



# Addressing sustainability or following political climate Rhetoric? Anatomy of government Agency's performance management

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## ABSTRACT

This paper examines how environmental sustainability is addressed, acted on, measured and communicated by the performance management system of a government agency. The Finnish Transport Safety Agency (Trafi) is the researched object, the activities and services of which cover a wide range of environmental sustainability goals set at different levels. The goals originate from international agreements, national strategies, performance agreements between the agency and the governing ministry, as well as from in-agency strategies and managerial planning. The results of the case research suggest that, instead of balanced and holistic addressing the different environmental sustainability dimensions, the agency's portfolio of activities focused on climate change. More extensive sustainability goals did not trickle down to action or performance measurement metrics, but topical political discussions and pressures had narrowed the scope down. The analysis concludes with suggestions on how the existing performance management systems could be improved in the future.

## 1. Introduction

### 1.1. Environmental adversities caused by transport

Transport is one of the most serious generators of environmental adversities and contributes significantly to climate change. Combustion engines' emissions include carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) particles (PM), nitrogen oxides (NO<sub>x</sub>), sulphur oxides (SO<sub>x</sub>) and hydrocarbons (HC). These are all causing adverse impacts on the climate as well as *flora* and *fauna* and not least on humans. Significant improvements have been made largely due to vehicle and fuel technologies, but for example in Europe transport is responsible for a significant share of all the emissions (see Table 1). The European Environment Agency states bluntly that “the EU's transport sector is not on track towards its climate goals” (European Environment Agency, 2018).

However, pollutants and greenhouse gases are not the only adverse emissions. Noise and dust (partly recorded as PM coming from wear and tear of road surfaces and sand used for anti-slippery treatment; see “road transport non-exhaust” in Table 1) have substantial external costs, mainly originating from road transport in urban contexts. Health impacts of street dust and particles have been known for long (see e.g. Rosenthal et al., 2013; Qiu et al., 2012; Puett et al., 2009; Halonen et al., 2009). They cause heart and lung diseases and are an overall health risk for vulnerable groups, such as the elderly, children and people already suffering from lung or heart diseases. In the developing world, the problem is even severer (see e.g. Okokon, 2018 for an African case, also

(Enembe et al., 2018)). For transport, explicit number for premature deaths caused by pollution from transport sector is hard to assess and such an estimate would have a considerable uncertainty marginal. However, Anenberg et al. (2019) estimated that in 2015 in European Union, some 57,000 people were facing premature transport pollution induced death. In relation to all pollution sources (239,000, including transport), this would mean about one quarter.

Reduction of transport noise exposure is also a constant challenge. Noise increases stress, affects the quality of sleep and is a distracting stress factor in general. Impacts are measured all over the world, from Rome (Ancona et al., 2017) to New York (Olson, 2018) and all the way to Lagos (Okokon, 2018), so the problem is global and concerns all urban environments. In Finland alone, approximately 1800 premature deaths are caused by air pollutants and noise. Leviäkangas and Auvinen (2019) made a rough estimate based on number of different studies that about 1600 of these are due to air pollutants and 200 attributed to noise. For both air pollutants and noise, road transport is obviously the main source of adversities.

Finally, the list of negative environmental impacts of transport does not end here. The micro-pollutants generated by road traffic include large quantities of rubber and microplastics. The main sources are vehicle tyres and the materials used for marking roads. The Finnish Environment Institute estimates that in Helsinki road traffic generates 4–7 tonnes of microparticles annually on the busiest street of the city alone. The problem with microplastics is particularly tricky as it needs to be resolved before it enters lakes, rivers and the sea via the street drainage systems. Stopping the transport of microplastics calls for new

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generation drainage systems where the pollutants can be filtered from entering the natural waters. (Finnish Environment Institute, 2017)

### 1.2. Need to control and manage the adversities

Government agencies must address these growing environmental concerns. Sometimes these agencies are focusing solely on environmental management and administration, sometimes their mandate is another, but the inevitable duty is also, in addition to their primary tasks, to take environmental concerns and impacts into consideration regardless of the field they govern and administer. The goal is to transform the societies - that are governed - into more sustainable ones. This has particularly come obvious in climate change mitigation and adaptation. The recent IPCC report (de Coninck et al., 2018) repeats not only the need for multi-level governance that addresses climate change but also the process management included in governance: “Governance is defined in the broadest sense as the ‘processes of interaction and decision-making among actors involved in a common problem’”. The process of governing environmental concerns by the authorities, public administrations, ministries and agencies is hence about interaction and decision-making. The problem with many environmental issues is that time is running out, and rather than trying to govern (manage the process and decision-making) in the attempt to achieve incremental changes, there is a more urgent need to achieve a meaningful, but disruptive, transformation (Termeer et al., 2017).

The governance and management of environmental adversities and concerns is already a task that covers all aspects and dimensions of public administration. In the classic by Simon (1947), it is asserted that “decision-making is the heart of administration”. In the modern era of New Public Management (see e.g. Gruening, 2001; Hood, 1995) the decision-making process is enhanced by performance management, i.e. setting goals that need to be met by the administration and measuring to what extent the goals have been achieved. Performance management in public administration is not a new invention, however, although New Public Management has been manifesting the change of the paradigm from administration to more business-like management of public organisations. Already in 1887, Woodrow Wilson wrote his “The Study of Administration” (Wilson, 1887), stating that bureaucracy should be run like a business, a merit-based, professional and non-political system.

There are many complexities regarding the performance management of government agencies, as pointed out very recently by Mononen and Leviäkangas (2016). The problems relate to the gaps between stated policy objectives and operational performance targets. The former is usually the goal setting of the government in force, and the latter is typically set of goals and performance targets set by high-level administration entities to lower level administration entities, e.g. ministries setting performance targets to agencies. Further problems arise when performance metrics are considered. In a complex environment, the metrics tend to be over-simplified and not unambiguously related to performance targets (Mononen and Leviäkangas, 2016). This, in turn, may lead to sub-optimal allocation of resources, contrary to one of the key objectives of public administration.

Having the above mentioned numerous adversities generated by the transport system in mind while at the same time acknowledging the

need to manage the adversities, it is obvious that there is an urgent need also to include environmental objectives to the performance management system of government agencies that regulate their sectors. This means setting of objectives, deciding on the appropriate indicators and performance metrics, monitoring the performance and finally measuring the outcomes and setting up an incentive system where it is possible to reward or at least recognise good performance and penalise for poor performance. Traditional cost-saving and efficiency-enhancing indicators are not adequate and they must be supplemented, sometimes perhaps even over-ridden, by more holistic and multi-dimensional management performance metrics. Such holistic agency performance management systems are not too well covered by the academic literature, at least when considering transport sector (Mononen and Leviäkangas, 2016).

This research was funded by Trafi and it was carried out between May 2018 and March 2019. It was motivated by the need to develop the Finnish Government’s long-run policy of governing and managing state agencies via performance agreements between ministries and agencies (Mononen and Leviäkangas, 2016). These agreements are meant to sharpen the performance of agencies following the government programme in force. This research also builds on and continues the previous work analysing Trafi’s impacts (for prior studies see e.g. Mononen et al., 2017a, 2017b).

## 2. Research approach

### 2.1. Research question, analysis process, and scope

The main objective and research question of this paper is to *analyse if environmental sustainability is addressed, acted on, measured and communicated within the performance management system*. The research object to explore this research question was the Finnish Transport Safety Agency (Trafi) that “is responsible for transport system regulation and supervision, promotes transport safety and the sustainable development of the transport system, and provides administrative services in the transport sector” (Finlex, 2019b). The research question arises directly from two points written in the law on Trafi (Finlex, 2019b): i) the agency is supposed to “minimise the negative environmental impacts of transportation”; ii) the agency is responsible for promoting “sustainable development of the transport system”. The environmental sustainability is understood in this paper as controlling and minimising the harmful environmental impacts on nature, environment and humans as shown in the framework from Auvinen and Mäkelä (2011). The framework is shown in Fig. 1, illustrating the primary cause-effect-consequence chains. Two primary causes of adversities are the transport itself and the infrastructure when it is built and maintained. These two primary functions lead to emissions, resource consumption and changes in the natural environment and habitat. If negative consequences are to be reduced or dampened, the causes and effects must be addressed.

To answer the research question, the following analysis process was followed:

**Table 1**

Emissions and pollutants in Europe in 2016, million tonnes per year; EU 28 + Iceland, Liechestein, Norway, Switzerland, Turkey (European Environment Agency, 2018).

Pollutant	Non-transport sectors (% of the total)	Road transport exhausts	Road transport non-exhaust	Railways	Domestic shipping	International shipping	Domestic aviation	International aviation
CO	18 043 (78%)	4 351	0	25	286	162	71	158
NMVOG	7 260 (90%)	513	157	8	55	60	10	17
NOx	4 707 (43%)	3 148	0	103	495	1 811	83	641
PM10	2 564 (87%)	92	136	16	22	115	2	12
PM2.5	1 195 (80%)	86	63	9	21	107	2	11
SOx	4 624 (87%)	5	0	1	62	564		

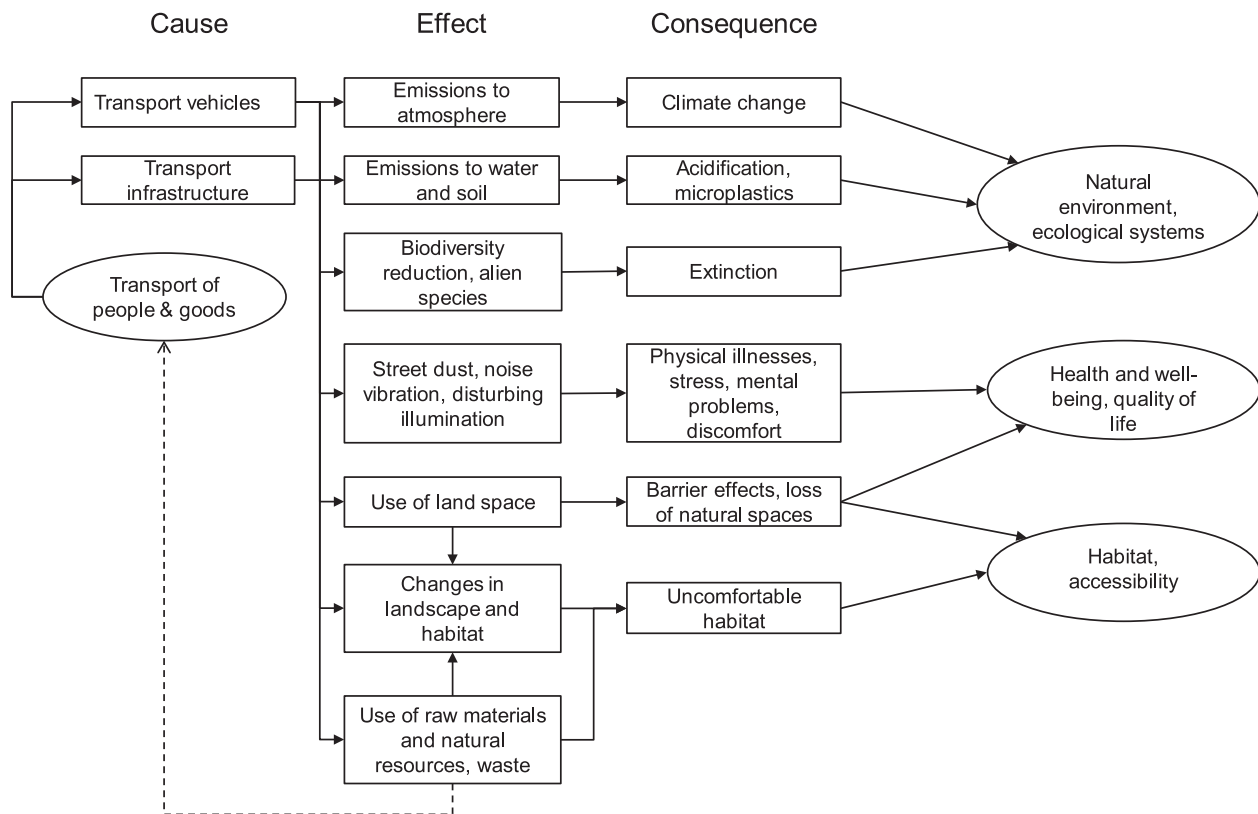


Fig. 1. Causes, effects and consequences of transport adversities (modified from Auvinen and Mäkelä, 2011).

- The context description where the agency operated, including a brief history, in order to understand the governance mandate (boundaries) of the agency (Section 3.1).
- Environmental goal setting at different levels was mapped, including environmental sustainability requirements derived from international and national domains (Section 3.1).
- Against this setting, Trafi’s activities and services were analysed and their coverage of these goals was assessed (Section 3.2).
- Trafi’s performance management and reporting systems were then further examined in terms of performance management metrics and measured indicators (Section 3.3) and communications (Section 3.4).
- Finally, the emerging needs and early recommendations identified during the work were identified (Section 3.5).

The scope of this research was limited to environment-oriented functions and activities of Trafi. By ‘functions’ it is meant here legally-binding obligations that the agency needed to deal with and was responsible for. For example, certain public services, such as issuing permits and licenses, belong to this group. Some ‘activities’ were not directly based on legal obligations but were rather a priority or choice selected by the agency’s top management. Often these activities were projects or national or international initiatives where the agency could more or less choose what kind and how intensive role the agency wanted to have. For example, many international initiatives required national presence and overseeing of national interest, but it was either for Trafi’s management or the overseeing ministry to select how active role Trafi would assume in those initiatives. An international initiative was therefore considered an activity that is not continuous but has a project nature.

Some relevant functions (i.e. bound by legislation) comprised regulation drafting, promotional public campaigns, advising the public and transport industry, collaboration in the EU and international standardisation (e.g. ICAO and IMO; International Civil Aviation Organisation

and International Maritime Organisation) and regulation. Trafi also possessed the mandate to issue national guidelines and standards, as well as oversee the compliance with international obligations and agreements.

Some priority areas (i.e. activities) could be dictated by the contemporary needs and political aspirations at hands rather than being a continuous function throughout the rotation of different governments. A particular service for the general public may likewise be preferable because of general public interest (e.g. advise on alternative fuels) or to manage a particular change in the society (e.g. moving towards electric transport). Regulation, in turn, is a standard function that is always present in an administration.

To give some concreteness to these terms, the terms are exemplified in Table 2. The examples were in fact also terms used by the agency, so in this respect the all the terms in Table 2 matched the management processes of Trafi and for the purpose of organising services and communicating the agency’s activities both in-house and to the general public. In essence, this list was the activity list used by Trafi’s environment team that served the Office of the Director General of the agency. The functions and activities together formed the ‘service architecture’ of Trafi, a list of actions and tasks that was considered to fulfil the mission of the agency.

## 2.2. Methodology

The methodological approach can be described best as a combination of qualitative content analysis (Schreier, 2012), systems research methodology (Checkland, 2012) and a case research (Yin, 2014).

Qualitative content analysis is in short “a method for systematically describing the meaning of qualitative materials. It is done by classifying material as instances of the categories of a coding frame” (Schreier, 2012, p.1). The coding frame of this research is simplistic, comprising a hierarchy of sustainability goals from Sustainable Development Goals (SDG) all the way to performance evaluation metrics of a single

**Table 2**  
Trafi’s service architecture: functions and activities with relevance to the environment.

Functions (continuous and permanent, based on legislation)				
<ul style="list-style-type: none"> <li>• Inspections, permits, licensing and certifications</li> <li>• Regulations and guidelines, domestic and international</li> <li>• Public service, guidance, data sharing, statistics</li> <li>• Fiscal measures, taxation, pricing and subsidies</li> <li>• Stakeholder management and public relations</li> <li>• International collaboration (European Union, United Nations)</li> <li>• Hazardous goods regulations and permits</li> </ul>				
Activities, initiatives or activity areas by mode (prioritised and selected by the agency’s management)				
Transport system	Aviation	Maritime & inland waterways	Rail	Road
<ul style="list-style-type: none"> <li>• Energy efficiency</li> <li>• Mobility demand management</li> <li>• Greenhouse gases</li> <li>• Sustainability and adverse effects management</li> </ul>	<ul style="list-style-type: none"> <li>• Emission trading schemes</li> <li>• Biofuels</li> <li>• Emission standards</li> <li>• Noise (including land use regulations)</li> <li>• CORSIA* and other ICAO committees</li> </ul>	<ul style="list-style-type: none"> <li>• IMO’s committees and HELCOM**</li> <li>• Alternative fuels, liquefied natural gas (LNG)</li> <li>• Greenhouse gases</li> </ul>	<ul style="list-style-type: none"> <li>• Noise</li> <li>• Land use</li> </ul>	<ul style="list-style-type: none"> <li>• Vehicle fleet</li> <li>• Alternative fuels, energy efficiency</li> <li>• Carbon-based taxation, pricing</li> <li>• Consumer advising***</li> </ul>

NOTE: \* ICAO’s initiative on carbon offsetting and reduction in aviation.

NOTE: \*\*Baltic Marine Environment Protection Commission.

NOTE: \*\*\*Information tools and portals for citizens and companies.

organisation. This frame (hierarchy) is shown in the form of tables. The review of research data, comprising government and other documents, is focused on the explicit meaning of the documents’ content.

Systems approach gives researchers some degrees of freedom and does not limit them to a strict methodological framework or process, but allows detection of critical elements and their relationships, be those weak or strong, or quantitatively definable or more qualitative and unclear in nature. There are clearly the four identifiable elements that can be pointed out in the research process, following Checkland’s (2012) proposition:

- (1) *the system under analysis is always a part of a wider systems*; in this research, Trafi’s functions and activities are reflected against a wider environmental impact framework (see Fig. 1). It is also shown how the services and activities relate to the Sustainable Development Goals (SDG) of the UN and other international commitments or declarations.
- (2) *for the system to adapt to change, processes of communications are needed*; in this research, these processes are described by the management contracts done between Trafi and the overseeing ministry; these communications also allow performance measurement and management to take effectively place.
- (3) *to allow adaptation to take place, there needs to be control processes in place*; these are the reporting systems that are needed to communicate the level of performance and degree of achieving the objectives; this paper shows that such controls have not been adequately in place, or they have been overlooked under political pressures, or were simply overridden by more urgent climate policy actions
- (4) *there are emergent properties that characterise the system*; this paper shows explicitly how the existing system needs to be improved in order to achieve more comprehensive environmental sustainability management and what kind of “emergent properties” will

be needed to realise a more ideal and better performing management system.

In sum, this paper shows how the environmental sustainability had been incorporated in Trafi’s performance management system, what issues were covered by the system and how the performance was measured. As a result of the analysis the emerging elements were identified that would need to be adopted or considered, if the performance management system would be closer to an ideal one. Hence, the soft systems methodology is followed by looking at real world situation and suggesting traceable, practical steps and actions to enhance the performance management system for environmental sustainability in the service architecture of Trafi. The complex system (performance management) is divided into parts that comprise 1) context: what are the system boundaries in the larger context, 2) coverage: which issues are addressed, which not, 3) measurement: which issues are measured and controlled, which not, 4) communications: the management communication system in place and assessment of its effectiveness and 5) the emerging needs: what needs to be done to improve impact and effectiveness. These parts are explicitly analysed in more detail in Section 3.

The case research methodology allows more in-depth, and detailed examination of a subject of study (the case), and furthermore is able to capture related contextual conditions (see e.g. Yin, 2014). A case study is also able to answer why and how, does not require control of behavioural events, and focuses on contemporary events. (Yin, 2014, p. 9). A case study is therefore looking at the object in depth and in detail and is meant to describe and understand.

### 3. Research data

The data that is used in this research comprises official government and agency documents which are publicly available for anyone. The only limitation is the Finnish language as many of these documents are not translated into any other language. The authors studied these documents in order to perform analysis and draw conclusions. In this respect, much of the interpretation and quality of analysis depends on the experience and knowledge of the analysts. Since these documents are fairly few, a bit more than a dozen, there was no need to use any mechanistic text analysis tools which would have been not only an erroneous methodological choice but also inefficient. These documents are explicitly listed in Section 3 and comprise international agreements and commitments (Section 3.1.2), national strategies and programmes (Section 3.1.3) and the actual performance management documents (Section 3.1.4).

### 4. Analysis

#### 4.1. Context

In order to assess the effectiveness and impact of the agency’s performance management system with regard to the environment and sustainability, the context in which the agency needed to operate must be understood. The context comprises the international and national environmental sustainability strategies and long-term objectives and the overall performance management of the state sector. Also the national legislation on Trafi is crucial, since it defines the mandate in which the agency is allowed and supposed to act.

##### 4.1.1. The agency in a nutshell and its legal foundation

The Finnish Transport Safety Agency (Trafi) started off in 2010, when previously mode-specific transport agencies in Finland were merged into two entities: Trafi and Finnish Transport Agency (FTA). The role of Trafi, as laid out in the Act on the Finnish Transport Safety Agency (Finlex, 2019b), was to be the authority that “is responsible for transport system regulation and supervision, promotes transport safety and the sustainable development of the transport system, and provides



administrative services in the transport sector”. The complementary mandate of FTA, as laid out in the Act on the Finnish Transport Agency (Finlex, 2019c), was to be the authority that “is responsible for maintaining and developing the service level in the state-managed transport infrastructure” and “promotes the operation of the entire transport system, traffic safety, balanced regional development and sustainable development”. Both agencies operated under the Ministry of Transport and Communications (MinTC) from 2010 to the end of 2018.

There first dedicated legislation on Trafi was given in 2009, November 11 (Finlex, 2019a). Later this law was changed (2018, November 23), but the older legislation was used as a basis of analysis. The English translation is unofficial and available from Finlex database (Finlex, 2019b). This law (Section 2) defined explicitly Trafi’s duties as follows:

“The Agency’s duties are to: 1) ensure the general safety of the transport system and to further improve safety; 2) minimise the negative environmental impacts of transportation; 3) promote the security of shipping and aviation; 4) perform certain duties related to the transport market falling within its sphere of responsibility; 5) monitor compliance with rules and regulations governing the transport system within the framework of its legal competence, for which separate provisions are issued; 6) provide for the organisation of driving tests, handle taxation and registration duties and provide information services within its own sector; 7) issue driving licences, other licences and approvals as required in the transport sector and make related decisions; (74/2015); 8) issue legal rules governing the sector within the framework of its legal competence, for which separate provisions are issued; 9) make international agreements of a technical, non-legislative nature within the limits of its authority; 10) participate in international co-operation in the transport sector; 11) be prepared, within its own sector, to ensure the operation of the transport system in emergency conditions and when normal operations are disrupted. The Agency shall also carry out other public administrative duties within its sector as set out by separate provisions.”

More importantly, the overall purpose was defined in Section 1 – Function:

“The Finnish Transport Safety Agency is a central government agency operating under the Ministry of Transport and Communications. It is responsible for transport system regulation and supervision, promotes transport safety and the sustainable development of the transport system, and provides administrative services in the transport sector.”

The central point in terms of environmental sustainability is the notation of “promoting sustainable development”. This notation has substantial implications. Sustainable development is a vast concept and Trafi was given a mandate that was larger than the legislators or civil servants probably thought.

#### 4.1.2. International agreements and commitments

The United Nations’ (UN) Sustainable Development Goals (SDG) form a natural starting point to understand the super-governmental framework (United Nations, undated). The Paris climate agreement also sets clear performance targets for governments and thereby to the subordinate agencies (United Nations, 2015). In Europe, the European Commission has drafted the 7th Environment Action Programme (European Union, 2013) that sets priority actions to “becoming a smart, sustainable and inclusive economy by 2020 with a set of policies and actions aimed at making it low carbon and resource efficient...”. There are clear transport-related and administration-targeted objectives and goals for all these agreements and missions that are relevant in this research context:

- UN SDGs:
  - o resilient and sustainable [transport] infrastructures; Goal 9
  - o safe and sustainable cities and settlements; Goal 11
  - o sustainable consumption patterns; Goal 12
  - o action to combat climate change and its impacts; Goal 13
  - o build effective, accountable and inclusive institutions at all levels; Goal 16
- Paris agreement:
  - o cutting and decreasing greenhouse gases
- EU’s 7th Environment Programme
  - o resource efficiency and carbon neutrality (Priority 2)
  - o safeguarding citizens from environment-related pressures and risks to health and wellbeing (priority 3)
  - o securing investments in environment and climate policy and account for environmental costs (priority 6)
  - o integrating environmental concerns into other policy areas [such as transport] and ensuring coherence of policies (priority 7).

Even if this list of identified links to transport administrations is not exhaustive it is clear that extensive and holistic approaches are called for, also when it comes to environmentally sustainable transport policies and actions to be taken by transport administrations.

#### 4.1.3. National strategies and programmes

The national strategies in Finland are best covered by the Environmental Strategy for Transport 2013–2020 (Ministry of Transport and Communications, 2013). The list of actions, where Trafi was marked as the responsible administration, is as follows:

- intelligent transport (traffic management and traffic control, information provision, incident management, etc.)
- renewal of vehicle stock
- transport energy efficiency agreements
- taking account of energy efficiency in public sector transport procurement
- promotion of eco-driving
- advice, marketing, campaigns.

Most of these actions were targeted to mitigate climate change, improve air quality and reduce noise. Climate policy programmes and strategies at ministerial level had been numerous, the latest coming out in late 2018. This most recent report (Särkijärvi et al., 2018) formed three different scenarios each relying on different policy measure portfolios. There was no definite commitment nor recommendation concerning any of the scenarios, so it did not provide any “anchors” on which to base research analysis. The State Treasurer left a note of disagreement in the report, largely due to the policy portfolio’s uncertainties related to the implications on state’s tax revenues.

#### 4.1.4. Performance management documents

Performance management has long traditions in the Finnish state government sector. In fact, it is the driving philosophy of the state government that largely dictates the *modus operandi* of the state agencies, particularly the transport-related agencies that have been under almost constant restructuring (Mononen et al., 2017).

There are the following performance management documents that were considered as relevant in assessing materials:

- performance contract between Trafi and the Ministry of Transport and Communications for 2016–2019 (Ministry of Transport and Communications, 2017); this contract covers the areas of activity, where measures and actions are needed, as well as the performance measurement metrics
- medium-term plan for the transport and communications sector (Ministry of Transport and Communications, 2014); this plan states the measures and activities that are relevant for the planning period;

it does not present any performance metrics, but it does include some targets that are quantified

- Trafi’s own medium-term plan (Ministry of Transport and Communications, 2014) divides strategic objectives into four categories: i) influence and impact, ii) customers and services, ii) data and iv) personnel. The most relevant from the environmental point of view is the “influence and impact”.

#### 4.2. Coverage

Now it is possible to analyse how well the international, national and legal aspects of environmental sustainability are covered in the performance management system. The context is defined by international and national strategies and objectives, and the performance management documents that give directions to management prioritisation and decision-making should somehow address these higher-level objectives if international commitments and political declarations are respected. The context and coverage, i.e. the system of objectives at different levels of hierarchy and the environmental dimensions covered and addressed, are visualised in Table 3. Table 3 starts from Sustainable Development Goals that are universal and meant to guide decision-making at both institutional and individual levels. This is followed by the themes in EU’s 7th Environment Programme, which covers the issues related to the natural environment and climate as well as those related to citizens’ health and quality of life. This programme, however, does not extend to cover habitat and peoples’ living environments. The ministry’s environmental strategic agenda is clearly focusing on climate change but does address some issues concerning health and well-being, such as promoting responsible and eco-efficient driving, mainly affecting individuals driving either private cars or trucks. When returning to Trafi’s service architecture describing the priorities identified (Table 2) and

reviewing how these position in relation to the higher level objectives, we see that the activities and services target mainly climate issues. Yet, the legal foundation of the agency explicitly mentioned sustainable development (Section 1) and speaks of adverse environmental impact minimisation in general (Section 2). The obvious conclusion of this analysis is that environment and sustainability were viewed by the agency from the climate policy point of view and did not address all the issues that were included implicitly in the legislation.

#### 4.3. Measurement and performance metrics

The performance contract between Trafi and the ministry included environmental sustainability issues only as far as energy efficiency and alternative fuels were concerned along with their measurement metrics:

- renewing the vehicle fleet where the evaluation was based on performed consumer and industry campaigns (e.g. helping consumers to select a vehicle that was energy efficient and had a good fuel economy)
- responsible and eco-efficient driving; this was a campaign reaching out for the transport industry in order to have an impact on driving behaviour (fuel economy, safety) and transport companies’ vehicle fleet; evaluation and measurement was based on preparations of the campaigns
- carbon dioxide emissions reduction in aviation; measurement was based on preparing for the CORSIA programme under ICAO
- alternative fuels in maritime transport; qualitative assessment on the success of implementing a reporting and monitoring system and promotion of use of alternative fuels.

The abovementioned were the environmental sustainability

**Table 3**

Coverage of Trafi’s performance contract - grey areas show out missing coverage and non-existing performance management.

Transport caused adversity	International agreements or strategies mitigating the impacts			National strategies and performance management	
	SDGs	Paris agreement	EU 7th environment program	Environmental Strategy for Transport 2013–2020	Agency performance management contract 2017
Impacts on natural environments and ecological systems	<ul style="list-style-type: none"> <li>• Sustainable consumption (SDG12)</li> <li>• Combatting climate change (SDG13)</li> <li>• Life below water (SDG14)</li> <li>• Life on land (SDG15)</li> </ul>	Reduction of greenhouse gases (COP 21)	Resource efficiency and carbon neutrality (Priority 2)	<ul style="list-style-type: none"> <li>• Intelligent transport (traffic management and traffic control, information provision, incident management, etc.)</li> <li>• Renewal of vehicle stock</li> <li>• Transport energy efficiency agreements</li> <li>• Taking account of energy efficiency in public sector transport procurement</li> <li>• Promotion of eco-driving</li> <li>• Advice, marketing, promotional campaigns</li> </ul>	<ul style="list-style-type: none"> <li>• Renewal of road vehicle stock – divided into sub-goals: 1) information services for consumers, 2) campaign for low-emission vehicles, 3) status report on vehicle stock</li> <li>• Responsible driving for energy efficiency (agreement with the road transport industry) – divided into sub-goals: 1) study on environmental responsibility, 2) advisory services for professional drivers</li> <li>• Aviation emissions - organising Trafi’s activities for ICAO’s aviation emission trading committees and sub-committees</li> <li>• Maritime emissions – sub-goal: advancing alternative fuels</li> </ul>
Impacts on human health	<ul style="list-style-type: none"> <li>• Good health and wellbeing (SDG3)</li> </ul>			<ul style="list-style-type: none"> <li>• Advice, marketing, promotional campaigns</li> </ul>	
Impacts on human settlements, social systems and quality of living	<ul style="list-style-type: none"> <li>• Resilient and sustainable infrastructures (SDG9)</li> <li>• Sustainable cities and communities (SDG11)</li> <li>• Effective, accountable and inclusive institutions (SDG16)</li> </ul>		<ul style="list-style-type: none"> <li>• Safeguarding citizens from environment-related pressures and risks to health and wellbeing (Priority 3)</li> <li>• Securing investments in environment and climate policy and account for environmental costs (Priority 6)</li> <li>• Integrating environmental concerns into other policy areas [such as transport] and ensuring coherence of policies (Priority 7)</li> </ul>		

performance targets for 2016–2019. In [Table 3](#) the specific sub-goals for 2017 are shown. One can say without being too critical, that the main focus of action was “preparation” for possible future activities and services whatever these might be, or on campaigns to change attitudes towards better environmental sustainability.

#### 4.4. Communications

Trafi did not have a dedicated environmental or sustainability strategy. This was somewhat of a surprise given the explicit reference to sustainability in the legislation on Trafi. Neither was there any particular programme that would deserve the label of “environmental” or “sustainability”. This meant that Trafi’s management did not, *de facto*, have communications means to manage environmental sustainability that fell under Trafi’s mandate and jurisdiction.

This finding was supplemented with a short interview questionnaire (seven hand-selected persons; semi-structured questions) presented to Trafi’s managers and experts if they thought that such a strategy or programme would be needed. Some experts felt that such strategies are already implemented via routine activities and services and that Trafi should not extend its mandate to something called “sustainability”. The other group clearly favoured an environmental sustainability strategy and saw it as a means to enhance sustainability thinking and management in Trafi. None of the respondents referred to legislation on Trafi.

#### 4.5. Emerging needs and properties

The first obvious emerging issue was the observed imbalance in Trafi’s prioritised services and activities. Whilst climate change mitigation was excellently covered, aspects such as quality of life, health, living environments and accessibility - things that are of great interest to citizens - were by and large missing not only from prioritised services and activities but also from performance measurement. In the latter mentioned, the lack of coverage was obvious: there were no comprehensive performance targets that the agency’s management could have relied on and that would have supported goal-orientation and performance management. Also, it is noteworthy that such relevant adversities as noise and particles that are causing serious health problems were absent in the performance management documents.

The contextual vacuum was also quite clear. In the performance contracts or medium-term plans there were no references to international commitments or inter-governmental policies and objectives. Sustainable development, for example, was mentioned nowhere but in the legislation on Trafi. This being the case, sustainability management was not effectively taking place.

The third emerging property was the identified need for communications system for environmental sustainability management. The lack of strategies and programmes went hand in hand with the above-mentioned other emerging properties and identified needs. If there are no clear and comprehensive enough plans, ambiguous or missing objectives and performance metrics, eventually there is not much to communicate or make decisions about. If decision-making is “in the heart of public administration”, this vital organ was unfortunately missing from the agency with respect to environment and sustainability.

### 5. Conclusion and discussion

First, the example of Trafi serves as a benchmark how to develop the environmental sustainability effectiveness and impact of any public agency, because in a public sector organisation systems thinking and holistic perspective is vital for good planning, operation and decision-making. Second, the performance measurement in public sector is still taking place on and ad hoc basis and sometimes following political trends rather than holistic analysis on what is truly needed ([Mononen and Leviäkangas, 2016](#)). Yet, and third, as climate change and environmental concerns are pressing hard on institutions, there is pressure to

act and make decisions – but if that is done in a haste and not analytically, only sub-optimal results may be achieved. Fourth, the analysis on Trafi conveys a clear message to civil servants and political decision-makers: there is a huge need to address all environmental sustainability issues in public decision-making and public service, instead of dealing just with issues that steal most of the headlines.

It should be noted that despite the somewhat critical findings regarding the environmental sustainability management in Trafi, the agency had been very successful in delivering traffic safety and being a pioneer in information-intensive services based on public open data ([Anenberg et al., 2019](#); [Leviäkangas and Molarius, 2017](#); [Leviäkangas and Molarius, 2020](#)). In addition, other impact assessments on Trafi’s services were quite positive and highlighting the beneficial role of the agency related to safety ([Mononen et al., 2017](#)). Assuming that Trafi represents one of the most advanced, modern and transparent public agencies in the world, it is unpleasantly tempting to conclude that the state of affairs in many other countries and parts of the world may be worse. It is equally clear that this case analysis on Trafi leads to a presumption that today’s public agencies are facing a hard time in order to meet the environmental challenges ahead.

The conclusion is also that, looking at Trafi’s case, it seems evident that climate policy pressures have directed strongly, and perhaps overwhelmingly, the prioritised activities and services towards climate change mitigation, while the other environmental sustainability dimensions have been left with lesser attention. This is becoming more obvious as the performance contracts between the ministry and Trafi are analysed. Whilst climate change aspects receive minor attention with regard to objectives and performance metrics, there is an even greater gap between the other attributes of environmental sustainability performance management and the public debate on environmental sustainability concerns.

However, it should be underlined that the findings imply that the performance management system is incomplete, not necessarily that the agency’s activities and functions as a whole were insufficient. The objectives written down in the performance management contract and the activities carried out in reality may well be two different stories.

Things can be improved and most likely they will, inevitably, as the environmental sustainability thinking penetrates all levels of society and decision-making. Many countries are already having sustainability performance management elements in place. Some examples of agencies’ or government sectors’ sustainability performance management can be found e.g. in Sweden, the UK and Canada ([Transportstyrelsen, 2018, 2016](#); [Highways England, 2017](#); [Transport Canada, 2018](#)). When evaluating those cases, [Leviäkangas and Auvinen \(2019\)](#) concluded that comprehensive approaches, as sought in this paper, were not found from any of them, with the exception of Canada.

In Sweden, [Transportstyrelsen](#) (The Swedish Transport Agency) was the corresponding authority to Trafi. In their annual report for 2017 ([Transportstyrelsen, 2018](#)) environmental issues concerned aviation and railway noise, human waste from leisure boating, toxic boat paints, and aviation carbon emissions. These aspects were not quantified but reported as areas analysed and targeted. Another analysis by [Transportstyrelsen \(2016\)](#) discussed the challenges of impact assessment of the agency’s activities and functions at general level. There seems to be reason to expect that in most countries agencies are just starting to consider seriously how their management of environmental sustainability could be developed.

For the Highways England (2017) the environmental management concerned the agency’s commitments to reduce their own carbon footprint and programmes and plans for dealing with litter, noise and work on biodiversity. There were few explicit performance indicators except for number of areas where noise was reduced and carbon dioxide equivalent tonnes reduction of their own operations.

For Canada, The Federal Sustainable Development Strategy (FSDS) guided the departmental efforts of Transport Canada. The efforts were divided according to FSDS goals into: i) Effective Action on Climate

Change, ii) Clean Growth, iii) Healthy Coasts and Oceans, iv) Pristine Lakes and Rivers. A number of performance indicators were used to measure the effectiveness of Transport Canada's different action lines contributing to the aforementioned FSDS goals (Transport Canada, 2017a, 2017b).

The results serve several purposes and stakeholders. First, the example of Trafi serves as a benchmark how to develop the management of environmental sustainability effectiveness of any public agency. In public agencies, systems thinking and holistic perspective is vital for good planning, operation and decision-making. Second, the performance measurement in public sector is still taking place on an ad hoc basis and sometimes following political trends rather than holistic analysis on what is truly needed (Mononen and Leviäkangas, 2016). Yet, and third, as climate change and environmental concerns are pressing hard on institutions, there is pressure to act and make decisions - but if that is done in a haste and not analytically, only sub-optimal results may be achieved. Fourth, the analysis on Trafi conveys a clear message to civil servants and political decision-makers: there is a huge need to address all environmental sustainability issues in public decision-making and public service, instead of dealing just with issues that steal most of the headlines.

The improvements are straightforward and following from common sense: the political rhetoric and each standing government's priorities must be respected, but these cannot be the only guiding principles. Good administration has a long-term view and is able to see beyond electoral periods. A holistic environmental sustainability management of a public agency does - without any question - address climate change, but it also should look into many other aspects of sustainability and make things better for the people and whole society. For example, in Trafi's case the adverse health impacts of noise and particles were by and large neglected as far as performance management system was concerned. Yet, these impacts caused as high societal costs in Finland as did traffic accidents.

The results of the analysis of the environmental sustainability of Trafi's performance management system showed clear indications that the system can be improved substantially. First, there needed to be a more careful consideration what the legislation states and what the mandate of the agency covers. Now, the coverage was inadequately addressed by the performance management system. The coverage - and this is the second main point - of the performance management should be extended beyond climate change mitigation issues. Also the aspects related to citizens' health (e.g. noise, particle emissions), local natural environment and quality of the habitat called for attention. There are new challenges, e.g. regarding microplastics coming from transportation that are not yet recognised at all. This means that the building of performance metrics and measurement system that is able to capture the aforementioned additional aspects will be quite an effort.

Finally, there was a clear need, stated both by the legislation as well as by many of Trafi's experts, that sustainable development need not only to consider environmental issues more holistically, but the theme of sustainability at large. Social and economic sustainability is yet to be addressed by Trafi's performance management system. These extensions must not only be recorded as management performance targets but also be communicated effectively and understandably to the entire transport sector and greater public.

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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