret them. However, standardization (e.g., in a range between 0 and 1) leads to an artificial increase of variances, which was the main reason why we did not apply them.

Figure 5: Organizational Performance Index Data



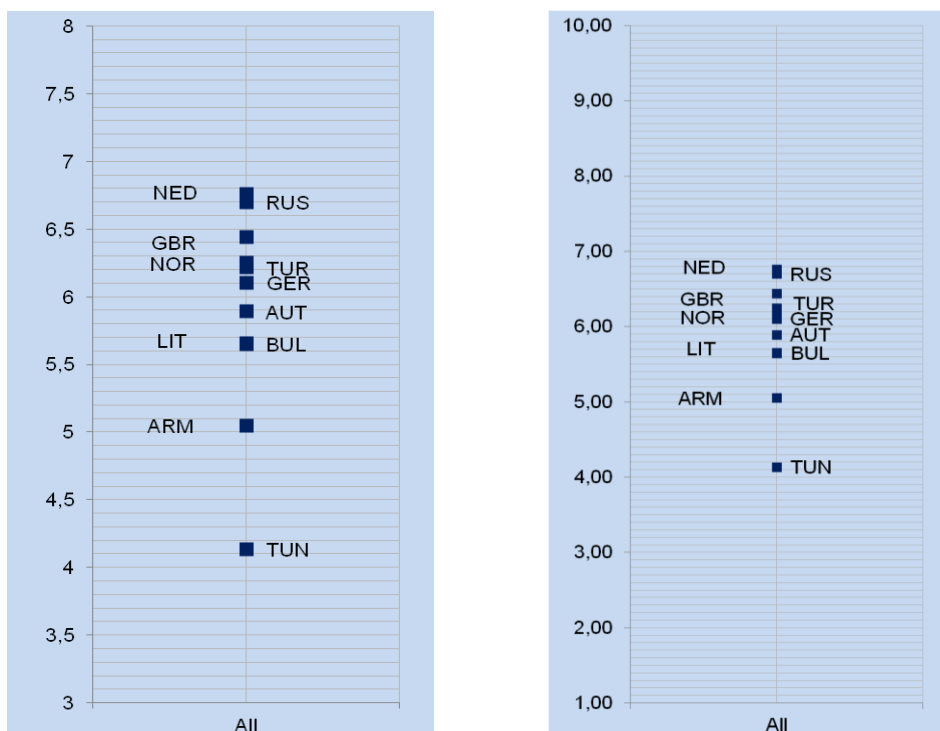
Note: The index uses data provided from WADA and the Council of Europe. However, the database from the Council of Europe is not available any longer and has not been updated during the project. The available sources refer to the year 2010 and ignore recent and important developments after 2010, which is a relevant and contextual restriction.

Sanctions and controls, namely the outputs of NADOs, are the fourth index category. This category includes qualitative information on the prosecution of production and distribution of prohibited drugs, the illegality of trafficking prohibited drugs, the control mechanisms regarding genetic technologies, and the existence of anti-doping laws establishing control mechanisms. Testing frameworks are also relevant, for example if the NADO has conducted tests for WADA, or if national testing programs have been implemented. The higher the countries score on these features, the higher the expected organizational performance.

The fifth category reflects the core statistics of each NADO's output, which is closely related to its respective performance. We calculated different testing ratios measuring the share of in-competition urine and blood tests in relation to the total number of all samples. Although there is an implicit trade-off between urine and blood tests, we assume that high ratios indicate a high organizational performance.

To put the results of the organizational performance index into a broader context, not only did we calculate the index for the countries in our sample, but we also included other cases (see figure 6). We used this approach assuming that the variance between our cases under investigation would be relatively small given the above-mentioned reasons. We assume that if our sample cases are, in fact, among the best performing NADOs, they are presumably close to each other in terms of organizational performance. Therefore, we added countries such as Russia, Turkey, Tunisia, Lithuania, and Armenia, where anti-doping practices are regarded as still developing.

Figure 6: Organizational Performance Index – Aggregated Results



Sources: Data from the Council of Europe (2010) and WADA statistics 2014; authors' own compilation.

Note: The organizational performance index seems to measure formal adaptation. Consequently, the results do not reveal the real performance of NADOs.

The results of the aggregated index are not only very interesting, but also surprising. Indeed, the cases under investigation have similar scores on the overall scale of the index. However, countries like Turkey and Russia also reached high index scores. The results of the Russian case are particularly surprising. Although the data are partly from 2011, our results deviate from all recent in-depth investigations into systematic doping in Russia (McLaren 2016). There is strong evidence, therefore, that our quantitative index does not necessarily measure performance adequately.

Based on this index, our sample cases from The Netherlands (*Dopingautoriteit*), the United Kingdom (*UKAD*), and Norway (*Anti-Doping Norge*) seem to be the best performers. Although Germany and Austria reveal lower scores, they are, in fact, not far behind the other countries (see figure 6, original scale from 1 to 10). The range between Austria with the lowest score, and The Netherlands scoring the highest, is less than one on the scale.

The aggregated results for all the other categories are presented in table 2. They show that there are remarkable differences in the variances of the sub-indices. While the variance of resources and controls are comparably high, the variance of performance (testing ratios) reveals the lowest value. Hence, different resources lead to quite similar testing figures. This is also a very interesting finding because it underlines that the tasks of NADOs are not only related to testing and controls.

Table 2: Organizational Performance Index – Scores by Category

	All	ENV	RES	SCI	CON	PER
RUS	6.70	7.94	6.25	6.50	7.38	5.42
GER	6.10	6.06	7.75	6.50	4.94	5.25
TUR	6.21	5.69	6.50	5.50	6.88	6.50
GBR	6.44	6.13	6.75	6.50	6.81	6.00
NED	6.75	7.69	7.25	6.50	7.25	5.08
TUN	4.13	5.00	3.25	4.25	3.50	4.67
AUT	5.89	6.25	8.25	4.25	4.69	6.00
BUL	5.65	5.38	6.50	5.50	6.19	4.67
NOR	6.25	6.81	7.25	6.50	5.25	5.42
LIT	5.65	4.06	4.25	7.00	6.94	6.00
ARM	5.05	5.00	2.00	7.00	6.19	-

Sources: Data from the Council of Europe (2010) and WADA statistics 2014

Note: The organizational performance index seems to measure formal adaptation. Consequently, the results do not reveal the real performance of NADOs.

The organizational performance index above is the very first step or starting point for the introduction and discussion on performance measurement. However, as previously mentioned, the database is rather questionable and not up-to-date. Furthermore, critical reflection on aggregated instruments is always necessary. Although they have the advantage of reducing complexity, they may also be too reductionist. Additionally, all kinds of indicators

and measurements – particularly rankings – have so-called constitutive effects, which means that they may strongly influence their environment and the behavior of actors.

4.1.2 Difficulties and Limitations of Performance Measurement of NADOs

The organizational performance index developed in the former chapter must necessarily be interpreted cautiously. Although the index enables a ranking of NADOs, the instrument faces several difficulties. The “gold standards” of quantitative methods, namely their validity and reliability, seem to be rather weak for different reasons.

4.1.2.1 Selection and composition of indicators

Criticism of indices normally starts with their construction rules (weighting and aggregating scheme), and the selection and composition of indicators. The process of measuring the performance of NADOs is particularly affected by this point of criticism. Firstly, an index only includes variables that may be translated into numbers. If no measures are available, important information will not be included in the index, for example the measurement of NADOs’ prevention efforts or comparable research on prevalence rate. They are hardly measurable.

As a result, NADOs’ data on activities have been taken as “proxies” for prevention efforts, i.e., the information index (see above). Nevertheless, it is much easier to operationalize and measure the different testing statistics. Consequently, the index is biased in terms of existing data sources. It consists of numbers that are available in the anti-doping field (e.g., test frequency of in-competition and out-of-competition controls with or without announcement in different sport groups, the ratio of positive and negative test results, athlete selection methods, follow-up tests, inadvertent medical doping, (etc.); see for example, Hardy, McNeil, & Capes, 1997, p. 127; Thevis, Geyer, & Schänzer, 2008, p. 283ff.; Bowers, 2009, p. 3). Another problem is that data, in part, are collected for administrative and not for comparative purposes (for an overview of the limited data quality in the anti-doping field, see figure 7).

Secondly, the expert interviews show that different performance indicators in the anti-doping field may be interpreted differently. Even if comparable data exist, their valuation is often worth discussing. The most striking example to show different interpretations is the number of Adverse Analytical Findings (AAFs). On the one hand, a high number of AAFs could possibly indicate a well performing NADO on account of its efficient doping control system. On the other hand, a reduced number of AAFs could also be interpreted as evidence for less doping in sports achieved by effective prevention and deterrence. Both interpretations lead to the key question of a generally accepted understanding of performance (see also below). Thus, performance can be understood as a multidimensional concept where some dimensions seem to be contradictory.

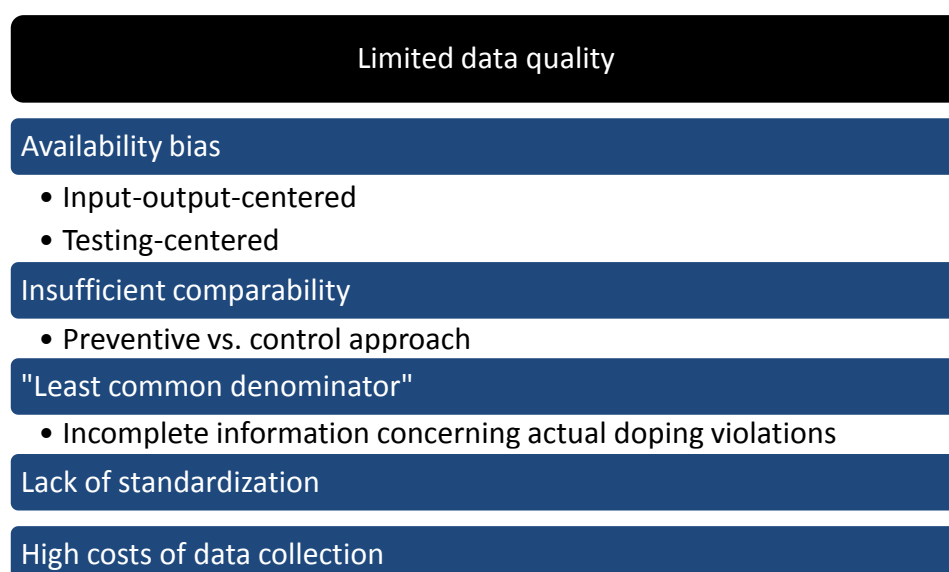
Thirdly, indicators measuring the performance of NADOs are highly susceptible to performance paradoxes. Van Thiel and Leeuw (2002) generally define the performance paradox as a process in which organizations care more about their image and their numbers than about their actual performance. Additionally, there is also a growing body of literature

that contains numerous examples of the adverse effects of performance measurement or rankings (Adcroft & Willis, 2005). In this regard, it is important to note that the paradox is not about performance itself, but about the effects of reporting on performance. Hence, if it were agreed that sanctions are the most relevant performance indicator, NADOs would increase their number of sanctions. Conversely, if prevention efforts were measurable and became a key indicator, they would be intensely promoted just for the sake of being seen as a “good” performer.

Fourthly, most of the selected performance indicators do not take into account the quality of anti-doping measures. If, say, a NADO conducts 3,000 doping controls, but only a certain amount of these meet the international standards because of procedural failures, these measures may not be comparable with other controls complying with international standards. Another example taken from the interviews concerns the quality of education measures. Two hundred tedious flyers may have less effect on an athlete’s attitude to using doping substances than twenty downloads of an appealing anti-doping app (or vice versa). Therefore, the focus on simple quantifiable indicators in general leads to shortcomings of the organizational performance index.

Finally, the criticism concerning the selection and composition of indicators is supported by the fact that there are virtually no systematic outcome or impact measures available for NADOs. Numbers are mainly related to input and output. This implies that the most important aspects of the work of NADOs (the effective reduction of doping in sports) still remain undocumented in terms of measuring them. There is also a remarkable lack of comparability and standardization (Palmer, Taylor & Wingate, 2011). Although comparative databases are available, they do not seem to be comparable (e.g., the data provided by the Council of Europe). This issue is well known in science and practice (Derlien, 1992) and it should raise serious skepticism about measures, such as those in the organizational performance index above.

Figure 7: Limited Data Quality in the Anti-Doping Field



4.1.2.2 Selective Understanding of “Good” Performance

Another issue is that instruments like the aggregated organizational performance index are not sensitive enough when looking at a specific context. They are rather ignorant towards complexity and detailed information. This is the reason why our qualitative interviews provided valuable information, and results that allow for contextual reflection on the measurement tool. One of the main criticisms relating to the organizational performance index is its selective understanding of performance. However, the interviews with the NADOs reveal that there are different understandings of performance (particularly in normative terms, for example what “good” performance means). Even within NADOs different interpretations of performance occur. On the one hand, there seems to be a preventive approach, and a controlling or sanctioning approach on the other. While the former evaluates performance in terms of higher numbers of clean athletes, the latter interprets doping cases as evidence of success and a step forward towards clean sports. Hence, a positive testing result may be a performance indicator for the testing system, but is inversely correlated with the prevention sector for which it would indicate lower performance. Or to put it very bluntly, a success in controlling and sanctioning is a failure in prevention. These kinds of trade-offs are very well known in organizational research, but they can hardly be operationalized in index models, which rather apply a linear and very structured logic.

Under consideration of the alternating strategies within and between NADOs, the selective understanding of performance is not surprising. Although there are some general guidelines and rules (like WADC or national anti-doping laws), NADOs have remarkable degrees of freedom to develop their own anti-doping strategies and testing programs. However, an instrument like the organizational performance index implicitly assumes that they have similar preconditions and follow similar strategies, which is obviously not the case. That is the main reason why these strategies may invalidate the scores of the index. If NADOs have, for example, a stronger preference for prevention programs and do not only restrict them to top athletes but also implement them at amateur levels, this may influence their testing figures through a relative reduction of financial resources. Consequently, decisions between controls and prevention are sometimes seen as zero sum games if we consider the underlying resources. This may lead to a situation where a NADO following a wide prevention approach and targeting amateur athletes will probably be evaluated substantially worse than a NADO that mainly controls top-level athletes. The reasons for this have already been discussed above (e.g., data availability bias, etc.).

Furthermore, the understanding of performance also depends on the definition of what doping means per se. For example, the distinction between intentional and unintentional doping is not necessarily similarly recognized by all NADOs alike. Whereas some NADOs focus on the prevention of non-intentional doping cases at both top and amateur levels, others concentrate on exposing intentional top-level dopers. The expert interviews make clear that the understanding of performance is almost always linked to the respective organizational targets, even though these targets may not always be precisely defined. A NADO focusing on the prevention of unintentional doping, for example by a contaminated meal, evaluates a reduction in the number of these cases as good performance. Similarly, a control-focused NADO perceives a high detection rate of prohibited substances such as EPO

or anabolic steroids as a particular success, and is less concerned with unintentional doping. This dichotomy represents a relevant obstacle for the performance measurement of NADOs, especially because many promising performance indicators like the number of Adverse Analytical Findings (AAF) do not discriminate between non-intentional and intentional doping. An AAF resulting from a careless self-medication is regarded the same as an AAF resulting from gene doping. However, for testing statistics other and more detailed data would also be available. For instance, in the WADA 2014 Anti-Doping Testing Figures Report, the conducted tests per testing authority are presented in different categories, such as GC/C/IRMS tests, ESAs tests, hGH tests, HBT (Transfusion) tests, and HBOCs tests. They could presumably add more information, but this would probably not make a difference to the results given the high aggregation level of the index.

Generally, the measurement of the organizational performance of NADOs is hindered by a selective understanding of performance and implicit trade-offs. As previously mentioned, no objective performance criteria exist. The development of a common understanding of performance combining preventive and sanction measures seems to be difficult, if not impossible. Considering both, different target groups and the differentiation between non-intentional and intentional doping, a consistent interpretation of performance indicators is challenging. In addition, non-comparable and testing-centered databases represent a further obstacle. Again, we have to stress that these problems are not specific to NADOs, but are a feature present in all kinds of public organizations with complex and sometimes contradicting objectives.

4.1.2.3 Difficulties of Measuring the Impact of Anti-Doping Efforts

The input-output-centered character of data, which has been provided by WADA or the NADOs themselves, has already been mentioned above. Many examples exist for this phenomenon, for instance a NADO is able to inform the general public about the number of information meetings regarding prevention measures, which have taken place during a certain year. But the degrees to which these events affect the attitude of athletes can hardly be measured for different reasons (dishonesty of the athletes, high administrative costs, etc.). Another example in the field of doping control illustrates this input-output-centered character: a certain number of analyzed doping samples cannot prove the integrity of all athletes tested. In 2010, the German anti-doping expert Perikles Simon concurred with this theory, and assumed that about 150 doping controls are needed to find an athlete guilty of a doping offence (Simon, 2010).

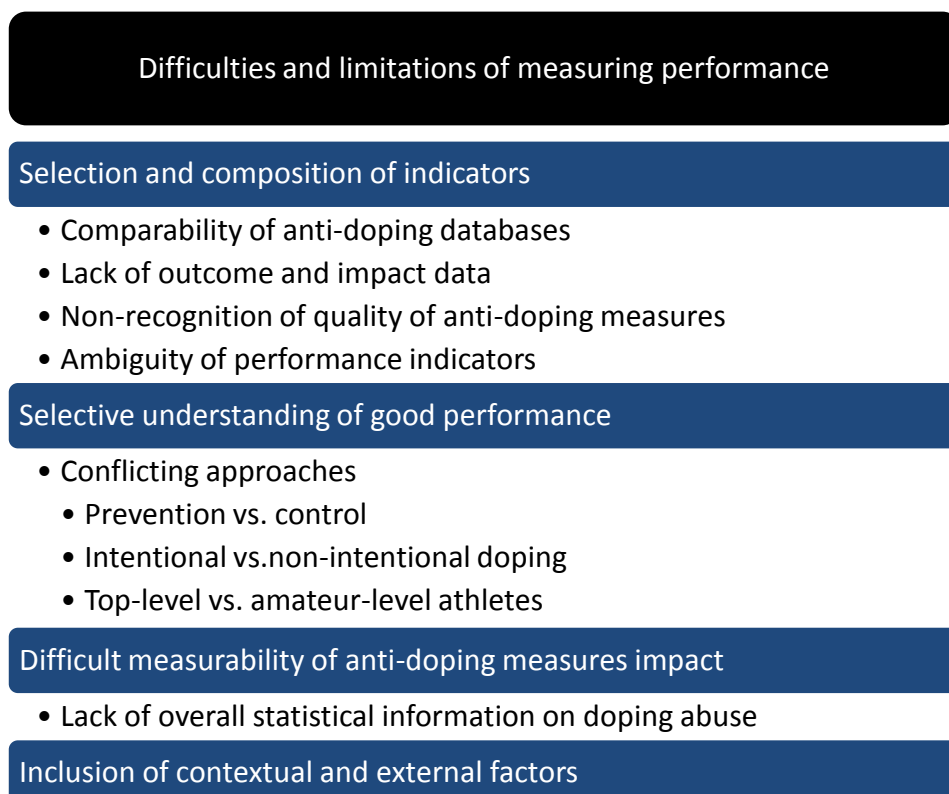
The limited applicability of output data, confirmed by several of the experts we interviewed, is one of the most important reasons not to overestimate the current potential of the organizational performance index we have constructed. Our attempt to measure the impact of anti-doping policies is particularly compounded by the lack of information on actual doping practices. Although some prevalence studies for certain countries and sports exist, NADOs never know the full number of cases in which prohibited substances are used to enhance performance. Prevalence studies exist, for example, concerning how doping problems are perceived by the Swiss population by Gebert, Lamprecht and Stamm (2015), and how doping problems are perceived by NADO experts?. Another survey focuses on this

topic in Australia (Moston, Skinner, & Engelberg, 2012). Other papers examine the opinion and perception of students and athletes, for example (Van Reeth & Lagae, 2012; Stamm, Lamprecht, & Kamber, 2014; Vangrunderbeek & Tolleeneer, 2011; Whitaker, Backhouse, & Long, 2014). Consequently, NADOs have to rely on feedback from athletes and other participants about the effects of anti-doping measures. Therefore, other additional and alternative measures should also be taken into account.

4.1.2.4 Inclusion of Contextual and External Factors

Besides internal factors, external factors and conditions are also relevant. Accordingly, the index incorporates measures regarding the external environment (see above). Nevertheless, their representation is largely undifferentiated. For example, the influence that national sports associations and international sports federations wield in terms of power and support for NADOs varies significantly. This is linked to the fact that they are more concerned about the representation of their athletes and their public appearance per se, a bias that may result in conflicts of interest with NADOs. Therefore, asymmetries between NADOs and organized sports (e.g., information, resources, staff figures, turnover, etc.) are important as well. In one country, sports federations or sport associations may be relevant promoters or “front runners” in the anti-doping movement, while inhibiting processes, refusing campaigns and cooperation, or simply ignoring the efforts of NADOs in other countries (see figure 8). Nearly all NADO experts gave examples of both types of sports associations. However, it is very difficult to integrate their particular role into a relatively technical measuring instrument.

Figure 8: Summary of Difficulties and Limitations in Measuring Performance



4.1.3 Discussion of Performance Measurement and Further Developments

Performance measurements are highly contested. Above all, the use and interpretation of performance measures raises all sorts of difficulties and problems, particularly with regard to the capabilities and external circumstances of public organizations (Rubenstein, Schwartz & Stiefel, 2003, p. 607). Other problems are associated with the administration of larger data sets (often derogatorily referred to as “data graveyards”), varying degrees of importance, and restrictions in terms of the generalization of measuring instruments and their results (Nyhan & Marlowe, 1995, p. 336). Therefore, data collection and evaluation must remain focused on the respective purpose and use of each set of data. In addition, the interpretation of results and the continuous improvement of measurement tools are essential (either quantitative or qualitative).

The most surprising finding drawn from the organizational performance index is that cases such as Russia or Turkey are among the “best performing” NADOs. The Russian case is particularly disturbing in light of the doping scandal and results of the McLaren report in 2016. The report revealed a systematic state-supported system of doping, corruption and fraud (McLaren 2016, p. 90). Processes that were considered to be impossible took place in Russia, and the doping system was even supported, or at least tolerated, by the Russian Anti-Doping Agency, RUSADA (McLaren 2016, p. 1 and 50).

How is it possible that RUSADA ranked second in our organizational performance index? The answer to this question has two very important implications for WADA and the further development of policy transfers and refinement of performance measurement systems. The explanation is that RUSADA meets all the formal criteria that make a “good” NADO, especially the input criteria: relevant legislation is in place, cooperation between state authorities is possible, and sufficient numbers of tests have been conducted. Nevertheless, these are the formal facts. However, they do not say anything about the implementation of rules and regulations, the quality of the testing program, or how tests are executed in each country, etc. Nevertheless, the rather normative and rule-based approach is inherent and measured by the index. If formally adequate rules are in place, cases receive higher scores in the index with no regard to how these rules are implemented. Such problems are well known for example when it comes to curbing corruption. There is no “quick fix”, and solutions are generally based on holistic approaches (Santiso, 2006) that try to build institutional solutions. Again, the feature of 'formal compliance' and lack of implementation is a well-known problem in organizational performance and public sector research.

4.2 Factors of Organizational Performance

While constructing our index we relied on existing, quantitative data when trying to assess factors influencing organizational performance, we created our own data by conducting a number of in-depth interviews with NADO officials and experts (see 3.3 above). All in all, our experts identified many different factors affecting the organizational performance of NADOs. Given the lack of a common understanding of performance in the anti-doping field, the following list does not purport to be complete. Nevertheless, it gives an overview of the relevant performance factors, and is an important starting point for a more detailed analysis. As mentioned previously, we are using Boyne's (2003) systematic approach.

4.2.1 Management as a Factor of NADOs' Performance

Performance-enhancing factors	Performance-affecting factors
<ul style="list-style-type: none"> ● Autonomy from (International) Sports Federations and Public Authorities ● Communication and Cooperation with Athletes ● Communication and Cooperation with Mass Media ● Staff's Affinity for Sports ● Intra-Organizational Communication and Flat Hierarchies ● Research and Reactive Controls ● Organizational Strategies ● Prevention Measures for Different Target Groups ● Doping Control Officers' Communication Skills 	<ul style="list-style-type: none"> ● Whistleblowing and Feedback Measures ● Public Perception of NADOs ● Performance-Based Bonus Payments

4.2.1.1 Autonomy from (International) Sports Federations and Public Authorities

Organizational independence is seen as one of the main factors affecting how well NADOs perform. It is for this reason that in the past leading officials have repeatedly argued for fully independent control institutions. For example, the CEO of the German NADA, Andrea Gotzmann, made a case in January 2016 for making NADOs independent from International Sports Federations (IFs) to avoid conflicts of interest ("NADA für weltweit unabhängige Anti-Doping-Organisation", 2016). In her view, doping control systems should be transferred from IFs to neutral institutions that have sufficient funding.

From an organizational perspective, the autonomy of NADOs when it comes to creating anti-doping policies and managing financial issues may be threatened in two different ways: either directly or indirectly. Direct influence is the interference by one or more institutions on NADOs' daily business through financial or personnel entanglements. An example of how this influence may be diminished was given in the expert interviews. Because UKAD generally pursued its own goals different from those of the government organization UK Sport, it became an independent body in November 2009. Up to this point, UK Sport not only funded the implementation of anti-doping policies, but also supported the majority of athletes financially. The perceived conflict of interest was one of the reasons why UKAD became independent. A public body funding and encouraging athletes to win competitions on the one hand, and simultaneously funding their possible prosecution in cases of doping on the other, posed a challenge in justifying the presumed contradiction between them (INT). Hence, the transformation of UK Anti-Doping into a Non-Departmental Public Body (NDBP) in 2009 shows that the necessity to avoid (the appearance of) potential interference by UK Sport had been recognized by decision makers. Since then, UKAD as a non-departmental public body has been directly accountable to the British Parliament, reporting back to the Department for Culture, Media and Sport. According to our interview partners, while they appreciate support (e.g., funding) from the government, they equally appreciate not being part of the government (i.e., less bureaucracy, more independent decision making, etc.).

The CEO of the US Anti-Doping Agency, Travis Tygart, has expressed concerns about direct influences on NADOs.² In 2014, he denounced the personnel and financial dependency of NADOs. Whereas the USADA supervisory board consists of ten independent members, its German counterpart, for example, includes many representatives from politics and sports federations (e.g., the President of the German Olympic Sports Federation (DOSB) and the Federal Minister of the Interior). Even if the actual influence of these members cannot be assessed at this point, some doubts concerning their specific roles remain unchallenged. However, this criticism reveals another trade-off between representation and autonomy. It is not clear if NADOs have a genuine interest in achieving *de facto* autonomy while threatening important relations in politics, or with athletes or sports federations. Undoubtedly, high levels of autonomy from politics and sports federations are related to NADOs refocusing their activities on the protection of clean sports.

Yet, the autonomy of NADOs can also be affected indirectly. In general, the involvement of (inter)national sports federations or major event organizations may lead to an undesirable generalization of anti-doping measures executed by NADOs. For instance, reports citing lack of success or inappropriate behavior may be associated with the respective NADO. The interests of sports federations may provoke situations that completely undermine the fight against doping (INT).

In this regard, Müller (2017) suggests that doping controls and analyses, results management and anti-doping proceedings must be carried out by organizations fully independent from the sports establishment. In his opinion, national or international sports federations, major event organizers or governments should neither conduct testing, perform analysis, nor decide on eventual sanctions. Recent examples of (inter)national sports organizations avoiding the prosecution of athletes emphasize the relevance of this topic. For instance, the International Olympic Committee was heavily criticized for not suspending all Russian athletes from the Rio Games after substantial state doping had been proven (Bull 2016; Reinsch, 2017). Another case revealed that there was a cover-up of Russian athletes' doping by the International Association of Athletics Federations (IAAF). Although the IAAF has known of large-scale doping in Russia since 2009, the world federation has ignored adverse blood values.³ The success of the fight against anti-doping highly depends on credibility and trust, which may be threatened by the mere suspicion of a scandal, let alone by an actual scandal.

Hence, a lack of autonomy from (international) sports federations and public authorities may affect the performance of NADOs. Firstly, contradictions and inconsistencies may lead to a loss of credibility of all anti-doping efforts impeding the work of NADOs. Secondly, personnel and financial entanglements lead to a limitation as to the NADO's scope of action. This limitation distracts from the protection of clean sports because NADOs may be perceived as organizations merely focusing on sanctions and controls instead.

² Tygart regretted the German NADA's lack of autonomy: "You can't put the fox in charge of watching the henhouse" (Becker, 2014).

³ Leading IAAF officials are suspected to have received bribes of several hundred thousand euros for ignoring blood data from at least six Russian athletes (Seppelt & Rawohl, 2016).

4.2.1.2 Communication and Cooperation with Athletes

Communication and cooperation with athletes is an important task of NADOs for several reasons. Firstly, it is essential that athletes, the main target group, not only accept anti-doping policies, but also understand the reasons behind them (INT). Their willingness to support the respective NADO is an indispensable condition for working effectively and efficiently. An athlete regularly reporting his whereabouts in detail to the Anti-Doping Administration and Management System (ADAMS) of the WADA minimizes administrative costs for investigation, and shows credible commitment to cooperate with anti-doping authorities.

Additionally, athletes' expectations are high regarding NADOs' communication and cooperation with them. On the one hand, they expect NADOs to catch athletes who are taking performance-enhancing drugs, and on the other hand, they expect to receive important information concerning doping-related issues. By answering athletes' inquiries, for example about medication or the dangers of consuming specific kinds of meat in some specific countries, NADOs contribute to the prevention of non-intentional doping (INT). This underlines that NADOs are more than just controlling and sanctioning institutions. They fulfill very important preventive functions as a service provider for athletes and sportspeople. In this regard, possible instruments to protect athletes from intentional and non-intentional doping are particular communication channels, such as service hotlines and medication apps. For instance, NADA Austria provides a medication app ("MedApp") as a service for athletes, coaches and doctors to check if substances are on the prohibited list (NADA Austria, n.d.a).

Our expert interviews reveal that the creation of a common philosophy is a demanding task because athletes perceive an international disparity and inequality within the different anti-doping systems, which may lead to lower compliance and thus undermine anti-doping efforts. Although the doping control system as such is not a matter of concern most of the time, some athletes argue that competitors from less developed states do not have to comply to the same standards as they do (INT). Therefore, NADOs need to promote athletes' understanding of the anti-doping movement. For example, popular top athletes promoting the fight against doping are important to educate young talents on the one hand, and to emphasize compliance with the WADAC on the other.

Thus, in the interviews, regular interaction and cooperation with athletes were considered appropriate instruments of communication:

"Communication with athletes is a very important factor – the Anglo-Saxons and Scandinavians are great role models in this field. We are not prepared for it at the moment, especially when it comes down to our personnel. But I think that for prevention, the communication with athletes, is extremely important." (INT)

However, if NADOs initiate communication with athletes, some characteristics have been described as essential for it to be effective:

- (1) Communication has to be target-group specific. For example, young athletes need to be attracted by language, illustrations or media they can relate to, whereas communication with teachers or coaches who have worked in sports for a long time needs to take place at a different level (INT).

(2) The style of communication affects its respective impact. One representative distinguished between a sensationalist style attempting to entertain athletes, and a more factual style based on giving facts and information (INT).

(3) The structures of communication and cooperation also seem to be relevant. For instance, recruiting an 'Athletes Manager' is one way of institutionalizing communication and cooperation with athletes on a regular basis (INT).

Additionally, all communication acts as a tool of information exchange to smooth information asymmetries. From an organizational point of view, communication with athletes facilitates sharing expertise and insights into recent developments and issues. For example, DCOs have to know about reservations expressed by athletes in earlier tests and how to handle them during doping controls. Communicating with and learning from (former) sportspeople is very helpful. In this context, regular meetings with members of athlete committees and players' or athlete unions, for example, are regarded as a promising measure for effective communication (see also chapter 4.2.3.3):

"I meet the professional athletes' union [anonymized; author's note] twice a year, I meet the athlete committee four times a year, I meet the players' union twice a year, not counting all kinds of in-between meetings you may have. But this is the structural basis. And then again, as we always do, we talk about all issues, developments, wishes, and we try to answer their needs in many ways." (INT)

All in all, good communication with athletes affects a NADO's performance positively for different reasons. It is a very promising way to create a common philosophy, and simultaneously reduce administrative costs while reducing information asymmetries.

4.2.1.3 Communication and Cooperation with Mass Media

All NADOs in our sample communicate with and via mass media in many different respects. Journalists and the media are very important, which may be emphasized by the following quote:

"It's very easy to measure a number of things. For instance, when I got this job, in the first full year, I had about 200 meetings with journalists. In the whole year. Now it's 500. Is that good? Well, there have been more doping cases or a bigger hype about doping cases or... I don't know." (INT)

The most important reason for cooperating with journalists is that they spread information to a wide audience. Additionally, it is important to educate journalists and make them understand what is going on in the field of anti-doping.

"[And that's also...] one of the reasons why we invest so much time into journalists is that we think it is important to explain to them which things we can actually change or which measures are part of international policies. [...] That's why we invest so much time into journalists. We use them as [an] extra educating measures to reach the general public." (INT)

Warnings about nutritional supplements or reports about current prevention activities are good examples of the kind of information disseminated by journalists on behalf of NADOs (INT). Again, mass media is a preferred distribution channel to reach a wide public audience.

As mentioned above, NADOs also cooperate with journalists to educate them. It is of utmost importance that journalists acquire knowledge about global and national anti-doping policies (INT). Therefore, most of the NADOs in our sample organize seminars and meetings for journalists. The more educated the journalists are, the more likely they are able to write well-informed reports about the anti-doping system. Most of the problems with journalists occur because they start reporting before knowing all the facts. Furthermore, journalists tend to write sensationalist headlines prone to misunderstandings.

In conclusion, structured communication and cooperation with mass media – and journalists in particular – improves a NADO's performance. Communication via these media outlets is a very effective way to inform the public about current developments in the anti-doping field and about the NADO's own activities. Moreover, informing journalists about anti-doping policies may lead to more factual and knowledge-based reporting.

4.2.1.4 Staff's Affinity for Sports

Staff showing an affinity for sports may be described as a factor enhancing NADOs' performance. In this context, the interviewees had similar opinions regarding the staff's interest in sports. It has a positive influence on their daily work because it is usually linked to high intrinsic motivation. Phrases like "enthusiasm for the importance of the anti-doping fight" (INT) or "Doping Controls Officers must be interested in sports" (INT) underline the relevance of the staff's affinity for sports. From a psychological perspective, the employees' affinity for sports may also have positive effects on their productivity, although it is well known that there are also other forms of motivation connected to high productivity (Ryan & Deci, 2000, p. 56).

NADOs employees who share an interest in sports are a beneficial precondition for reducing the effects of other externalities. In this context, we can assume that having a high affinity for sports leads to a high level of basic motivation. Employees interested in sports are more likely to engage in the fight against doping than those with no background in sports (e.g., in terms of professionalization and further qualification).

Another view expressed in the interviews is that being interested in sports should be a functional requirement. Such interest is needed as a professional backup in order to understand technical vocabulary or to meet qualification requirements:

"Yes, if we are looking for new employees hiring a person showing a certain affinity for sports is of advantage. Even as an accountant you use technical phrases concerning sports and if you don't understand basic terms it is unbelievably tedious. [...] You cannot be tucked away in your quiet corner and do bookkeeping because every single invoice is related to sports." (INT)

Accordingly, a staff's affinity for sports is an important factor enhancing the organizational performance of NADOs. People who come from the sports sector or have a keen interest in sports share an increased intrinsic motivation. However, there are also functional reasons, such as being familiar with the technical vocabulary and qualification requirements for employing people who show an affinity for sports in NADOs.

4.2.1.5 Intra-Organizational Communication and Flat Hierarchies

Comprehensive intra-organizational communication has also been mentioned as a performance-enhancing factor in most of the interviews. In light of the relatively small size of NADOs, communication forums, such as weekly meetings of heads of departments or weekly reports from different departments, are essential for the coordination of activities (INT). Furthermore, NADOs are rather small organizations and use flat organizational structures, which simplify communication and coordination:

“I think we have efficient communication procedures and we are also avoiding additional administrative expenses. We are too small for that. If I want to know something from the prevention department I go over there and ask them about it.” (INT)

Hence, the small size of NADOs facilitates direct communication. Another interview partner also pointed out that one-on-one communication is possible and valued in his organization, especially when coordinating in-competition and out-of-competition testing (INT). Moreover, a flat organizational structure allows for direct internal feedback from employees. This feedback is important for organizational and strategic development (INT):

“Internal and external feedback is an important indicator of success for us. Questions like ‘What works best?’ or ‘Where do we have to intervene?’ help to rethink our strategic focus and current activities. [...] There is a regular internal exchange, also with our heads of departments. There are nearly no measurable hard factors [as indicators of success; Editor’s note].” (INT)

Overall, intra-organizational communication fulfills different functions, including strategic functions and the exchange of information. As NADOs are small organizations, they often deliberately practice and facilitate direct and regular communication. Communication forums, such as weekly meetings of heads of departments or appraisal interviews, may reduce externalities. Informal contacts also help to reduce transaction costs relating to issues with high coordination needs, for example, by anticipating risks and reducing information asymmetries.

4.2.1.6 Research and Reactive Controls

NADOs are in a permanent arms race with athletes taking performance-enhancing drugs. Hence, they have to develop new or improved methods of testing and analysis with their partner laboratories as quickly as possible (INT). Generally, intentional dopers are said to have access to increasingly sophisticated technology, and they consume new substances that are hardly detectable. In this context, our interview partners emphasized that they are mostly reacting to new developments. Regarding this problem, Müller (2017) recommends developing and implementing methods to detect new substances as quickly as possible, as well as a continuous improvement process for established techniques. He attests that each new or optimized analytical method, and each extended detection period, interferes with doping practices, and potentially forces cheating athletes to make mistakes. However, at the present time, there are few opportunities for proactive action when it comes down to testing samples.

According to a NADO official, this cat-and-mouse game is primarily characterized by WADA and laboratories responding to doping allegations 90 percent of the time (INT). In this context, it is important to take into account that NADOs' performance also depends on flexible and innovative laboratories. NADOs have several different options to support their efforts, the most important of which is to encourage the research and the development of new techniques designed to detect forbidden substances:

"We only have a fighting chance if laboratories get more time to detect substances which are 'non-detectable' today. We are talking about three, four, five months, half a year here." (INT)

This is a way in which NADOs are able to support the work of their partner laboratories, especially if both are committed to a regular exchange of information. Furthermore, NADOs have several strategic options. They can also freeze doping samples for testing later (INT). This procedure has an implicit deterrent effect. Although Gerlinger, Petermann, and Sauter (2009) provide no evidence for this assumption, athletes may be scared away from using illegal drugs because reactive controls can expose their doping long after the fact.

"That [reactive controls; editor's note] must be done more systematically all over the globe, even if freezing is quite expensive. So, first of all, you have to provide the logistics and build freezing capacities for 30,000 samples added every year. [...] Nevertheless, I think that these immense efforts are worth it." (INT)

In more general terms, Simon (2010) recommends putting more money into research to refine promising analytical methods instead of wasting money on conventional testing. According to him, in 2010 less than two percent of the total financial resources for the global fight against doping were spent on research activities. Therefore, increasing the budget for research may well lead to more efficient analysis procedures.

However, we were unable to observe any direct causal links between the research budget of a NADO and its performance (because of, inter alia, lack of comparable data on research expenses). More extensive research for improved methods of analysis and reactive controls may enhance the performance of NADOs. In particular, the reactive analysis of doping samples would enable both better protection of wrongly accused athletes and prosecution of doping cases involving the use of substances that are not yet detectable.

4.2.1.7 Organizational Strategies

According to Andrews, Boyne, Meier, O'Toole and Walker (2005), the strategic stance of an organization is a significant aspect of its management. It is defined as the general manner an organization seeks to maintain or improve its performance (see also Boyne and Walker 2004). However, strategic management is a rather new phenomenon in the public sector (Llewellyn & Tappin, 2003) and takes many different forms.

The NADOs selected for this study reveal significant differences in terms of strategy and strategic thinking. Whereas some NADOs take a strategic planning approach, others work without written strategies. Those that work with strategic plans primarily develop them (1) to set priorities for their future work, and (2) to monitor anti-doping measures. For example,

UKADs' strategic plan for 2014-2017 includes precise strategic objectives, which are at the same time used as a backup for personal targets (see figure 9).

One of our interview partners described the relevance of organizational strategies as follows:

"We have our strategic plan and we set objectives we want to reach. It is based on the activities we want to do and whatever we want to achieve and we try to be as specific as possible on these objectives to see if we can reach them. And we use a measurement tool to see if we reach each one of the goals. To identify them, of course, we use internal audits quite a lot." (INT)

Therefore, although organizational strategies should not be overestimated, they are nevertheless important for clarifying objectives and formulating a plan to reach them. However, further research needs to be done regarding their effects on NADOs' daily work activities and on how these objectives may help improve NADOs' performance.

Figure 9: Example of a Strategic Objective (UKAD Strategic Plan 2014-2017)

Partnerships

Strategic Objective 1: To support and drive compliance with the National Anti-Doping Policy in the UK

- Key Deliverables 2014 until 31 March 2017
- Advise Government regarding National Anti-Doping Policy; finalisation of the 2015 WADC
- Implement the 2015 WADC and International Standards across the UK
- Actively assist WADA in developing a qualitative mechanism to measure Code compliance
- Support different actors to comply with the National Anti-Doping Policy

Source: UKAD Strategic Plan 2014-2017

4.2.1.8 Prevention Measures for Different Target Groups

We know from the expert interviews that NADOs should not ignore target groups other than athletes when concentrating on doping prevention. Of course, athletes are and remain the main target group of preventive measures. However, it is also important to address the people they trust:

"In general, all people athletes are surrounded with are our target group. Coaches, of course, and advisors or physiotherapists, who are, however, more difficult to reach out to. Parents are another issue. [...] The more people surrounding the athlete we get involved in anti-doping work, the better it is. It is only then that youngsters realize that the aversion towards doping is shared by all the people they rely on." (INT)

Coaches play a crucial role among all the different target groups. This is because many athletes have a very close relationship with their coach, whose perspectives on anti-doping may strongly influence an athlete's decision whether to be for or against doping. This is the main reason why NADOs should train coaches especially well. They have to realize that if their athlete is caught doping, they are done for (INT). Our expert interviewees named

unscrupulous coaches not taking care of athletes' health as one of the biggest problems in sports. To access and defeat these circles is one of the biggest challenges facing NADOs. Since many athletes would never betray their coach, NADOs have to rely on creative methods to get firsthand information.

A possible way to guarantee comprehensive awareness regarding anti-doping and reaching out to different target groups seems to be through standardized training at university level or in the education sector. An interview partner endorsed this type of program because of the necessity to be familiar with the basic facts about doping. Every teacher, coach, physiotherapist or doctor ought to have at least one compulsory lesson regarding anti-doping at the beginning of his or her studies or training program (INT). NADOs could take over responsibility by giving these lectures or ensuring their correct implementation.

4.2.1.9 Doping Control Officers' Communication Skills

The communication skills of employees determine the performance of NADOs because of the emotions involved in doping controls. Athletes have to submit to a test straight after winning competitions as well as after losing them. In general, the quality of doping controls is assumed to be much higher if Doping Control Officers (DCOs) meet the following requirements: (1) have a natural authority and empathy, (2) have the ability to explain procedures in a detailed manner, and (3) be able to work under pressure.

DCOs have to be resolute without ignoring the current mood of each athlete. Therefore, a high level of natural authority and empathy is required:

"In general, they [...] have to be able to explain things and the athlete needs to listen to them. They have to have some sort of authority." (INT)

Moreover, DCOs must be able to explain and act in compliance with highly formalized doping control regulations (in all kinds of situations and under pressure). Therefore, NADOs employing their own DCOs should list good communication skills as a fundamental job requirement when hiring new staff. A possible way to assess these skills is to test and supervise them in a simulation of a doping control operation with real athletes or similar scenarios. Testing these communication skills is important because communication style comes down to personality type rather than training or professional background (INT).

4.2.1.10 Whistleblowing and Feedback Measures

In light of recent doping cases detected as a result of anonymous tip-offs, whistleblowing can be seen as an inevitable part of NADOs' efforts. As an additional source of information besides regular doping controls, tip-offs from athletes or other whistleblowers are an important element in uncovering doping cases. The extensive reports by Julia Stepanowa and Mark Bonar in 2016, and Andrej Dimitriev in 2017 (Bloom, 2016; Simeoni, 2016), are recent examples of this important practice. In all these cases, (anonymous) informants provided information about illegal proceedings. NADOs recognize the value of tips-offs and insight of individuals to pass on sensitive information:

“Yes, we do have this, let’s say, hotline where a phone call comes in eventually and athletes are stating ‘well, at this and this event they are always going very fast...’, for instance. And having access to this information, anonymous or non-anonymous information, we always act upon it. We cannot tell you what we are going to do or if we are going to do something, but generally speaking, if it’s in our organization, we are always going to do something with it and we are not only checking the one that’s accused.” (INT)

All interview partners agreed that NADOs ought to increase their efforts to get more anonymous tip-offs regarding possible doping cases. For example, the German NADA operates an online communication portal called ‘Speak Up’ to encourage athletes or other individuals to provide information about possible doping offenses. The online portal allows every athlete to make an active contribution to the identification of anti-doping rule violations or criminal behavior (NADA 2017a).

The other NADOs in our sample also have anonymous communication platforms or are at least planning to establish such measures. To enhance participation, the platforms promise anonymity and the confidential handling of data because whistleblowing exposes athletes to certain risks. Therefore, it is essential for NADOs to ensure confidentiality. Former cases, such as that of Russian field athlete Andrej Dimitriew, show that whistleblowing may have serious consequences (“Whistleblower flieht aus Russland”, 2017).

Nevertheless, measures facilitating whistleblowing, such as doping hotlines or online platforms, are useful additions to conventional doping control measures. The recommendations of Simon (2010) and the experts interviewed in this study stress that intelligence is a relevant issue for NADOs.⁴ For instance, the success rates of targeted testing also depend on the quality of the confidential information leading to the respective doping controls (INT).

Yet, NADOs always have to be very careful when dealing with information provided by anonymous informants. An interview partner explained the necessity of being aware of the problem of manipulative calls or tip-offs:

“They [the informants; editor’s note] can actually phone an anonymous line to say ‘I suspect this person is doping.’ But obviously, if they just leave this message and we’ve got no other information to support this accusation, we can’t really simply act on it. It may be a manipulative call from a competitor. We must bear this in mind. That’s what the intel does. They cross-reference the data we get to make sure that the quality of the intel is reliable.” (INT)

Due to the risk of false allegations, reporting measures such as an anonymous hotline can only enhance a NADO’s performance if the NADO has sufficient resources to crosscheck and properly evaluate doping accusations. However, the unjustified banning of athletes based on (non-) anonymous tip-offs conflicts with the main goal of NADOs, which is to protect clean sports.

⁴ Simon (2010) points out that the detection of one doping case cost US dollars 300,000 in 2010. This means that an athlete who is using performance-enhancing drugs has to be tested 150 times on average before he or she gets detected. Hence, the author recommends cutting expenses for conventional analyses to 30-40 percent of the current budget and spending the excess money on prevention and other intervention measures.

4.2.1.11 Public Perception of NADOs

NADOs’ efforts to convey a positive self-image to the general public show that acceptance is an important part of their work (INT). However, acceptance cannot be won easily. First of all, the widespread assumption that Adverse Analytical Findings (AAFs) are the most important proof of a NADO’s performance impedes efforts of building mutually trusting relationships (INT). In its 2014 Anti-Doping Testing Figures Report, WADA states a marginal one percent average AAFs quota for all NADOs.⁵ From this point of view, most of the NADOs would seem to be performing poorly and inefficiently. As a consequence, they need to emphasize that they are more than just supervisory authorities focusing solely on detecting doping violations. NADOs are well advised to promote successes in every field of their activities to improve their public perception.

On a more abstract level, Hanstad and Loland (2005) presume that there have been significant developments in the field of anti-doping measures being communicated to the public since doping controls were first carried out in the 1960s (see table 3). Whereas in the 1960s and 1970s anti-doping policies solely focused on detection and deterrence, modern anti-doping techniques also encompass preventive measures. Although tentatively, we may therefore observe a principle shift towards a broadened focus on the prevention of doping with banned substances.

According to the authors, their expert interviews with anti-doping officials showed that current views regarding the significance of each of the three goals – detection, deterrence and prevention – vary from country to country. Some interview partners emphasized that when carrying out anti-doping work and doping controls their priority is detecting athletes who cheat, while others mainly focus on the question of how to prevent and deter doping.

Table 3: Reasons for Anti-Doping Work from the 1960s up until Today.

	Detect	Deter	Prevent
1. Anti-doping work in the 1960s	(X)		
2. Anti-doping work in the 1970s	X	(X)	
3. Anti-doping work in the 1980s	X	X	
4. Anti-doping work in the 1990s	X	X	(X)
5. Anti-doping work in the 2000s	X	X	X
6. Objectives for anti-doping work in the future	(X)	(X)	X

Source: Hanstad and Loland (2005)

However, NADOs face difficulties in changing their public perception, especially after having spent many years focusing on detecting doping cases. One of our interview partners stated that it would definitely take time for internal and external change if a NADO has been perceived as a doping detection organization for many years (INT). Hence, the organization has to invest a huge amount of time and effort to achieve this change in the medium to long

⁵ The quota refers to all doping samples analyzed by WADA-accredited laboratories on behalf of NADOs.

run. A positive public image as an institution protecting clean sports thereby has several advantages:

“And I think, as I noticed myself, if people do not know any person working at a NADO [anonymized; authors’ note] or do not know who works there and just imagine a NADO [anonymized; authors’ note] as a faceless institution, they perceive us differently. Every time an athlete calls me, I notice this. It is a bit like if they called some public authority: At first, they seem to be totally distraught, scared and after a while they realize: Okay, they want to help me, they want to fight doping together and it clicks and the whole thing works even better then.” (INT)

A positive public image may lead to increased trust in all anti-doping work besides increasing athletes’ willingness to contact the NADO responsible for them.

4.2.1.12 Performance-Based Bonus Payments

Although salaries are related to employees’ performance in only two of the selected NADOs, bonus payment systems may enhance productivity under certain circumstances. In one case we studied, there are no bonus payments at the end of each year, but annual performance marginally influences the next year’s salary. In another NADO, performance-based bonuses are highly institutionalized:

“The fact that people in this sector don’t actually get paid a lot of money. [...] Each year, it’s the one thing people go for: ‘That’s what I’m working towards.’ Even though it isn’t a [...] a lot, it’s still worth it in their minds.” (INT)

The bonus threshold is limited to a share of a frozen salary and will be paid in some NADOs if both business goals and personal objectives are achieved. If bonuses will be paid, a sub-committee of the board and heads of departments determine whether objectives have been met or not. This procedure is important to avoid expectations of receiving unjustified or excessive top-level bonuses, especially when each employee’s achievements can be evaluated and rewarded on an individual basis. In general, performance-based payments are not institutionalized and it is not clear, how they influence individual performance in NADOs.

4.2.2 Market Structures as a Factor of a NADO’s Performance

Performance-enhancing factors	Performance-affecting factors
<ul style="list-style-type: none"> • Cooperation with Other NADOs 	<ul style="list-style-type: none"> • International Sports Federations’ Influence and Willingness to Cooperate • National Sports Federations’ Influence and Willingness to Cooperate

4.2.2.1 Cooperation with Other NADOs

According to the interviewees, cooperation between NADOs may enhance the performance of all partners mostly benefiting from transfers of knowledge and personnel. Independent of other objectives, cooperation between NADOs always aims at improving anti-doping policies

by exchanging knowledge and experiences. NADOs generally profit from knowledge transfers for several different reasons. For example, nearly all NADOs face similar problems and pursue the same targets. In this regard, exchanging ideas and approaches do not guarantee clean sports, but they are a promising attempt to solve common problems:

“Listening to insiders is important to us. And the exchange with other NADOs is important, too. [...] How do they do things? What are the current developments? We benefit a lot from the exchange with other NADOs. For instance, a representative of the Australian NADO will visit us next week. This is another great opportunity to ask important questions, like ‘What are the similarities? Where would cooperation make sense? How can we all improve the anti-doping system?’ We all share a similar approach, I think. And no one has reinvented the wheel.” (INT)

Almost all selected NADOs cooperate with at least one other NADO. Examples of cooperation include the collaboration between the German-speaking NADOs from Austria, Germany and Switzerland (“DACH”), and the bilateral cooperation between Anti-Doping Norway and the China Anti-Doping Agency. Whereas the former represents cooperation at eye-level, the latter describes a developing cooperation between the two organizations. The cooperation between the DACH members includes all levels of anti-doping work, but especially doping controls, doping prevention, research and legal affairs. Individual organizations exchange information and share experiences at regular meetings, workshops and in other communication channels. Moreover, they coordinate common activities (Deutscher Bundestag, 2013). However, the cooperation between the Norwegian and Chinese NADO takes a different form. Hanstad and Loland (2005) argue that Anti-Doping Norway assists China’s compliance with global anti-doping rules and norms for a particular reason: they share the belief that the international anti-doping network is unable to fulfill its mission unless effective national anti-doping agencies and programs are in place all around the world. A further example of a developing cooperation is the 2016 agreement between RUSADA, WADA and UKAD. WADA engaged the latter with the main aim of providing a targeted and intelligence-led testing program for Russian athletes across a number of Olympic, Paralympic and professional sports during RUSADA’s period of non-compliance with the World Anti-Doping Code.

4.2.2.2 International Sports Federations’ Influence and Willingness to Cooperate

International Sports Federations (IFs) and their national counterparts may influence the organizational performance of NADOs. The insufficient coordination of doping controls is one example of this. Caused by a lack of trust, IFs are often unwilling to share their testing schedules via ADAMS. According to the interviewees, differing interests impede the building of mutual trust. Whereas NADOs are interested in protecting their athletes at an international level, IFs fear information leaks leading to controls athletes knew were coming (INT). Low coordination levels increase the risk for NADOs to choose an athlete to be controlled by them who was already tested a day or two earlier by an IF (INT):

“First of all, they [the controls; editor’s note] are planned but only we know this; test results are collected and the laboratory adds its analysis anonymously assigning a number to the related result. It would be very interesting for us not only to register the tests after the fact but preferably we would like to know in advance which tests are

planned, for example Mr. XY is being tested by the International Ski Federation FIS soon, so that we are not using our resources for redundant testing.” (INT)

Inaccurate estimates about Anti-Doping Rule Violations (ADRV) are a result of IFs being unwilling to cooperate. NADOs depend on exact data about ADRVs in certain sports to determine their testing pools. An interview partner explained that only a few IFs list their ADRV on their website publicly (INT). In his view, a publication and exchange of current data and information would be very helpful for NADOs:

“We said that we cannot assess whether motor cyclists, at least a number of them, should be in our testing pool. So let the international federation ask what kind of anti-doping rule violations they had, or basically say they had cocaine, ecstasy and cannabis, which are only prohibited in in-competition situations. They are not in our testing pool. But that was specifically an initiative we took towards the international federation. And of course, it would be much, much better if you could analyze the exact nature of the anti-doping rule violations for each sport.” (INT)

These two examples show that a closer cooperation with IFs may enhance the performance of NADOs. Apart from these findings, NADO officials stated that the support of IFs is essential in the global fight against doping. However, the trade-offs between commercial interests and doping-free sports are one of the main problems IFs face, which may be illustrated by the following interview passage:

“I always use tennis as a prime example. I have a tennis player filling a stadium with 100,000 spectators in it. He would probably also fill a stadium with 150,000 spectators in it. I sell the broadcasting rights, I introduce him to the market, and so on. International Federations are against doping, but they are always wearing two hats. Their athletes earn all the money. Why would IFs be interested in exposing their superstars of doping violations? This is the case in tennis, for instance. They have a Federer. They have a Djokovic. They have a Nadal. The International Tennis Federation has no reason to bring them down whatsoever.” (INT)

Another interviewee conceded that IFs could be reluctant to show exactly what is going on in their respective field of sports (INT). Their commercial interests, as well as their interest in keeping up the appearances of clean sports, impair the fight against doping to a great extent. This is in line with Müller’s (2017) argument that doping controls and results management, analysis and anti-doping proceedings must be carried out by organizations fully independent from the sports business. In his view, the obvious incompatibility of promoting sports in a multibillion-dollar business on the one hand, and testing athletes on the other, must come to an end.

The involvement of the IFs reflects on the organizational performance of NADOs in two particular ways. IFs are important promoters of anti-doping efforts, however, at the same time they hinder important developments in the field of anti-doping efforts in sports.

4.2.2.3 National Sports Federations’ Influence and Willingness to Cooperate

National Sports Federations (NSFs) play an important role for the work of NADOs and there are several reasons for this. Before the establishment of NADOs, NSFs were the main organizations promoting the fight against doping in many countries. Hence, their respective

power lies in their approval or refusal for transferring anti-doping responsibilities. Their influence is merely based on two factors: (1) the political and societal importance of NSF, and (2) NSFs’ interests in anti-doping policies.

In this context, one interview partner held the view that the growing importance of the NADO within the national anti-doping system has been facilitated by relatively weak NSFs. For instance, the influence that an NSF has is related to the popularity of the sports or the success of the federation’s athletes. The NSF’s interest to engage in the fight against doping is another factor to be mentioned here. According to an interviewee, a lack of interest on the part of NSFs may even facilitate the transfer of anti-doping responsibilities to NADOs (INT).

NADOs, located in countries with powerful federations that to some extent tolerate doping practices, may generally face considerable difficulties in establishing anti-doping policies:

“It was relatively easy for us to do the things we did and to implement new things. No long discussions or persuasions were necessary, in contrast to country XXX for example. ADAMS is such a good example. I know it has been – and still is - a major issue in country XXX including discussions with a lot of people. For us, it was just like, ‘Okay, there is ADAMS now’, just like this! [...] This is no topic to discuss, but it is rather simple and you can debate about the implementation, but not about the thing itself.” (INT)

Another interviewee described how an NSF had first to be persuaded to transfer in-competition controls to his NADO (INT). In general, we observed that a NADO’s scope of action is broader, the weaker or less organized (e.g., heterogeneity) the NSFs are. Possible ways of regulating NSFs include linking the allocation of funds to efficiency as well as threatening to end all cooperation. The former creates financial pressure, especially when NSFs are largely funded by state authorities or sports promotion.

“And what we actually do is, we say, ‘Ok, if you really don’t want to cooperate, you don’t want to get things done the way they should be done, if you don’t want to carry out disciplinary proceedings the way they should be carried out, we will do the worst we can do to you, we stop working for you.’ And, stopping working for them means that they are out of business in the international context. They will not be able to organize world championships. In the end, they would not be able to send anyone to any international championship at all because the international federations, they are always taking sides with the anti-doping organization and never with the national federation.” (INT)

Both measures secure NADOs’ autonomy, which interviewees considered to be an important factor for ensuring that NADOs perform well. Overall, it is necessary to analyze the influence and willingness of the NSFs to cooperate with NADOs when looking at NADOs’ performance.

4.2.3 Organizational Structure as a Factor of NADO’s Performance

Performance-enhancing factors	Performance-affecting factors
<ul style="list-style-type: none"> ● (Independent) Consultative Bodies ● Athlete Committees 	<ul style="list-style-type: none"> ● Organization of the Doping Control System ● National Laboratories

4.2.3.1 (Independent) Consultative Bodies

The organizational structures of all selected NADOs encompass consultative bodies, such as commissions or committees (see table 4). These bodies usually fulfill consultative tasks without having any decision-making powers. For instance, the selection committee of the Austrian NADA gives advice on doping control plans, but is not authorized to determine the test frequency of individual athletes, or order doping controls (INT).

Table 4: Overview on Consultative Bodies of Selected NADOs

NADA Austria (Commissions)

- Ethics
- Selection
- Medicine
- Veterinary medicine

NADA Germany (Commissions)

- Legal Matters
- Testing
- Medicine (Therapeutic Use Exemptions, abbreviated TUE)
- Prevention

Dopingautoriteit (Commissions/Committees)

- GDS-Commission
- Commissie Naleving Dopingsancties (CND)
- Therapeutic Use Exemption (TUE) - Committee

Anti-Doping Norge (Committees)

- Whereabouts and Appeal
- Medical and Appeal (TUE)
- Prosecution

UK Anti-Doping (Committee)

- Athlete committee
- Risk and audit committee

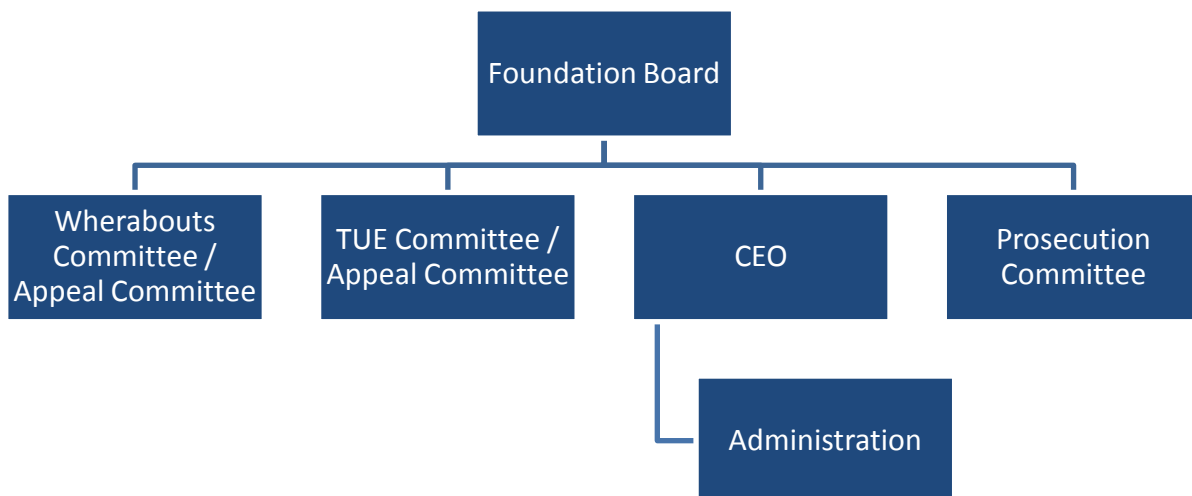
According to the interviewees, expert commissions and committees nevertheless play an important role. The consultative bodies, for example, provide an important function, such as the medicine (TUE) commission:

“It’s important for us to discuss different issues with external professionals. They are people with vast experience in sports and in anti-doping work. [...] However, one must say that we have much more knowledge because we are dealing with anti-doping policies every day. Nevertheless, they [the commission members; editor’s note] are important driving forces, especially in the medical field. There are [anonymized; authors’ note] doctors who are organized in two groups responsible for the Therapeutic Use Exemptions.” (INT)

As stated previously, the recommendations of consultative bodies are generally non-binding. However, in some countries like Norway, committees have the authority to make their own

decisions (see figure 10 for the organizational structure of Anti-Doping Norway). For example, both the Whereabouts Committee and Appeal Committee advising Anti-Doping Norway are comprised of top-level athletes or former top-level athletes, and members competent in legal matters. Both committees are independent and have the authority to make decisions, such as filing failures or declaring a missed test. The athlete given a filing failure or a declared missed test from the Whereabouts Committee is entitled to file a complaint that will be handled by the Appeal Committee (Anti-Doping Norway, n.d.b). In this regard, the athletes' acceptance of the Whereabouts Committee depends on their right to act independently (INT).

Figure 10: Organizational Structure of Anti-Doping Norway



Source: Anti-Doping Norway (n.d.a)

4.2.3.2 Athlete Committees

Athlete committees may influence the performance of the NADOs positively. The most important reason for this is the opportunity to receive feedback from (former) sportspeople on current doping policies:

“The athlete committee is very important [...] because we are administrators. We are not sportspeople. There are people here who had sports careers and there are some who want to develop their sporting career. We always need to be mindful that we are working with athletes on a day-to-day basis. So, I think it’s very important that we listen to and take account of what these athletes are saying. This is why we have an athlete committee here. The athlete committee cannot only advise us but can also be very effective in lobbying an organization and promoting an organization.” (INT)

According to their homepage, for example, the UKAD Athlete Committee represents all Olympic, Paralympic and professional sports. Cooperating with other athlete-centered groups to ensure the representation of all views in the athlete community, and gathering feedback on UKAD programs are its main tasks (UKAD 2017). With regard to our sample, the United Kingdom is the only case where an athlete commission is integrated into the organizational structure of the NADO. However, in other cases such as the Netherlands,

communication with athlete committees is also regarded as a necessity. For example, the members of the Dutch Dopingautoriteit meet the athlete committee of the NOC four times a year, and NL Sport, a union of professional athletes, twice a year. Additionally, a lot of informal interactions with athlete committees also take place (INT).

Overall, communication with institutionalized athlete committees plays an important role for NADOs. We assume that institutionalized forms of communication and cooperation with athletes have a positive impact on their overall organizational performance (see above).

4.2.3.3 Organization of the Doping Control System

According to our evaluation of the expert interviews, we assume that the organization of the respective doping control system has an influence on the performance of NADOs. Generally, two main systems may be distinguished:

- *Independent Doping Control System (IDCS)*: The NADO employs its own Doping Control Officers who conduct the controls.
- *Dependent Doping Control System (DDCS)*: The NADO employs external service providers to conduct the controls.

Both systems seem to have their pros and cons. The Independent Doping Control System, used for example by NADA Austria and the Dutch Dopingautoriteit, enables around-the-clock testing. Although this privilege generates relatively high costs, it is important for some NADOs to be able to test individual athletes any time of the day:

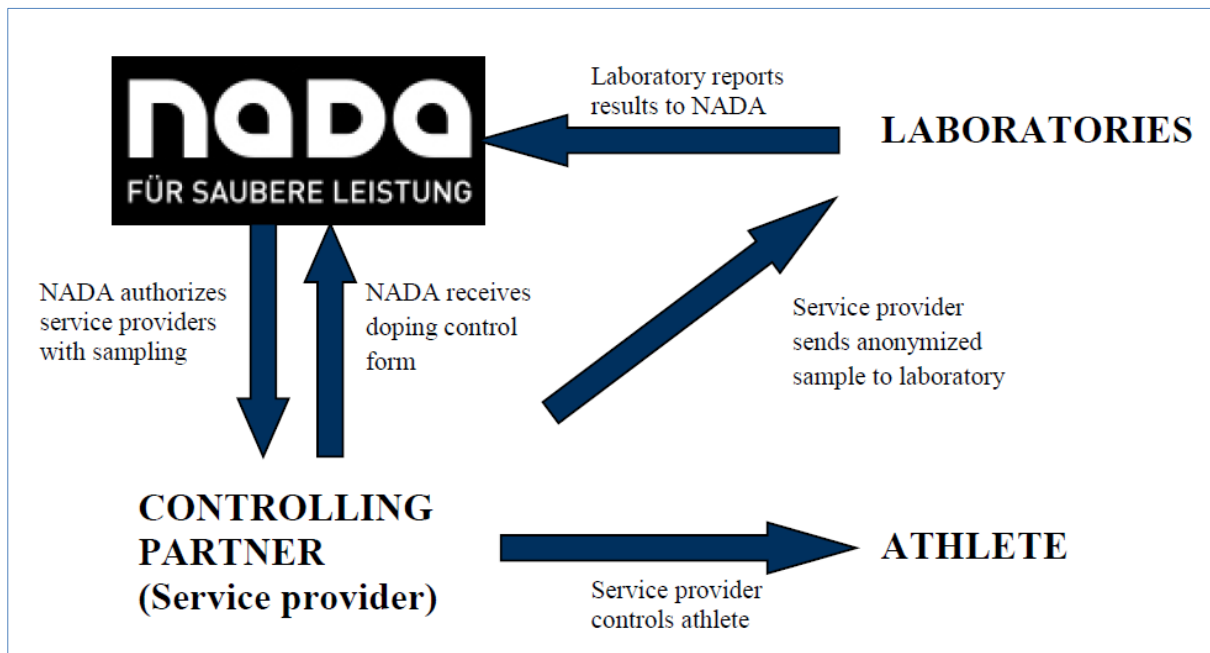
“We can conduct any control at any time. It is just a cost issue. If I say I will control someone in town X [anonymized; editor’s note], but the next Doping Control Officer is in town Y, and the person from Y tells me he or she cannot conduct a test, well, then I have to take an officer living in town Z. It takes him or her a little longer to drive there by car, but I can conduct the test. The system in country C [anonymized; editor’s note] is more other-directed than ours to a certain extent.” (INT)

Around-the-clock testing allows for strategic testing nowadays (INT). Moreover, NADOs using IDCS improve the quality of doping controls. The most important disadvantage is the high administrative costs caused by a less economic planning approach:

“Sometimes, we have quite a few people from a certain area leaving their jobs and this leads to our pool of officers being minimized in a certain area because we do try to keep them distributed evenly across the country to minimize our costs. Because we obviously pay for their travel expenses. If somebody is right down in town X [anonymized; editor’s note], and they need to test an athlete in a town Y which is far away, that’s a lot of travelling expenses, so we try to have people all over the place.” (INT)

By contrast, the greatest advantage offered by the *Dependent Doping Control System* is its cost efficiency. The NADA Germany, for instance, puts all its doping controls out for tender to, inter alia, reduce expenditures (see figure 11). By outsourcing the performance of doping controls, NADOs also gain greater financial planning stability.

Figure 11: Doping Control System of the German NADA



Source: NADA, 2017.

To ensure the quality of the doping controls NADA Germany, for instance, has put in place a very detailed service catalogue. Contracts with service providers are based on this catalogue. These contracts contain all relevant information, including the use of specific forms, conflicts of interest, responsibilities, sanctions, DCO training and staff recruitment (INT).

In sum, both the Independent Doping Control System and the Dependent Doping Control System have some advantages and disadvantages. However, further analysis of the organization of the respective doping control systems is required to evaluate their influence on NADOs' performance.

4.2.3.4 National Laboratories

Apart from the Dopingautoriteit, all selected NADOs cooperate with WADA-accredited national laboratories (see table 5). In this context, the Dutch decision to cooperate with foreign laboratories was a strategic one. One of the reasons was that it provides them with the opportunity to negotiate prices with their partner laboratories in Ghent (Belgium) and Cologne (Germany). Furthermore, in the case of an unexpected event (e.g., fire), samples may be diverted more easily to other laboratories (INT). After all, it is of great interest to both laboratories to keep the cooperation going because they benefit from additional standing orders. Hence, the Dopingautoriteit is able to demand in-house consultants under uncertain and critical situations (INT).

Table 5: Laboratories Used by Selected NADOs

NADA Austria (Austria)

- National laboratory: Yes
- Seibersdorf Labor GmbH, Seibersdorf

NADA Germany (Germany)

- National laboratory: Yes
- Institute of Biochemistry at the German Sport University Cologne, Cologne
- Institute of Doping Analysis and Sports Biochemistry Dresden, Kreischa

Dopingautoriteit (The Netherlands)

- National laboratory: No
- Institute of Biochemistry at the German Sport University Cologne, Cologne
- Ghent, Belgium

Anti-Doping Norge (Norway)

- National laboratory: Yes
- Norwegian Doping Control Laboratory, Oslo

UK Anti-Doping (UK)

- National laboratory: Yes
- Drug Control Centre at King’s College London, London

National laboratories are eager to cooperate with NADOs, as one expert pointed out to us. However, despite NADO’s interest in supporting the national laboratory, other options have been discussed:

“Yes, they do very little else other than to do testing for us. So, they have to keep their head above water, otherwise they won’t be able to keep going [...] On the other hand, we have to test in the way that we see as being the most effective, and if we have to send our samples somewhere else, we will do it. We’re considering that at the moment.”
(INT)

When looking at the interviews, we may ask which practice is actually the more efficient for NADOs – working together with national laboratories and thus benefit from short-distance travel and reduced transport costs, or employing foreign WADA-accredited laboratories and having the chance to negotiate better prices including more flexibility. Further analysis needs to be done to answer this question.

4.2.4 Regulation as a Factor of NADO’s Performance

Performance-enhancing factors	Performance-affecting factors	Performance-limiting factors
<ul style="list-style-type: none"> • Anti-Doping Law • Cooperation with Law Enforcement Agencies 	<ul style="list-style-type: none"> • ISO Certification • Obligations to Report 	<ul style="list-style-type: none"> • Data Protection Rules

4.2.4.1 Anti-Doping Law

NADOs benefit from the existence of specific anti-doping legislation in their respective country. All interview partners shared this view, irrespective of whether such legislation exists in their country or not. We analyze the case of Austria here to highlight the advantages of specific anti-doping legislation. According to their website, Austrian anti-doping legislation (ADBG) describes the fundamentals of the national anti-doping efforts. For instance, it regulates the tasks of NADA Austria and the independent anti-doping law commission (ÖADR), the rights and duties of athletes and sports organizations, as well as the doping control rules (NADA Austria, n.d.b). In addition, the ADBG penalizes the possession and trafficking of prohibited substances, and regulates the cooperation between NADA Austria and the prosecution authorities. Furthermore, Austrian anti-doping legislation provides strict guidelines for the NADA's cooperation with National Sport Federations:

“Principally, it is an advantage that our work is based on federal law giving us justified grounds. However, it makes flexible and individual solutions [...] impossible, even if they are necessary. [...] We have a law that has to be respected by all actors.” (INT)

Apart from its restriction on flexible cooperation with NSFs, NADA Austria benefits from the Austrian anti-doping legislation. For example, all athletes who are either members or recipients of licenses of an Austrian NSF are subject to this legislation and can therefore be tested by NADA Austria. In general, the interviewees attributed NADA Austria's good performance directly to the ADBG. A straightforward approach to the regulation of responsibilities and for dealing with anti-doping activities was appreciated by our interviewees (INT).

The most important claims on anti-doping legislation made in the interviews were: (1) the creation of a legal basis for information exchange with law enforcement agencies, (2) the regulation of prosecution, and (3) the determination of tasks and responsibilities. The need for regulated information exchange was mentioned by several interviewees. For instance, the status of the German NADA as a private law foundation has impeded information exchange with law enforcement agencies for a long time. Due to unequal status, communication was often either restricted or completely avoided on the part of the law enforcement authorities (INT). Meanwhile, Germany introduced anti-doping legislation in 2015. The legislation grants, inter alia, authorization for data transfers from courts and public prosecution services to the NADA (Deutscher Bundestag, 2015a; Deutscher Bundestag 2015b). Accordingly, an improvement in information exchange is to be expected. In this context, several NADOs have argued for the regulation of prosecution measures in cases of detected doping. Information transferred to law enforcement agencies ought to be used to fight doping:

“For instance, the state prosecutors we are working with do not want to do much about these cases. For instance, in the case with the importation and exportation of forbidden drugs, it's a recent case. We had concrete information about imports and exports of doping substances twice. In the end, the customs was not able to do anything because public prosecutors decided against it. Afterwards, we tested the pupils who were in the same peer group and they tested positive. Thus, our information was solid and we think we had a very good case, but it didn't help us. The more information I am entitled to get, the more I can focus on these kinds of things concretely.”

Hence, besides a legal basis for information exchange, people working in law enforcement need to be willing to prosecute trafficking and the production of doping substances (INT). In some countries, this willingness is non-existent. The need for more resolute action was corroborated by another interviewee:

“What do we do in cases of positive findings of non-specific substances like steroids, EPO, growth hormones? This information is always transferred to the public prosecutor’s office. The public prosecutor then decides whether to open a criminal procedure. With anti-doping legislation in place, he or she would be obliged to do so.” (INT)

The third claim, the need to clarify tasks and responsibilities, was described in an interview as follows:

“Anti-doping legislation should determine our status by stating ‘This is the task of a National Anti-Doping Organization in an international context.’ And I think it is important to tell our critics that we follow an international mission on a national level. Therefore, we need a big scope of action to implement the system as best as possible.” (INT)

As a whole, all the representatives from the NADOs studied here appreciate the existence of anti-doping legislation as a basis for their work. Citing different examples, we showed that there is a need to create such a legal basis for their work if such legislation does not yet exist.

4.2.4.2 Cooperation with Law Enforcement Agencies

Nearly all experts emphasized the importance of well-established relationships with law enforcement authorities. Thus, good cooperation with both state prosecution authorities and whistleblowers (see chapter 4.2.1.10) is a very important element of NADOs’ business (INT). There are various reasons for this. NADOs are always interested in receiving information relevant to their work. The NADOs studied here use formal and informal ways to get this kind of information. Because informal arrangements are often characterized by low liability, NADOs strive for formalized agreements with customs and police to facilitate the exchange of information and knowledge (INT). Hence, the need for high-level commitment was the main reason for formalizing procedures. Unsurprisingly, given the advantages of such institutionalized relationships, other NADOs are interested in establishing individual agreements with law enforcement authorities (INT).

“But the fact that we have formalized these agreements definitely helps a lot because now they can’t tell us ‘We do not want to share this information with you’ for any reason at all.” (INT)

A second reason for NADOs to cooperate with law enforcement authorities is the mutual transfer of information and knowledge. For example, a lack of knowledge about doping violations and regulations on behalf of the police may be compensated by NADOs. On the other hand, the police may share information that could be important in the field of sports. According to a NADO representative, this win-win situation helps all actors to close knowledge gaps important for organizational development (INT).

Finally, NADOs are interested in the rigorous prosecution of trafficking and the production of prohibited substances to protect clean sports. At the same time, they are not responsible for criminal prosecution. In this regard, cooperation between the respective authorities may be a relevant step forward.

4.2.4.3 ISO-Certification

Although all selected NADOs are ISO-certified, the interviewees assessed its influence on their organizational performance varyingly (see Table 6). The advantages of having an ISO certificate include, for instance, the documenting of processes and the need for compliance with internationally accepted standards. Moreover, the expert knowledge of a third party can assist NADOs to improve their own organizational system (INT).

Table 6: Status of ISO-Certification of Selected NADOs

NADA Austria (Austria)
• ISO 9001:2015
NADA Germany (Germany)
• ISO 9001
Dopingautoriteit (The Netherlands)
• ISO 9001:2008
Anti-Doping Norge (Norway)
• ISO 9001
UK Anti-Doping (UK)
• ISO 9001:2008
• ISO 27001:2013

On the other hand, interviewees criticized the ISO auditors' performance and the level of their expertise.

"And it's still there, I truly hate it because I do all the audits, of course, and I think we are better than the guys auditing us. So, they make more mistakes in their auditing process than we do. [...] I mean we really had those conflicts with them because I said 'you are auditing me, it should be the other way around.' And that is a problem because they are in a formally superior position." (INT)

From this standpoint, such a certification process has thus very little to say about whether a NADO is implementing anti-doping policies effectively or not. These procedures signal to a large degree formal commitment and formal compliance. Furthermore, ISO certification takes a lot of time and resources. However, it is unclear whether any certificate directly influences organizational performance. Further analysis is necessary to investigate this relationship in more detail.

4.2.4.4 Reporting Obligations

Obligations to report back to a responsible ministry or other organizations may impact a NADO's performance in different ways. On the one hand, reporting is necessary in terms of accountability. On the other hand, it may be perceived as an annoying task by the person preparing the reports. According to one expert we interviewed, complex technical and financial reporting can result in increased administrative burdens (INT). Financial resources are limited and reporting systems take time and effort. The preparation of annual financial reports is a good example of this:

"At the end of the year, I have to write my financial report and the annual report [...]. And that is a really tricky business. It's very complicated. It's very technical financial things. [...]. So, you leave it up to the financial people and to our accountant [...]. And then, in the end, there is some kind of conclusion, and usually it's ok in the end and sometimes there is still a problem because I spent too much on this and too little on that, you know that can happen to all of us. So, there is a lot of too much, too much reporting done, which has nothing to do with the policy. It's purely a technical matter." (INT)

However, the huge administrative costs of reporting may also result in budget cutbacks (INT). Another problem is that substantial efforts are needed to increase the comparability of reported data. Data formats vary to a certain degree because many NADOs are bound to the formal reporting requirements of their government or the Olympic Committee, for example (INT). This is one of the main reasons why outcomes and other data are still not comparable.

Reporting obligations reduce the organizational performance of NADOs in implementing anti-doping policies because they bind resources. However, they help inform important shareholders (e.g., ministries, federal states, etc.) and thus meet accountability criteria. Hence, this can result in faulty procedures, patterns and structures being discovered early on by internal or external experts.

4.2.4.5 Data Protection Rules

Restrictive data protection rules can impact NADOs' performance negatively in several ways. For example, a public announcement revealing the names of athletes sanctioned for a doping violation is forbidden in some countries. On the one hand, compliance with national legislation means non-compliance with the WADA code (INT), resulting in an inherent goal conflict. On the other hand, prohibiting publication weakens the deterrent effects of sanctions. The limited time slots for doping controls also pose a problem. NADOs are restricted to carrying out doping controls between 11 p.m. and 6 a.m. because of the right to privacy for athletes. According to the experts interviewed in this study, dopers confided in them, telling them about the short time slots in the night during which taking illegal substances is possible without being detected. As a consequence, it is impossible to detect all doping violations (INT). The restricted use of ADAMS to look at blood pass data may also have a negative influence on the daily work of European NADOs. Because the server hosting the blood pass data is located in Canada, queries from European NADOs are only answered in exceptional cases in accordance with European data protection directives (INT).

According to the interview partners, these systemic failures are known to intentional dopers and are deliberately exploited by them. For this reason, data protection issues need to be regularly discussed and challenged to improve the working conditions of NADOs.

4.2.5 Resources as a Factor of NADO’s Performance

Performance-enhancing factors	Performance-affecting factors
<ul style="list-style-type: none"> ● Political Accountability 	<ul style="list-style-type: none"> ● Financial Resources ● Long-term financial planning stability

4.2.5.1 Political Accountability

NADOs are in a favorable position if a specific political actor assumes political responsibility in the fight against doping. In these situations, policy makers and decision makers always have to fear public debates and try to avoid losing face, which puts NADOs in a relatively strong position because they are can play the blame game (e.g., in cases of spending cuts in the field of anti-doping measures). Consequently, NADOs from our sample use different strategies to reach their goals. Whereas one NADO may try to apply pressure on the minister responsible for anti-doping policies through extensive press coverage, another NADO may use informal contacts with parliamentarians to put the ministry responsible under pressure:

“And then you write the final budget plan you send to the ministry responsible for anti-doping policies. It has changed over the years in the sense that our position has become stronger and stronger [...]. The most important factor is politics, and politics has become increasingly involved, at least ever since I’ve been around. And I have quite a good relationship with a number of MPs [Members of Parliament; editor’s note] now. So, if the ministry doesn’t decide in our favor, they know that questions will be asked in parliament at a later point in time. That gives us quite a bit of leverage. And over the last two years we got [...] extra payments, solely because of parliament, not because the ministry would have given us a gift or would have shown a sign of appreciation.” (INT)

Another possible strategy is to attempt to cooperate with the government while emphasizing their particular responsibilities to promote clean sports. This is mainly about improving their image if governmental actors engage for doping-free sport. For instance, NADOs draw attention to the fact that the government have ratified the UNESCO Anti-Doping Convention and thus needs to accept their responsibilities (INT):

“But we just kind of do most of the work because we know what we’re doing. But yes, I think we have to guide them [government officials; editor’s note] in terms of ‘This is what you will look like in the media if x happens.’” (INT)

4.2.5.2 Financial Resources

NADOs depend on financial sources other than from public funding, including national sports lotteries, sponsoring, revenue from carrying out doping controls for other sports organizations (e.g., revenue from consultancy services).

Financial resources determine the organizational performance of NADOs, particularly in terms of their respective output capacities. First of all, financial resources are important for conducting doping controls, financing tests, and reimbursing expenses for information meetings and workshops. Hence, a NADO's daily business is directly linked to its budget:

"If I only have a small budget and my goal is to test every athlete three to five times a year, I have to limit the number of doping controls. [...] But a higher budget would be great to increase test frequencies. We would probably detect more doping cases. Furthermore, we would increase deterring effects." (INT)

Unsurprisingly, budget cuts usually lead to significant difficulties for NADOs in fulfilling their duties and meeting public expectations. For example, an interviewee argued that testing numbers have to be reduced, or certain tasks cannot be carried out and have to be cancelled if budgets are cut back (INT). Moreover, NADOs hit by cutbacks are forced to consider other options to reach their goals, which may inhibit their efforts against doping. Hence, financial resources play an important role for NADOs and their organizational performance. For instance, there is a strong correlation between the number of doping tests commissioned by NADOs and their (insufficient) funding:

"In principle, the impact [of doping tests; editor's note] is determined by quality and quantity. Testing quantities are limited by our budget. That can be calculated easily. A test complying to our quality standards costs a certain amount of money. That means I am only able to conduct a limited number of doping controls." (INT)

Ultimately, financial resources are important for NADOs' performance. Especially when NADOs are confronted with significant spending cuts, they either have to find alternative sources of funding to close the gaps in their budget, or are forced to restrict their output capacities (INT).

4.2.5.3 Long-Term Budget Planning Stability

In addition to having sufficient financial resources in the short term, NADOs need to budget for the long term. NADOs regularly face difficulties planning their daily business operations more than one year in advance. Although progress has been made in many respects, for example NADA Germany and the Dopingautoriteit have had their budgets increased in the last five years, further mobilization of resources seems to be necessary. Consequently, NADOs need to be able to plan ahead, at least in the medium term, to ensure continuing their activities in the fight against doping. For example, NADA Germany ran into difficulties to make long-term plans before the year 2015. The combination of different sources of funding (federal government, federal states, private sector, etc.) previously led to unpredictable budgets and uncertainty about the availability of financial resources. Our interviewees pointed out several problems resulting from short-term funding. For example, NADOs had problems guaranteeing the employment of their own Doping Control Officers because of missing cover notes, as well as being unable to conduct long-term evaluations, for example regarding the acceptance of doping practices among athletes (INT).

On the other hand, a fixed budget can also be of disadvantage to NADOs in terms of increased inflexibility (INT). The scope of NADOs with fixed budgets is restricted significantly, for example, when dealing with unexpected changes:

“Fixed budgets are too inflexible in terms of contents, of policy. Again, it only secures a budget for predetermined tasks, but it is hardly to be adjusted to new circumstances answering strategic needs to step up or slow down in implementing measures. There is no real discussion about what we want to do. We write [...] plans.” (INT)

To avoid problems resulting from the constraints of fixed budgets, the interviewees suggested raising the amount of project subsidies in addition to fixed funds to increase budget flexibility. Regular budget negotiations with ministries or increased funding from other sources may help to overcome these obstacles (INT).

4.3. Performance Factors, Input, Output, Impact and Outcome

The performance factors we identified with the help of NADO officials are very diverse, reflecting the complicated tasks and structures of NADOs. But they are a valuable and necessary starting point for further empirical analysis. However, our initial question of how environmental and internal factors of the NADOs we analyzed correlate with performance data cannot be answered at this stage, neither with statistical evaluations nor detailed case studies.

Firstly, we acknowledge that our organizational performance index has several shortcomings. It does not represent a sound and valid ranking system for the NADOs. Secondly, there is no common understanding of what performance actually means when evaluating NADOs and their work. For this reason, the results only allow for rather limited generalizations and interpretations. Thirdly, existing performance data mainly cover input and output data (e.g., financial resources, testing program numbers, prevention measures, etc.). Consequently, we cannot provide generalized statements regarding the environmental and internal factors that guarantee a NADO to perform well. Accordingly, it is obvious that we have to include other index criteria and combine them with performance-related outcomes and impact data (if these are available).

Overall, our study contains much informed empirical information about performance-enhancing factors, although a statistical test of the correlations between them cannot be presented at this point in time. Nevertheless, the study gives valuable insights, not only concerning the main factors influencing performance, at least as seen by the experts, but also regarding factors inhibiting NADOs in exercising their daily business. Thus, relevant and informed recommendations addressing some of the NADOs' most pressing problems may already have been presented in this study (see below).

5 Summary

It is invariably difficult to assess how and which organizational structures influence the performance of organizations, and this is particularly true for NADOs. The overall goal of NADOs seems to be easily identified: to ensure sport without doping offences. Nevertheless, it is unclear how this goal can be reached, and even the detailed objectives are ambiguous. There may be diverging preferences and priorities as well as conflicts of interest because focusing on specific tasks may lead to neglecting others, or may have unexpected (adverse) side effects. Considering these circumstances, even if the respective main goals were precisely formulated, performance would still be difficult to assess and measure. Thus, assessing NADOs' organizational performance is no trivial task. But this study outlines some of the ways in which this task can be achieved, or at least improved, and what kind of conceptual and theoretical approaches will be useful, as well as their problems and pitfalls. The important lesson is that these problems are not unique to NADOs, and that we should therefore use and learn from concepts and practices in comparable fields of public management and governance. This would include performance discussions in fields such as education, social policy or corruption. Following on from this, we proceeded with the following steps:

Firstly, we calculated an organizational performance index for the selected NADOs based on a weighted ranking scheme for selected indicators. The index includes NADOs' input, output and performance data (e.g., relevant organizational features, resources, staff figures, tests, prevention measures, etc.). However, this organizational performance index measures formalities and norms, rather than reflect the particularities of NADOs and the different internal and external policies they pursue. Furthermore, as a quantitative tool, the index cannot measure whether there is a common understanding of what performance means. Thus, above all, the index is a first instrument designed to reduce complexity, to identify shortcomings, and to address relevant questions (e.g., how can NADOs reach a common understanding of what performance is, how to harmonize data collection and mechanisms of accountability, etc.). It tells us what data we already have, how useful they are, and especially what type of data we need.

Secondly, our results reveal that existing data sources are difficult to compare with one another. WADA and NADOs provide little information about the outcomes and impacts of their efforts against doping. In this context, there have been few efforts to harmonize data collection in terms of soft measures, for example those undertaken by the Council of Europe or by WADA. Hence, the question of what steps (i.e., instruments and procedures) would need to be taken by WADA and NADOs to improve accountability and performance measurements is of overall importance.

Thirdly, in addition to the hard data of the organizational performance index, we analyzed individual perceptions of performance by NADO officials and experts. Evidence from the interviews we conducted suggests that NADO officials perceive and define performance differently – ranging from preventing young athletes taking performance-enhancing drugs to blaming and sanctioning athletes who cheat – and that the different NADOs do not pursue the same objectives.

Fourthly, our interviews with top officials from five selected NADOs (Austria, Germany, the Netherlands, Norway and the United Kingdom) show a wide variety of different factors identified by them as having an influence on NADOs' performance. We established a list of relevant criteria aligning those mentioned in the project proposal with criteria indicated in the interviews (see table 7 below).

Finally, NADOs' performance will always be difficult to measure because of the many tasks NADOs fulfill. For instance, NADOs not only carry out doping tests and disseminate information, but they are also forums of accountability. Therefore, it is necessary to develop an approach that aims to establish a common understanding and clear definition of performance and its many meanings, and negotiate a way to render latent performance visible. Research from other policy fields with similar problems (e.g., drug abuse, social issues, educational or anti-corruption policies, etc.) should be used for inspiration and promising analytical perspectives.

Table 7: Factors Affecting Organizational Performance of NADOs

Management

- Autonomy From (International) Sports Federations and Public Authorities
- Communication with Athletes
- Communication with Mass Media
- Staff's Affinity for Sports
- Intra-Organizational Communication and Flat Hierarchies
- Research and Reactive Controls
- Organizational Strategies
- Prevention Measures for Different Target Groups
- Doping Control Officers Communication Skills
- Whistleblowing and Feedback Measures
- Public Perception of NADOs
- Performance-based Bonus Payments

Market structure

- Cooperation with Other NADOs
- International Sports Federations' Influence and Willingness to Cooperate
- National Sports Federations' Influence and Willingness to Cooperate

Organizational structure

- (Independent) Consultative Bodies
- Athletes Committees
- Organization of the Doping Control System
- National Laboratory

Regulation

- Anti-Doping Law
- Cooperation with Law Enforcement Agencies
- ISO-Certification
- Obligations to Report
- Data Protection Rules

Resources

- Political Accountability
- Financial Resources
- Long-Term Budget Planning Stability

6 Recommendations

Based on our empirical research and the summary of results, we suggest the following recommendations:

Promote alternative methods of performance measurement

Problems and trade-offs regarding the definition of performance are inherent in the anti-doping system. Besides numerical measurement methods, WADA ought to consider alternative methods reflecting the complexity of a wide range of anti-doping tasks. Furthermore, the respective measurement tools have to be improved. Existing measurement tools to assess performance are insufficient to determine NADOs' performance adequately and alternative (qualitative) methods need to be taken into account (e.g., monitoring, peer reviews, supervision, auditing, etc.). In addition, there are many policy areas dealing with issues that are difficult to measure (e.g., corruption, anti-drug abuse policies, social policies, etc.). They may and should inspire future research on anti-doping organizations.

Develop a Doping Perception Index

One of the core problems is measuring performance in relation to outcomes. This is typical for many public organizations and policy fields. A possible solution to this problem would be to follow solutions from the somewhat similar field of corruption and develop a so-called "Doping Perception Index" focusing on how various informed stakeholders and experts perceive doping violations. Such a tool – similar to the Corruption Perception Index of Transparency International – would be a good method to gain valuable insight into doping behavior patterns and the effects of anti-doping policies. Different techniques from prevalence studies could possibly be combined with studies on the Corruption Perception Index of Transparency International to develop such an instrument. There can be no doubt that AI's Corruption Index has influenced anti-corruption policies in many ways, and has strengthened international co-operation and learning.

Ensure standardized and harmonized datasets and monitoring of data collection

Performance measurements of NADOs are highly restricted by non-comparable input-output data and the non-existence of data on outcomes and impacts. Hence, WADA has to strengthen the development of a harmonized and reliable reporting system, which provides data about anti-doping measures (controls, sanctions and prevention). To ensure comparability, data content has to be defined precisely (i.e., considering functional equivalents, etc.). Additionally, NADOs' data provision ought to be monitored and guided by WADA, similar to other organizations like the OECD.

■ Create a common understanding of performance

Selective understandings of performance inhibit an overall accepted performance measurement system. Thus, WADA and NADOs ought to make joint efforts to develop a more coherent and ultimately standardized definition comprising controlling, sanctions and prevention measures. It is also important to include all anti-doping approaches (sanctions vs. preventions; intentional vs. non-intentional).

■ Enforce existing relationships of accountability

The organizational performance index is an instrument measuring formal compliance rather than performance as such. This is the reason why we recommend WADA to enact measures or policies enhancing and proving existing accountability relationships (e.g., inspections, mentoring, supervision, etc.). The fact that some countries comply with WADA rules and regulations in a normative way does not necessarily reflect their willingness to implement these rules at an appropriate level. Also here the recent international discussion about new forms of accountability and legitimacy should act as an inspiration.

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