

# Government data-driven decision-making (DDDM) framework implementation. Test case: crisis management

Deliverable 1.6: Proof of Concept

**Technical Support Instrument**

*Supporting reforms in 27 Member States*



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REPUBLIC OF ESTONIA  
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# Executive summary

## Scope of the Project

This report has been developed within the Project carried out by PricewaterhouseCoopers EU Services EESV (hereinafter – PwC) on behalf of the DG REFORM, according to the specific contract No. REFORM/SC2021/076 (21EE02), signed on 14 October 2021. The report covers the items required in the Request for Service (RfS).

This report covers Outcome 1 of this Project – **Government data-driven decision-making**. Separate reports are issued for Outcome 2 and 3 which all combined comprise the complete package of deliverables.

## Purpose of the Project and Report

The report has been drafted for the purpose of describing the Proof of Concept of the data-driven decision-making system.

The report provides an overview of the approach to designing and developing the Proof of Concept, including the target groups of the future DDDM system. For designing the Proof of Concept, a user persona with a real-life analysis case was developed and the Proof of Concept (POC) follows the user journey of the persona.

## Conclusions and observations

The objective of this deliverable was to develop a clickable proof of concept of the DDDM system that would provide an idea on how the future DDDM system would look like and how it could be used. Throughout the process, valuable information was collected that will help in the future implementation of the system. Here are some key takeaways:

- The POC demonstrates a real-life analysis case. It was suggested by Ministry of Environment that collaborated with the DDDM project team during the AS-IS business process mapping stage and was familiar with the project's objective. This was a unanimous decision as it was necessary to understand the user needs, workflows and preferences when creating a functional and usable solution.
- The scenarios and functionalities described in the POC are the result of collaboration between the Contractor and Beneficiary. Since it is the Beneficiary who will be developing the system in the future, their input was important. The success of the solution would depend on user adoption; therefore, it was important to ensure that the solution is user-friendly and aligns with user needs and expectations. This meant gathering consistent feedback on the functionalities and design of the process and the system itself from the Beneficiary and other related stakeholders.
- In order to validate the POC, it was necessary to select the right target group that would test the processes and functions and would also be the actual end user of the tool. The end users of the future DDDM system are mostly specialists and advisors of ministries and other supportive government officials who prepare various analytical documents for discussion at the government's cabinet meeting.
- The POC is designed in a way that outlines the system's user journey and gives the POC viewer an opportunity to test some dynamic functionalities, click through the user journey and discover the look and feel of the envisioned DDDM system.

In addition it is important to acknowledge the potential issue of political and reputational risks related to the use of the outputs of the DDDM tool to make government decisions and manage the risks by implementing necessary review and control procedures to double check the accuracy of the analysis output provided by the DDDM system. In the POC such review procedure is not visualised, but covered in Deliverables 1.4 and 1.5 as it is an important step of data-driven decision-making process to provide carefully studied analytical outputs for the government.

# Lühikokkuvõte

## Aruande eesmärk ja ulatus

Aruanne on koostatud Euroopa Komisjoni struktuurireformide toe peadirektoriaadi (DG REFORM) tellimusel PricewaterhouseCoopers EU Services EESV (edaspidi PwC) poolt läbiviidud Projekti raames vastavalt 14. oktoobril 2021. aastal allkirjastatud lepingule nr REFORM/SC2021/076 (21EE02). Aruande koostamisel on lähtutud Projekti lähteülesandes esitatud nõuetest.

Aruandes kajastatakse ainult Projekti esimese tulemiga piiritletud teemasid – **andmepõhise otsustusprotsessi edendamine**. Eraldi aruanded väljastatakse Projekti teise ja kolmanda tulemi kohta, mis kokku moodustavad lepingus ettenähtud väljundid.

Käesolev aruanne on koostatud eesmärgiga anda ülevaade DDDM süsteemi prototüübi (*proof of concept, POC*) loomise ja arendamise protsessist ning tulevase süsteemi sihtrühmadest. Prototüübi väljatöötamisel lähtuti isikust, kes esindab DDDM süsteemi ühte olulist kasutajagruppi – otsuse ettepanekuid ettevalmistavaid ametnikke. Loodud prototüüp lähtub isikuna kasutajateekonnast ning analüüsivajadustest. Prototüüp on kättesaadav aruande lisana ning leitav Microsoft Power BI platvormil.

## Kokkuvõte ja tähelepanekud

Käesoleva väljundi eesmärk oli välja töötada klikitav DDDM süsteemi prototüüp, mille abil oleks võimalik tulevastele kasutajatele anda ülevaade ja ettekujutus sellest, kuidas kirjeldatud DDDM süsteem võiks välja näha ning millised oleksid selle funktsionaalsused.

Kogu protsessi käigus koguti väärtuslikku teavet, mis aitab süsteemi edaspidi arendada. Siin on mõned peamised tähelepanekud:

- Prototüüp põhineb aktuaalsel pakendivaldkonna analüüsikaasusel ja -teemal, mida hiljuti on süvitsi analüüsitud. Analüüsikaasuse pakkus välja Keskkonnaministeerium, kes oli käesoleva projekti hetkeolukorra kaardistamise etapis DDDM projektimeeskonnaga koostööd teinud ning projekti eesmärgiga kursis.
- Ministeeriumi väljapakutud analüüsiteema sobis kõigile kaasatud osapooltele ning selle põhjal alustati koosloomes prototüübi väljatöötamist. Funktsionaalse ja mugavalt kasutatava lahenduse loomisel oli oluline mõista kasutaja vajadusi, tööprotsessi ja eelistusi, mida valitud analüüsikaasus ka võimaldas.
- POC-i tulem ja funktsioonid on töövõtja ja tellija vahelise koostöö tulemus. Kuna DDDM süsteemi hakkab tulevikus välja töötama tellija, oli tema panus ja sisend esmatähtis. Lahenduse edukus on seotud kasutajate valmidusega see vastu võtta, mistõttu oli oluline tagada, et lahendus oleks kasutajasõbralik ning vastaks kasutajate vajadustele ja ootustele. See tähendas järjepideva tagasiside kogumist projekti osapooltelt.
- POC-i valideerimiseks oli vaja valida sobiv sihtrühm, kes testiks prototüübis esitatud funktsionaalsusi ning oleks ühtlasi ka süsteemi tulevane lõppkasutaja. Lõppkasutajateks on enamasti ministeeriumide spetsialistid ja nõunikud ning teised toetavad riigiametnikud, kes valmistavad ette erinevaid analüütilisi dokumente valitsuse kabinetinõupidamisel arutamiseks.
- Väljatöötatud prototüüp tutvustab DDDM süsteemi kasutajatekonda ja annab kasutajale võimaluse dünaamiliselt testida erinevaid funktsionaalsusi ning omandada arusaam DDDM süsteemi ülesehitusest ja võimalustest.

Lisaks eeltoodule on oluline teadvustada võimalikke poliitilisi- ja maineriske, mida DDDM süsteemi pakutavad analüütilised väljundid võivad põhjustada, juhul kui analüüsitulemusi ei ole põhjalikult kontrollitud ja valideeritud. Seetõttu on oluline rakendada asjakohaseid kooskõlastus- ja kontrollimehhanisme DDDM süsteemis esitatud analüüsitulemuste valideerimiseks. Käesolevas prototüübis ei ole analüüsitulemuste kontrollitegevusi visualiseeritud, kuid need on andmepõhise otsustusprotsessi oluliseks osaks ja kajastatud aruannetes 1.4 ja 1.5, et valitsuskabineti arutelule jõuaksid ettepanekud, mis on põhjalikult läbi analüüsitud ja kontrollitud.

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# 1. Introduction


## 1.1 Scope of the Report

### 1.1.1 Purpose of the Report

This report has been drafted for the purpose of describing the Proof of Concept of the DDDM system. It provides an overview of how a future DDDM system could look like and operate and outlines the limitations of the Proof of Concept (POC) that the Beneficiary should be aware of.

The content of the report is divided into three parts. The first part focuses on the concept (i.e. approach) and describes the process of creating a POC. It gives an overview of the purpose, target groups, design and development phases. The second part of this report demonstrates the Proof of Concept, its structure and functionalities in detail. The third part specifies the POC's system-related and user-related limitations.

The approach and results of the topics are described in the respective paragraphs.



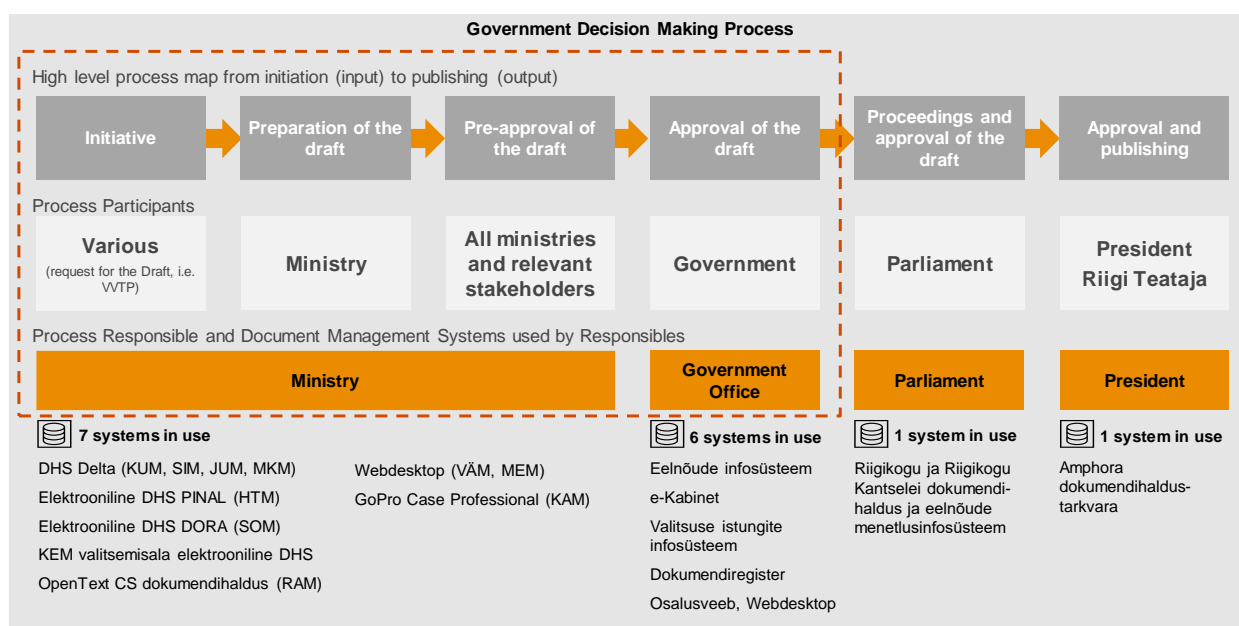
**This report covers only Outcome 1** – Government data-driven decision-making framework implementation. Separate reports are issued for Outcome 2 and 3 which all combined comprise the complete package of deliverables.

### Scope of Outcome 1

The decision-making process in general involves a number of institutions (Ministry, Government Office, Parliament, President) as described Figure 1. As there are many different types of legal Documents and decisions in Estonia (described in Deliverable 1.1.), the level, scope and course of the decision-making process vary.

**The Project Scope** approved in Deliverable 1.1. covers the areas of responsibility of Ministries and Government Office as shown in Figure 1.

Figure 1. Scope of the Project by Institutions in Outcome 1



It was acknowledged that certain types of Documents are handed over to the Parliament for proceedings and approvals as well as Legal Drafts go to the President for announcement and publishing at Riigi Teataja,

but considering the purpose of the Project, **the working process and practices at the Parliament and President are not covered.**

In summary, the Project Scope\* covers the following:

\*A more detailed overview can be found in the Deliverable 1.1 "Current situation report".

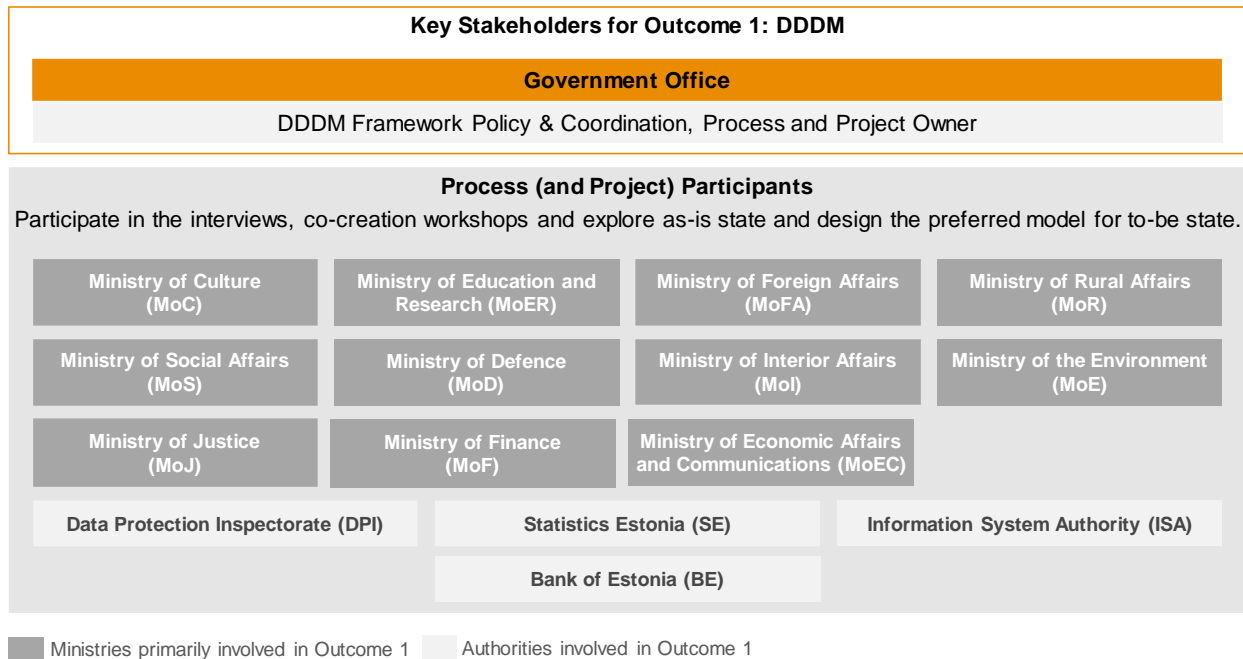
Table 1. Project Scope

Area	Description
<b>1. Institutions</b>	Responsible for the Process: <ul style="list-style-type: none"><li>• Ministries</li><li>• Government Office</li></ul>
<b>2. Document Type</b>	<ul style="list-style-type: none"><li>• Government Memorandum</li></ul>
<b>3. Process</b>	<ul style="list-style-type: none"><li>• End-to-End process of Government Memorandum</li><li>• End-to-end describes a process that takes the process from beginning to end and delivers a complete output for Government decision-making</li></ul>
<b>4. Data and Technology</b>	<ul style="list-style-type: none"><li>• Data and Technology used in the process of Government Memorandum</li></ul>
<b>5. People</b>	<ul style="list-style-type: none"><li>• Participants and decision-makers such as public servants and/or third parties (i.e., subject matter experts) involved in the process of Government Memorandum</li></ul>

## 1.1.2 Project Stakeholders for Outcome 1

To conduct an effective stakeholder engagement, we have identified the following key stakeholders and process participants for the Outcomes 1 (Figure 2) who are participating in the Project work.

Figure 2. Outcomes 1: Key Stakeholders and Project Participants

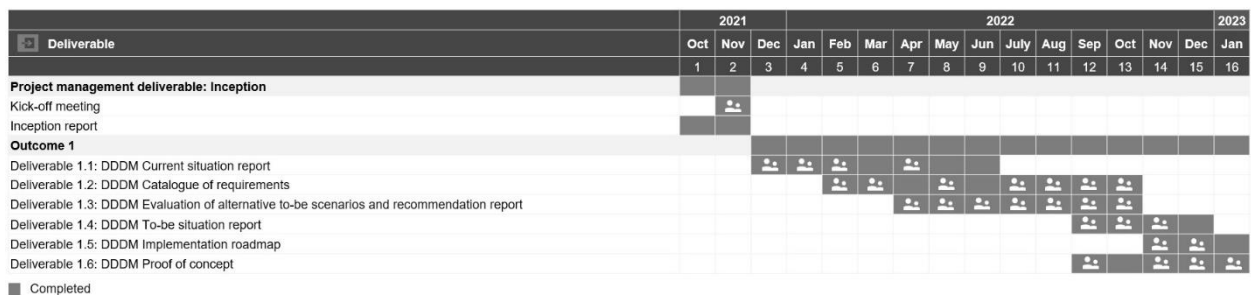


## 1.2 Project Timeline

### 1.2.1 Timeline

Figure 3 provides a high-level overview of the project activities and timeline. The activities of the sixth deliverable took place from September 2022 to February 2023.

Figure 3. Project Activities and Timeline



By the time of issuing the final report, all activities related to the design and development of the Proof of Concept, as well as the collection of feedback and iteration of the Proof of Concept, have been completed.



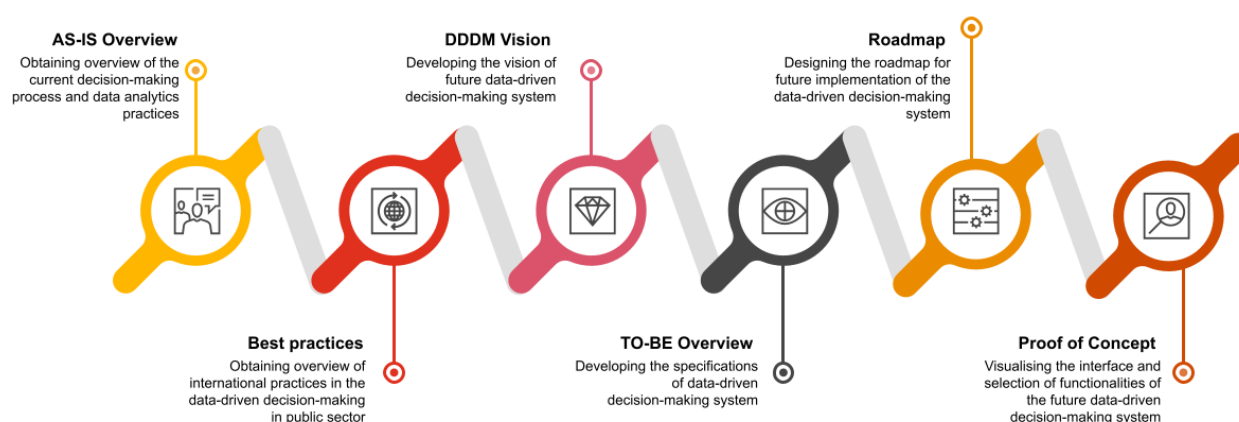
# 2. Approach

## 2.1 Purpose of the Proof of Concept

The purpose of the **Proof of Concept** (POC) is to visualise the user interface and selection of functionalities of the future Data-Driven Decision-Making (DDDM) system. The aim of the POC is to provide an idea and demonstrate how a future DDDM system could look like and operate for the end users of the system, who are primarily civil servants conducting analysis and compiling analytical documents on various topics, as well as drafting decision recommendations for the government's discussion purposes.

This report provides an overview of the POC target groups, the design and development process, a detailed overview of the POC itself, its structure and components, and the selected functionalities demonstrated in the clickable, dynamic POC. The POC is based on the insights, requirements and practices collected and described throughout the project in the deliverables outlined in Figure 4.

Figure 4. Overview of the project deliverables which have provided the input for developing the POC



The POC was designed and developed on the Microsoft Power BI platform and made available online to selected users. A group of test users was suggested and approved by the Beneficiary to collect feedback on the POC from the target group members of the DDDM system. The visual design of the POC was based on the Brand Estonia visual identity guidelines and various visual elements from the toolbox<sup>1</sup> provided by Brand Estonia.

## 2.2 Target Groups

There are four key target groups that will be the expected future users of the DDDM system:

1. Public sector **analysts** – they will be the designers and developers of the functionalities included in the DDDM system until the automated functionalities become available for use.
2. Public sector **officials conducting analysis** – they are the primary users of the DDDM system who will use the system to search for data, conduct analysis and draft the data-driven decision proposals for decision-makers at the government level; they are also the users whose user journey is visualised in the POC.
3. Public sector **officials reviewing and approving the analysis** – they will review the analytical documents produced, approve or suggest modifications to the analysis and provide guidance on drafting the decision proposals.
4. Public sector **decision-makers** – they will discuss and review the results of the analysis and decision proposals.

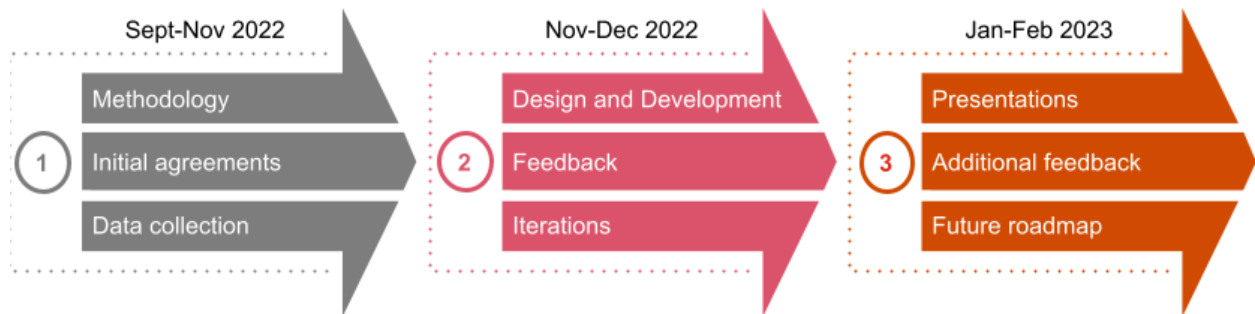
<sup>1</sup> Brand Estonia toolbox, <https://toolbox.estonia.ee>

The POC does not describe the user journey of all target groups. For more information about the user-limitations, please see Section 4.2 User-related Limitations.

## 2.3 Design and Development of the Proof of Concept

The overall process (see Figure 5) of creating the POC was divided into three main phases that spanned across five months. The first phase, that lasted three months, laid the foundation for the work. It included formulating the methodology, accompanied by the relevant data and structure, as well as obtaining all initial agreements between the parties.

Figure 5. Process of POC design and development



The second phase was the design and development phase. It lasted two months, and during that time, together with the Ministry of Environment and the Government Office, a visual representation of the POC was co-created, and consistent user feedback was received helping to shape its functionality and give a sense of value to the end user. The third and final phase was presenting and introducing the POC to a wider audience, as well as collecting additional feedback to make the final touches that helped create the future roadmap.

### 2.3.1 Planning Phase

The first steps were coordinating the methodological approach to the development of the POC and confirming the scope of work with Beneficiary. Together with the Beneficiary, the methodological approach to the POC development was discussed and agreed upon.

It was decided that the POC will demonstrate a real-life analysis case, preferably provided by one of the ministries and officials who had been collaborating with the DDDM project team during the AS-IS business process mapping stage and were familiar with the project's objective. Thereafter, several meetings were held to identify suitable analysis case for the POC, along with determining data availability. Several use cases were set aside due to limited data availability. After agreeing on the terms with the Beneficiary, the first tasks were assigned to the Ministry of Environment, whose analysis case and data were selected as the subject for the initial POC input.

### 2.3.2 Development Phase

The design and development process started in early December. As it was necessary to validate the logic of the user experience, a feedback loop was created with a test circle of officials from the Beneficiary: the Ministry of Environment, the Environmental Agency and Statistics Estonia.

A schedule of weekly meetings was agreed upon (see the list of meetings in the Appendices), to co-create the POC together with the Beneficiary and other stakeholders. During the first meetings, data-related matters were discussed, and the analysis case was reviewed and detailed to better understand which DDDM system functionalities are needed and valuable to be included in the POC for demonstration and testing purposes.

The initial version of the POC was created after the first meeting and was discussed and developed further after each meeting. Iterations and improvements were based on the feedback gathered during the meetings, as well as written feedback provided after individual testing and sent via email.

### **2.3.3 Demonstration Phase**

Based on the initial feedback, improvements were made and another round of feedback collection was initiated to gather additional insights and feedback from stakeholders who will be the potential users of the DDDM system in the future. In early January, several improvements were made based on the direct feedback from the test users, and the POC was finished.

# 3. Proof of Concept

## 3.1 Persona and Problem Formulation for the Proof of Concept

In order to validate the POC, it was necessary to select the right target group that would test the processes and functions and would also be the actual end user of the tool. The end users are mostly specialists and advisors of ministries and other supportive government officials who prepare various analytical documents for discussion at the government’s cabinet meeting.

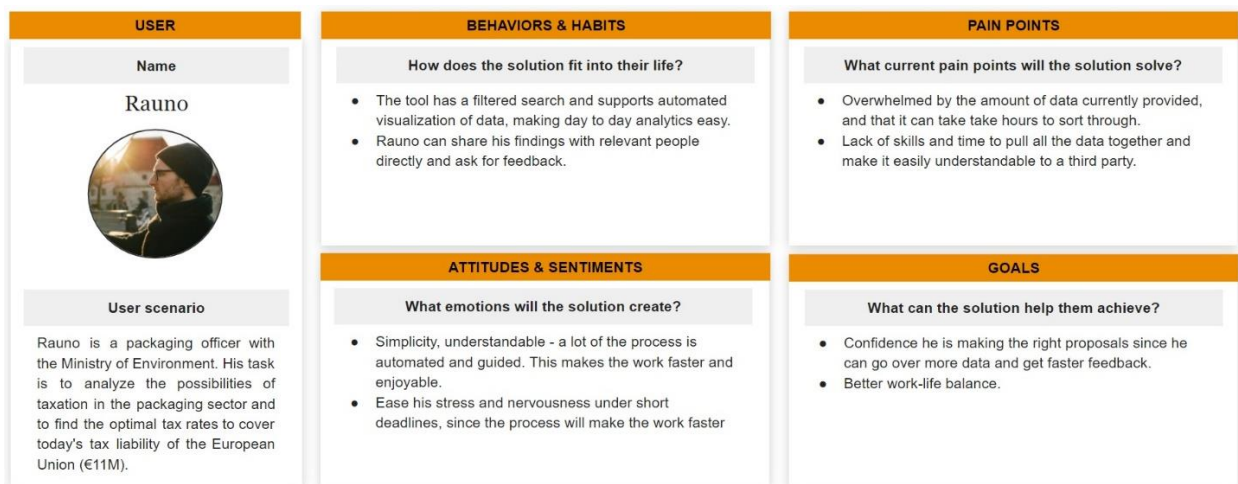
In order to make the development of the POC as functional and useful as possible, a persona named Rauno was created with a real-life problem to solve. The Rauno persona is an officer at the Ministry of Environment who analyses matters related to packaging taxation. The officer representing Rauno persona participated in the POC development process in order to plan, co-create and provide feedback on the work-in-progress versions of the POC with the intention of making the final version of the POC as user-friendly and accurate as possible.

He represented the needs, wants and behaviours of the end users and helped validate and design the steps within the user journey in DDDM system. Once the persona was developed, valuable feedback was gathered to help determine which approaches, actions, features and functionalities should be prioritised to ensure the best possible experience and desired analytical results.

When creating the persona profile (see Figure 6), there were four important questions to answer:

1. How does the solution fit into their life?
2. What emotions will the solution create?
3. What current pain points will the solution solve?
4. What can the solution help them achieve?

Figure 6. Persona profile



This form of profiling helped establish a lens through which to view the process of constructing the user experience. Along with the persona profile, an analysis scenario was also created to test the POC in a real-life user scenario.

### 3.1.1 Analysis use case and problem formulation

For the real-life scenario, it was necessary to find a problem statement that would engage most of the tool’s functions and fully utilise the POC’s structure.

At the beginning of the process, several meetings were held between different stakeholders to discuss the desired format of the POC and the potential analytical content. Together with the Beneficiary, it was decided

to use the case study presented by the Ministry of Environment, hence the persona is a user from this Ministry.

The problem statement that the persona was trying to solve was related to the European Union agreement on tax liability for unrecycled plastic packaging waste. The main problem with this agreement is that the tax revenues from the excise tax on packaging are not sufficient to fulfil the obligations arising from the EU agreement. This means that the Government would have to cover the deficit to fulfil this agreement, which is around 11 million euros per year (96% of the total liability).

The main goal of this exercise was for Rauno (persona), by using the POC of the DDDM system, to transform the analysis of packaging fees prepared by the Ministry of Environment into a dynamic form that would allow him to easily and independently test and analyse different alternatives at the same time, providing valuable, data-driven insights to draft the decision proposal for government's discussion.

### 3.2 Overview and Structure of the Proof of Concept

The idea of the POC was based on effective and functional data sourcing functionalities that could extract and connect different datasets from selected sources and create a comprehensive analysis and holistic view of any given dataset.

The following criteria were used as the basis for the POC:

- Problem formulation of the analysis case.
- A search function that enables searching for specific data related to the analysis case in interfaced data sources.
- The alignment of the functionalities that were included in the POC.
- Selection of the most important functions to ensure that the future user of the DDDM system - the official drafting the memorandum or other analytical document - could understand them.

Figure 7. User journey setup in the POC



The user journey setup in POC (see Figure 7) follows a specific set of activities that make the system easy to use and minimises the probability of data cluttering. The user journey of the POC consists of six key steps:

1. Starting the analysis.
2. Searching for data.
3. Selecting relevant data.
4. Analysing the data.
5. Completing the analysis.
6. Discussing the analysis.

These six steps are also used as a progress bar (see Figure 8) throughout the POC, and each step is highlighted to demonstrate where the user currently is in the process of creating the analysis.

Figure 8. Progress bar in the POC

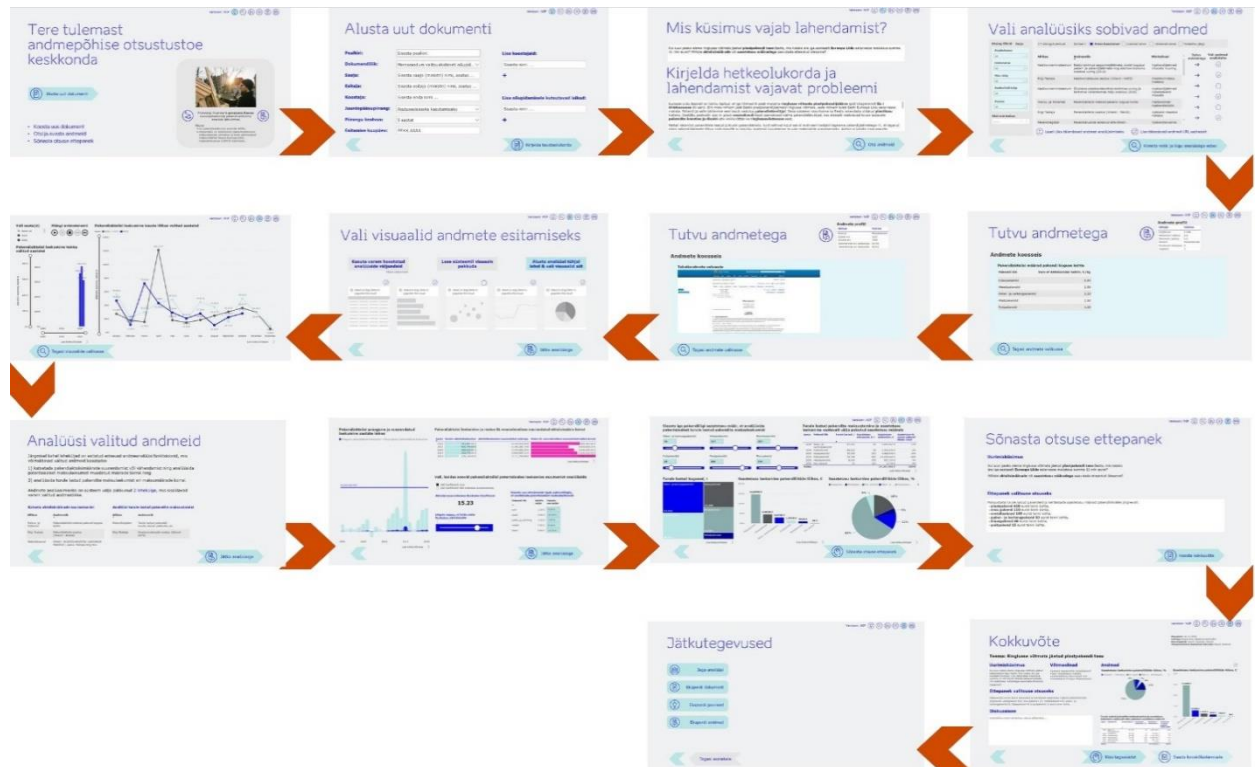


The progress bar highlights that the user is at the “Selecting relevant data” stage of the user journey.

Having all required functionalities available in one tool also helps to establish a common standard of operation and build a methodologically consistent analysis framework for all users. This will allow for a fast information exchange between parties who may want to coordinate the analysis content before drafting the decision proposal for government's discussion.

Altogether, there are fourteen dedicated pages described, starting with a welcome/start page, moving on to the document structuring and analysis pages, and ending with the summary and sharing page (Figure 9). Eight out of these fourteen pages are devoted to content creation, i.e. naming the document, searching for relevant analyses, reviewing and validating source materials etc., and six are devoted to review and administrative pages.

Figure 9. Overview of the process in POC



The POC includes following pages, of which the first two pages are in English, and the following pages are in Estonian, as the target users are Estonian public sector officials:

1. Title, including the Deliverable 1.6 Proof of Concept details (in English).

**Government data-driven decision-making (DDDM) framework implementation. Test case: crisis management REFORM/SC2021/076 (21EE02)**

Deliverable 1.6: Proof of Concept  
Version: FINAL  
Last update: 07.02.2023

The project is funded by the European Union via the Structural Reform Support Programme and implemented by PwC, in cooperation with the European Commission.

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[Overview of the PoC](#)

← Go back | Title | < > | DDDM\_1.6\_Proof\_of\_C... | Data updated 2/7/23 | 90%

2. Overview of the Proof of Concept, including the user journey setup (in English).

**Overview of the Proof of Concept**

The aim of Deliverable 1.6: Proof of Concept is to illustrate the envisioned Data-Driven Decision-Making system, its look and feel, together with selection of various functionalities.

The Proof of Concept follows a user journey of a persona - government official Rauno - who is preparing an analysis document - memorandum - for the discussion at the government's cabinet meeting.

Key steps of the analysis preparation user journey are demonstrated in the Proof of Concept:

- Starting the analysis
- Searching for data
- Selecting relevant data
- Analysing the data
- Completing the analysis
- Discussing the analysis

For demonstration and testing purposes, the Proof of Concept is developed in Estonian.

[View Proof of Concept](#)

← Go back | Overview | < > | DDDM\_1.6\_Proof\_of\_C... | Data updated 2/7/23 | 90%

- A welcome page in the DDDM system, including a brief overview of the persona whose analysis case is being demonstrated by the POC.

Version: FINAL

# Tere tulemast andmepõhise otsustustoe keskkonda

**Alusta uut dokumenti**

- Koosta uus dokument
- Otsi ja avasta andmeid
- Sõnasta otsuse ettepanek

**Prototüüp illustreerib persona Rauno kasutajateeskonda pakendivaldkonna analüüsi läbiviimisei.**

**Rauno**

- on pakendivaldkonna ametnik KEMIS.
- ülesandeks on analüüsida pakendivaldkonna maksustamise võimalusi ja leida optimaalsed maksumäärad lõhise Euroopa Liidu maksukohustuse (11M €) katmiseks.

Go back | Tere tulemast | DDD\_1.6\_Proof\_of\_C... | Data updated 2/7/23

- Start a new analytical document.

Version: FINAL

# Alusta uut dokumenti

**Pealkiri:** Sisesta pealkiri

**Dokumendiliik:** Memorandum valitsuskabineti nõupid... ▾

**Saaja:** Sisesta saaja (ministri) nimi, asutus ...

**Esitaja:** Sisesta esitaja (ministri) nimi, asutus ...

**Koostaja:** Sisesta enda nimi ...

**Juurdepääsupiirang:** Asutusesiseseks kasutamiseks ▾

**Piirangu kestvus:** 5 aastat ▾

**Esitamise kuupäev:** PP,KK,AAAA

**Lisa koostajaid:** Sisesta nimi ...

**Lisa nõupidamisele kutsutavad isikud:** Sisesta nimi ...

**Kirjelda taustaolukorda**

Go back | Alusta uut doku... | DDD\_1.6\_Proof\_of\_C... | Data updated 2/7/23



- Enter the analysis question and describe the background of the analysis situation to activate the data search.

- Review the search results and select data for further analysis.

Allikas	Andmestik	Märksõnad	Tutvu andmetega	Vali andmed analüüsiks
Keskkonnaministeerium	Eestis tekkinud segolemejäätmete, eraldi kogutud paberi- ja pakendijäätmete ning elektroonikaromu koostise uuring (2013)	#pakendijäätmed #koostis #uuring	→	✓
Riigi Teataja	Keskkonnatasude seadus (lühend - KeTS)	#keskkonnatasu #seadus	→	✓
Keskkonnaministeerium	Õhukeste plastkandekottide tarbimise uuring ja tarbimise vähendamise mõju analüüs (2015)	#pakendijäätmed #plastpakend #koostis	→	⌚
Maksu- ja Tolliamet	Pakendiaktsiisi määrad pakendi koguse kohta	#aktsiisimäär #pakendiaktsiis	→	✓
Riigi Teataja	Pakendiaktsiisi seadus (lühend - PakAS)	#pakend #seadus #aktsiis	→	⌚
Pakendiregister	Pakendiaruande esitanud ettevõtted - pakendiaruande_esitanud_ettevõtted.csv	#pakendiaruanne #ettevõtted	→	✓

- Review filter pane to apply filters to narrow the search results and select data for further analysis.

Version: FINAL

## Vali analüüsiks sobivad andmed

17 otsingutulemust    Sorteeri:  Enim kasutatud  Uuemad enne  Vanemad enne  Tähestiku järgi

Asjakohasus	Allikas	Andmetüüp	Märksõnad	Tutvu andmetega	Vali andmed analüüsiks
Alli	Keskonnaministeerium	Eestis tekkinud seagoimejätmete, eraldi kogutud paberi- ja pakendijätmete ning elektroonikaromu koostise uuring (2013)	#pakendijäätmed #koostis #uuring	→	✓
Alli	Riigi Teataja	Keskonnatasude seadus (lühend - KeTS)	#keskkonnatasu #seadus	→	✓
Alli	Keskonnaministeerium	Õhukeste plastkandekottide tarbimise uuring ja tarbimise vähendamise mõju analüüs (2015)	#pakendijäätmed #plastpakend #koostis	→	✓
Alli	Maksu- ja Tolliamet	Pakendilaktsiisi määrad pakendi koguse kohta	#aktsisimäär #pakendilaktsiis	→	✓
Alli	Riigi Teataja	Pakendilaktsiisi seadus (lühend - PakAS)	#pakend #seadus #aktsiis	→	✓
	Pakendiregister	Pakendiaruande esitanud ettevõtted -	#pakendiaruanne	→	✓

Laadi üles täiendavad andmed analüüsimiseks    Lisa täiendavad andmed URL aadressilt

Kinnita valik ja liigu analüüsiga edasi

Go back    Vali andmed 2    DDDM\_1\_6\_Proof\_of\_C... | Data updated 2/7/23

- Review the text data content.

Version: FINAL

## Tutvu andmetega

**Andmete profiil**

Näitaja	Väärtus
Periood	Maarattlemata
Ridade arv	1009
Sõnade arv	7998
Tähemärkide arv tühikutega	64758
Tähemärkide arv tühikuteta	56244

**Andmete koosseis**

**Tekstianandmete eelvaade**

Riigi Teataja

Pakendilaktsiisi seadus (lühend - PakAS)

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Tagasi andmete valikusse

Go back    Tutvu andmeteq...    DDDM\_1\_6\_Proof\_of\_C... | Data updated 2/7/23

9. Review the numerical data content.

**Tutvu andmetega**

Versioon: FINAL

**Andmete profiil**

Näitaja	Väärtus
Kirjete arv	5 rida
Maksimum väärtus	2.5
Minimum väärtus	0.6
Periood	Määratlemata
Puuduvad väärtused	0
Sagedus	1

**Andmete koosseis**

**Pakendiaktsiisi määrad pakendi koguse kohta**

Pakendi liik	Sum of Aktsiisimäär kehtiv, C/kg
Klaaspakendid	0.60
Metallpakendid	2.50
Paber- ja kartongpakendid	1.20
Plastpakendid	2.50
Puitpakendid	1.20

Tagasi andmete valikusse

Go back Tutvu andmeteq... Data updated 2/7/23 90%

10. Select visualisations to visualise the selected data.

**Vali visuaalid andmete esitamiseks**

Versioon: FINAL

Klõpsa vaatamiseks

Vaata varem tehtud analüüse | Genereeri automaatselt uus analüüs | Koosta ise uus analüüs

Select or drag fields to populate this visual

Select or drag fields to populate this visual

Select or drag fields to populate this visual

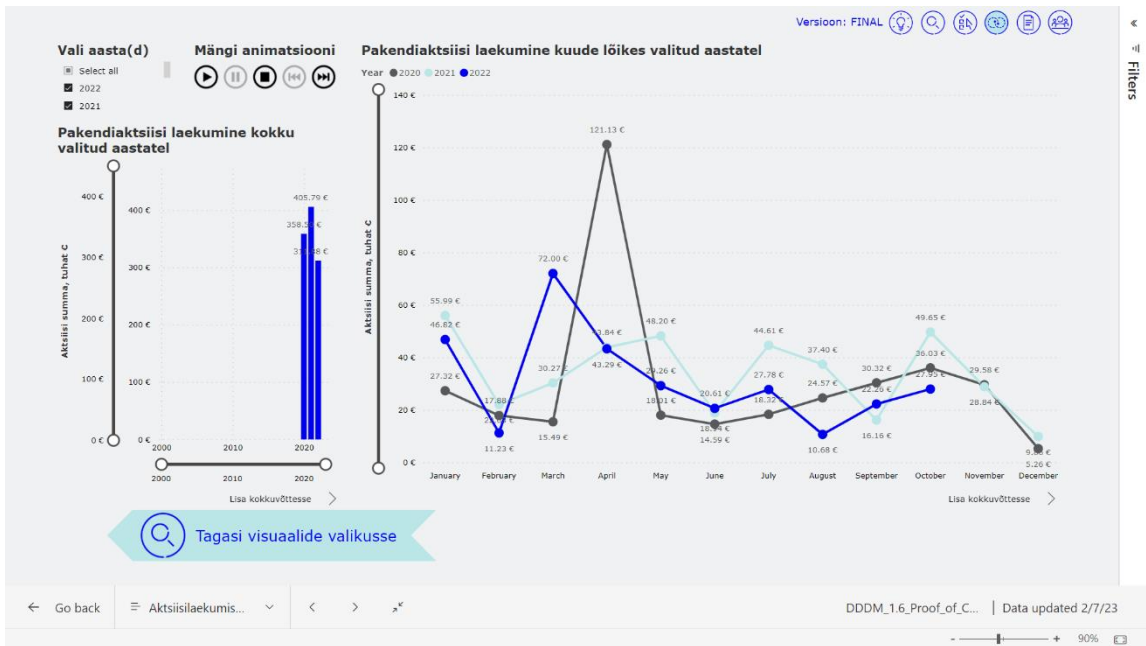
Select or drag fields to populate this visual

Select or drag fields to populate this visual

Jätka analüüsiga

Go back Vali visuaalid Data updated 2/7/23 90%

11. Review and/or reuse pre-made visualisations available in the DDDM system.



12. Summary of the selected data and its display on following analytical pages.

## Analüüsi valitud andmeid

Järgmisel kahel leheküljel on esitatud erinevad andmeanalüüsi funktsioonid, mis võimaldavad valitud andmeid kasutada

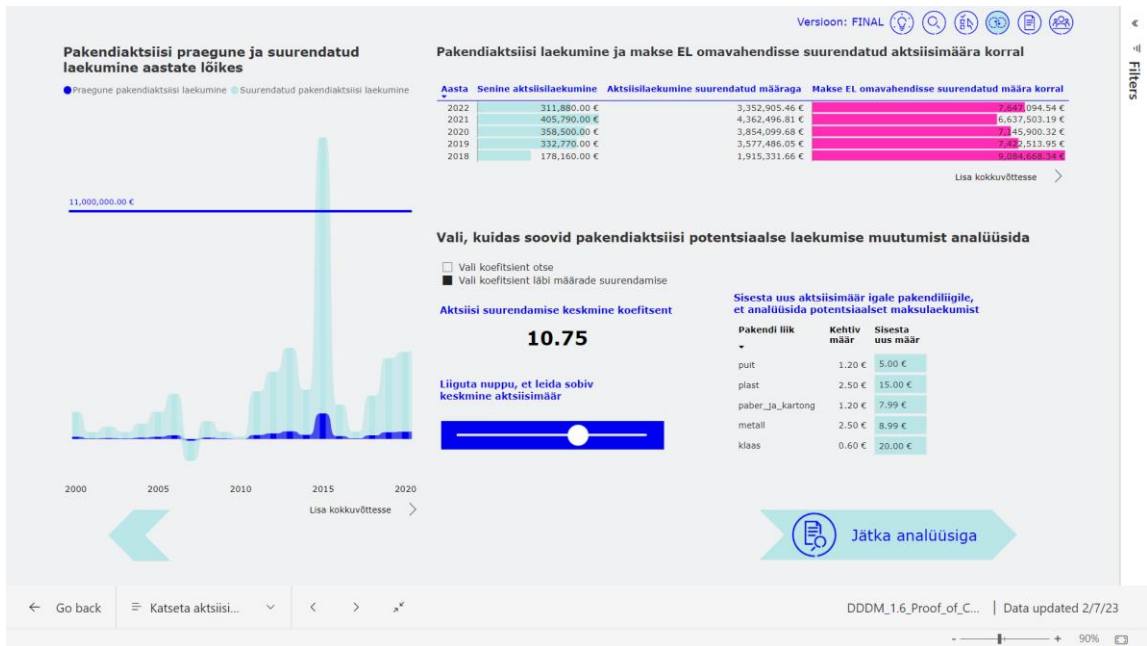
- 1) katsetada pakendiaktsiisimäärade suurendamist või vähendamist ning analüüsida potentsiaalset maksulaekumist muudetud määrade korral ning
- 2) analüüsida turule lastud pakendite maksulaekumist eri maksumäärade korral.

Andmete analüüsimiseks on süsteem välja pakkunud 2 lehekülge, mis sisaldavad varem valitud andmestikke.

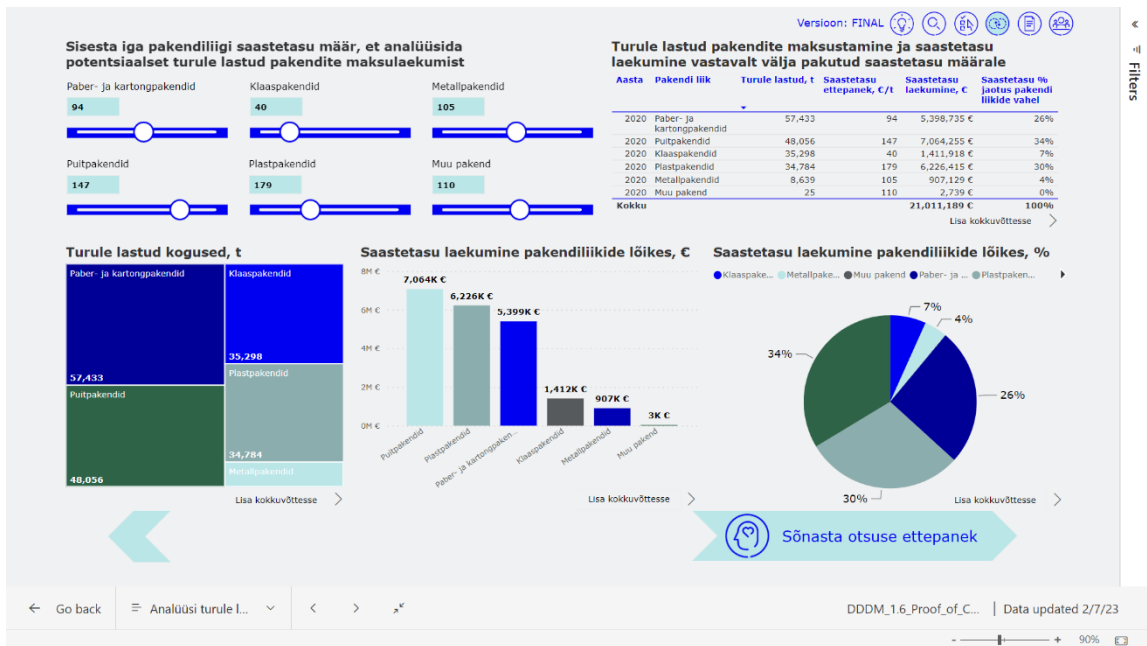
Katseta aktsiisimäärade suurendamist		Analüüsi turule lastud pakendite maksustamist	
Allikas	Andmestik	Allikas	Andmestik
Maksu- ja Tolliamet	Pakendiaktsiisi määrad pakendi koguse kohta	Pakendiregister	Turule lastud pakendid - turule_lastud_pakendid.csv
Riigi Teataja	Pakendiaktsiisi seadus (lühend - PakAS)	Riigi Teataja	Keskonnatasude seadus (lühend - KETS)
Statistikaamet	RR027: RIIGIEELARVESSE LAEKUNUD MAKSUD   Aasta, Näitaja ning Kuu		

[Jätka analüüsiga](#)

13. Analysis page number 1, including various functionalities for analysing the selected data.



14. Analysis page number 2, including various functionalities for analysing the selected data.



15. Draft the decision proposal for government's discussion based on the analysis conducted on previous analytical pages.

Version: FINAL

# Sõnasta otsuse ettepanek

**Uurimisküsimus**

Kui suur peaks olema ringluse võtmata jäetud **plastpakendi tasu** Eestis, mis kataks ära iga-aastaselt **Euroopa Liidu** eelarvesse makstava summa 11 mln eurot?

Milliste **aktsiisimäärade** või **saastetasu määradega** saavutada etteantud ülesanne?

**Ettepanek valitsuse otsuseks**

Maksustada turule lastud pakendeid ja kehtestada saastetasu määrad pakendiliikidele järgnevalt:

- **plastpakend 420** eurot tonni kohta,
- **muu pakend 110** eurot tonni kohta,
- **metallpakend 105** eurot tonni kohta,
- **paber- ja kartongpakend 50** eurot tonni kohta,
- **klaaspakend 40** eurot tonni kohta,
- **puitpakend 15** eurot tonni kohta.

Koosta kokkuvõte

Go back Sõnasta otsuse ... Data updated 2/7/23

16. Complete the summary of the analysis by adding a discussion of the analysis topic and/or a reasoning for the drafted decision proposal.

Version: FINAL

# Kokkuvõte

Kuupäev: 11.11.2020  
 Esitaja: Saara Saar, keskkonnaminister  
 Koostaja(4): Rauno Raamat, nõunik  
 Nõupidamisele kutsutud isik(ud): Rauno Raamat

**Teema: Ringluse võtmata jäetud plastpakendi tasu**

**Uurimisküsimus**

Kui suur peaks olema ringluse võtmata jäetud plastpakendi tasu Eestis, mis kataks ära iga-aastaselt Euroopa Liidu eelarvesse makstava summa 11 mln eurot? Milliste aktsiisimäärade või saastetasu määradega saavutada etteantud ülesanne?

**Võtmesõnad**

#pakend #pakendiliik #plastpakend #tasu #saastetasu #aktsiis #pakendiaktsiis #euroopaliit #el #omavalend #ringlus #taaskasutus

**Ettepanek valitsuse otsuseks**

Maksustada turule lastud pakendeid ja kehtestada saastetasu määrad pakendiliikidele järgnevalt: plastpakend 420, muu pakend 110, metallpakend 105, paber- ja kartongpakend 50, klaaspakend 40 ja puitpakend 15 eurot tonni kohta.

**Diskussioon**

Analüütiline olukorrajäreldus, otsuse põhendus ...

**Andmed**

Saastetasu laekumine pakendiliikide lõikes, %

Saastetasu laekumine pakendiliikide lõikes, €

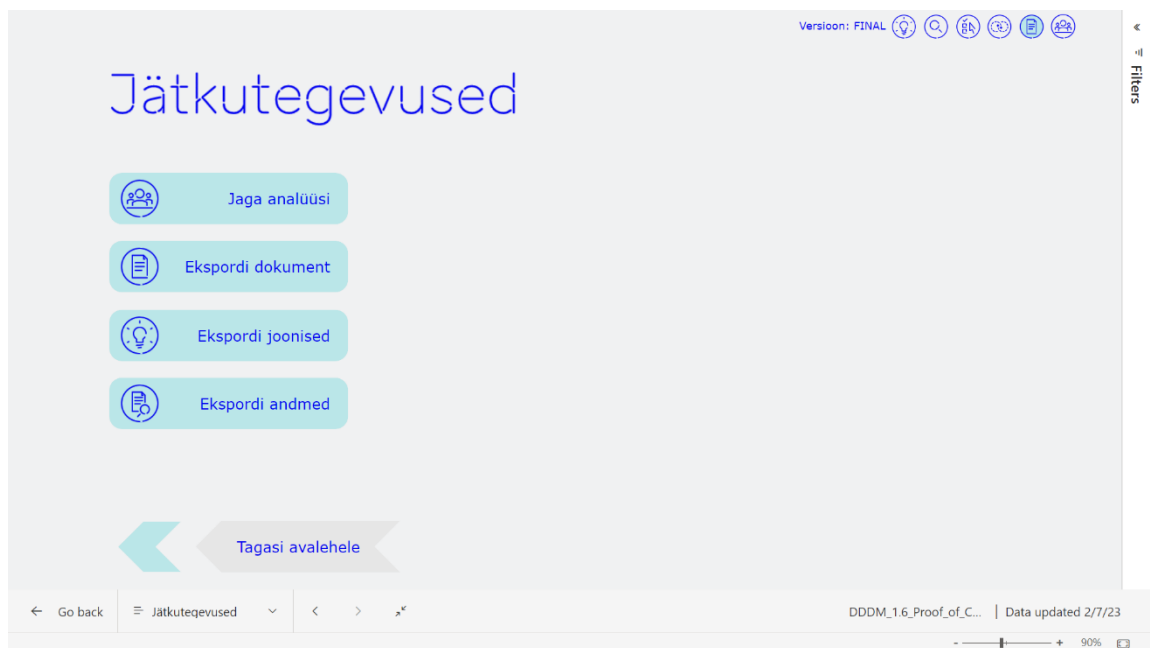
**Turule lastud pakendite maksustamine ja saastetasu laekumine vastavalt välja pakutud saastetasu määradele**

Aasta	Pakendi liik	Turule lastud, t	Saastetasu ettepanek, €/t	Saastetasu laekumine, €	Saastetasu laekumise osakaal, %
2020	Paber- ja kartongpakendid	87 433	50	2 871 667 €	14%
2020	Plastpakendid	48 058	110	5 286 400 €	26%
2020	Klaaspakendid	35 285	40	1 411 420 €	7%
2020	Metallpakendid	34 784	105	3 652 284 €	18%
2020	Muu pakendid	6 439	110	708 279 €	4%
2020	Kokku	212	110	20 532 750 €	100%

Küsi tagasisidet Saada kooskõlastamisele

Go back Kokkuvõte Data updated 2/7/23

17. Selection of follow-up activities or functionalities that can be implemented after the analysis is completed.

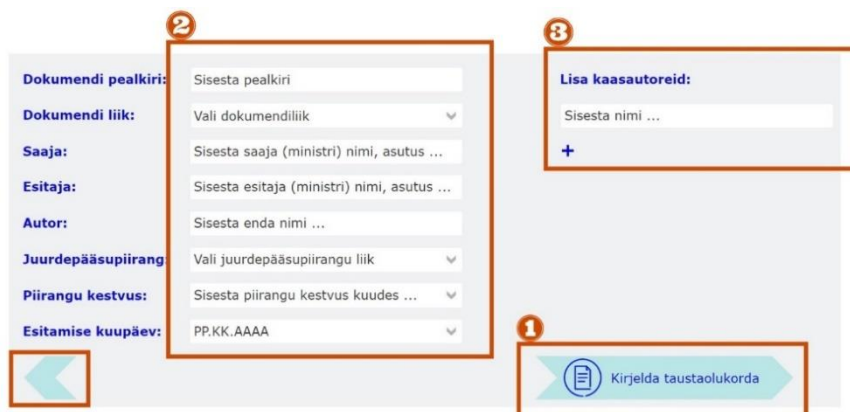


### 3.3 Demonstrated Functionalities in the Proof of Concept

The POC was designed as an engaging and user-friendly interface that demonstrates a selection of functionalities described in earlier deliverables of the project. The current scope of functionalities displayed in the POC was discussed and agreed upon with the Beneficiary.

System buttons (Figure 10; No.1) are guiding the user through the process from start to finish with a “click next” setup. The user can either choose to start a new document or search for an already existing one. There is also an option to add co-authors from the beginning to engage all relevant parties at an early stage.

Figure 10. Options menu at the start of the process

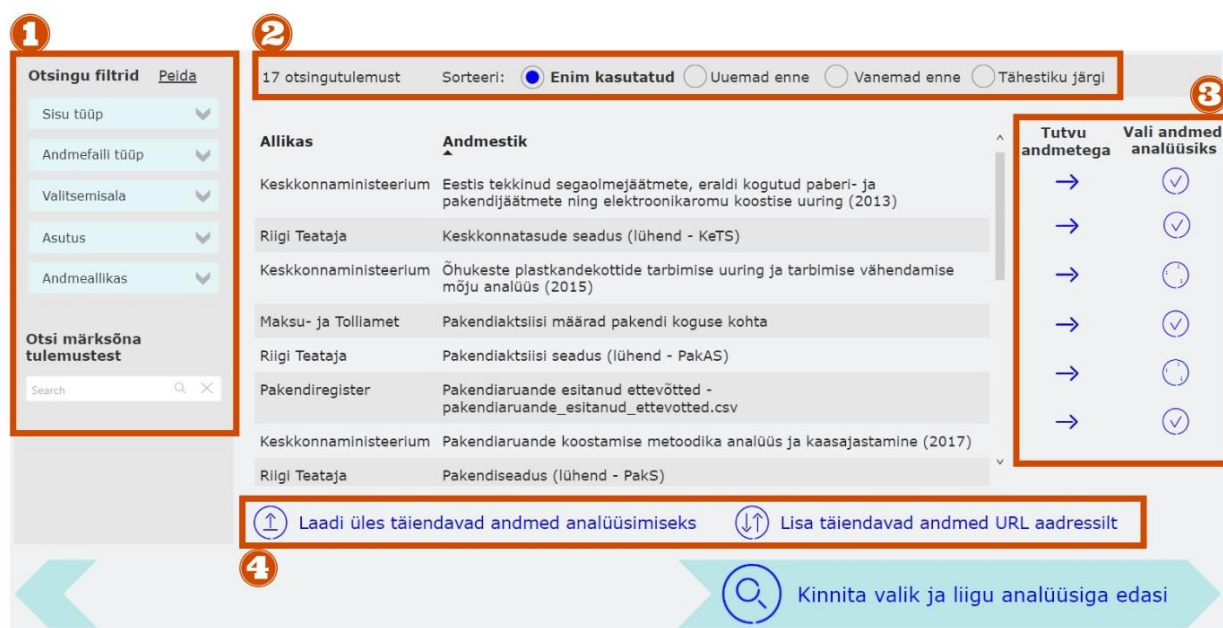


The list of functionalities is highlighted in Figure 10:

1. Move forward with the process.
2. Profile of the document.
3. Add co-authors to the document and share the document with them.

Once the document and user profiles have been configured, the data pool opens (Figure 11), where a search engine, coupled with suggestive analytics, makes the search for relevant data fast and appropriate to the case being analysed. It can show all relevant topics with a history of different searches that have been made previously regarding similar cases.

Figure 11. Search menu





Functionalities include:

1. A drop-down menu to search for the right source as well as a keyword.
2. Filter results (most used, newest, oldest or in alphabetical order).
3. Go to the original source or select data for analysis.
4. Upload datasets or additional information from the web.

If the main input for the work has been selected, the system redirects the user to a function page (Figure 12) where the user can choose between different visualisation methods and automated graphs that can provide several benefits. This provides flexibility and enables the user to select the method that best suits their needs and allows them to explore the data in the way they find most meaningful.

Moreover, different visualisation methods can help users understand data in different ways. For example, a bar chart may be more effective for comparing the values of different data points, while a scatter plot chart may be more effective for identifying patterns and trends. Automated graphs can also save users time and effort by providing a quick and easy way to visualise data, without the need for manual data entry or formatting. This will lead to more efficient decision-making and improved communication. Different visualisation methods can be used to effectively communicate data to different audiences. A pie chart may be more suitable for a general audience, while a line graph may be more suitable for a technical audience.

Figure 12. Options page for different visualisations



The Options page has two main functions:

1. Three different formats where the user can choose to use templates already developed from previous works, allow the system to automatically generate a new template or create a template from scratch.
2. System-generated visuals for a specific dataset.

After selecting the desired visualisation tool for analysis, the system will extract all relevant data related to the search topic and dissect it according to the needs of the selected graph (Figure 13). For example, the data could be divided into periods and then played back to the user in an automated style with all periods selected to showcase the data and create an understanding of how it may have changed over time.

Figure 13. Visualisation tool

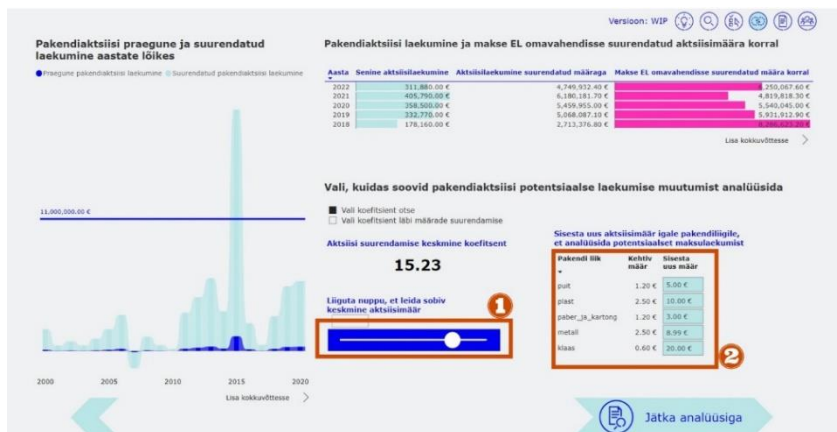


Functions:

1. Select period.
2. Run the visualisation.

In addition to the automated playback and period functions, it is also possible to perform simple impact analysis by increasing or decreasing a specific data point input numerically or with a slider button (Figure 14). This function has many benefits as it allows the user to interactively explore and analyse data. The user can adjust the amount of data points and immediately see the impact on the visualisation in a graph, allowing them to quickly identify trends and patterns in the data. It also increases flexibility as the slider function allows the user to easily adjust the level of detail or granularity of the data displayed, making it easier to analyse data at different scales. By allowing the user to have more control and a better understanding of the data, it can streamline the process of analysis and decision-making.

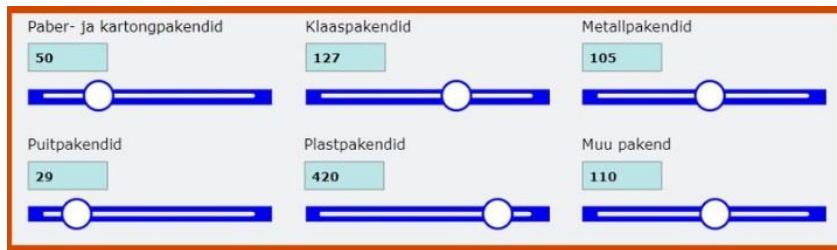
Figure 14. Data visualisation impact tools



Functions where the user can change the input:

1. Slider.
2. Numerical table.

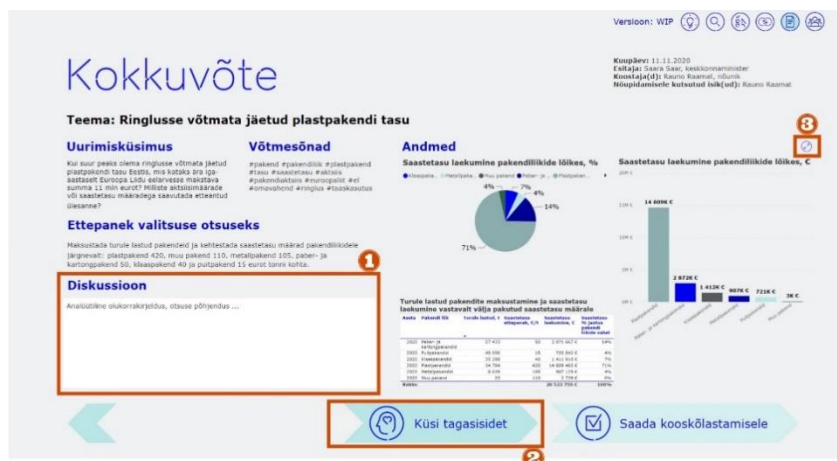
Figure 15. Multiple datasets can be adjusted at the same time to make comparison of data easy



When the user is satisfied with the results of the analysis, they can summarise them on a single report page that has several additional functions that help them further work with the messages and arguments of the report itself (Figure 16).

The summary page has a customisable user interface. This ability to change the interface allows users to customise the report to their specific needs and preferences, which can lead to better understanding and analysis of the data. This enhances the user experience. There is also a drag-and-drop visualisation functionality that allows users to quickly and easily create and arrange different elements in their report, regardless of their technical expertise.

Figure 16. Summary page



The functional items of the summary page are the following:

1. Discussion box: remarks and comments on the document in general.
2. Feedback button: Request direct feedback before presenting the document to a wider audience.
3. Resize button.

The discussion box (Figure 16 No.1) gives the user the option to elaborate and reason the data analysis results and address some of the points that may require additional context. It also allows other users that are working on or viewing the same document to leave their remarks on the topic as well. The direct feedback function on this summary page allows sharing the results separately before finalising or/and presenting the document to a wider audience (Figure 16 No.2). This gives users the opportunity to consult with a specific colleague or specialist before submitting their work for review.

Resize is a function for expanding or minimising the visualised datasets within the layout (Figure 16 No.3). It helps users better organise and structure their data, making it easier to understand and analyse. Used in combination, these functionalities allow for easy changes to the layout and organisation of the summary page and can save users time and effort, allowing them to focus on analysing data, drawing conclusions, and drafting relevant data-driven decisions. A well-designed report with appropriate visualisations can help effectively communicate the insights and findings to the stakeholders and decision-makers.

# 4. Limitations

## 4.1 System-related Limitations

### **POC is designed and demonstrated as a stand-alone system**

Currently, the POC of the DDDM system is designed and demonstrated as a stand-alone system; however, as described in previous deliverables, the DDDM system can be integrated with other systems, and it would be reasonable to use an existing system as a user interface or extension of the DDDM system, such as KOOS co-creation platform.

### **POC includes a limited selection of functionalities**

The POC illustrates only a limited selection of functionalities that are envisioned as part of the future DDDM system. These functionalities have been specifically selected and agreed upon with the Beneficiary to best outline the described persona's user journey and to help solve the real-life analysis case of the persona.

### **POC demonstrates a near-future version of the DDDM system, not the final ambition**

It is important to note that the POC demonstrates a near-future version of the DDDM system, where several functionalities may still require manual input from the user, as the system itself is not yet as intelligent and automated as envisioned due to technological reasons. In 5-10 years, as the technology develops further, several currently demonstrated functionalities in POC may be replaced by intelligent automated solutions and may not require as much input from the users as may be necessary in the current technological situation.

### **POC only shows the front-end viewpoint of the user of the DDDM system, not the back-end**

The POC is designed in such a way that it outlines the system user's journey and gives the POC viewer an opportunity to test some dynamic functionalities, click through the user journey and discover the look and feel of the envisioned DDDM system. The POC does not include the back-end components of the system, such as data models, list of connected data sources, application repository, list of metadata repositories, etc.

### **POC includes only a small sample of data**

The POC includes only a small sample of data compiled from various open data sources to visualise the persona's real-life analysis case. The envisioned DDDM system will have many data sources interfaced to the system, from where data can be searched and used for analytical purposes.

## 4.2 User-related Limitations

### **POC is limited to a single user journey of the official conducting the data search and analysis**

The target groups of the key users of the DDDM system include at least four different user segments as described in previous Section 2.2 Target Groups; however, the POC is limited to a single user journey of the user who will be most actively using the DDDM system and conducting the data search and analysis to prepare data-driven decision proposals for decision-makers.

### **POC does not show the user journey of analyst-developers**

An analyst plays a key role in developing the functionalities and applications in the early phases of the DDDM deployment and supports officials in performing analytical tasks. Over time, as the system becomes more automated, analysts' role and workload will decrease.

### **POC does not show the user journey of the officials reviewing and approving the analysis, as well as the user journey of the decision-makers**

The functionalities of commenting and approving the analysis are not demonstrated in the POC, although such functionalities are expected. It does not show an exact user journey that the official reviewing and commenting on or approving the analysis document goes through.

# 5. Appendices

## 5.1 List of Interviews and Capacity Building Workshops

Table 2. List of Interviews and Capacity Building Workshops

Date	Organisation	Participants, organisation/role
22.11.2022	Government Office	<b>Dmitri Burnašev</b> , Deputy Strategy Director <b>Erik Ernits</b> , Head of Data <b>Ivar Hendla</b> , Strategy Adviser
22.11.2022	Government Office	<b>Erik Ernits</b> , Head of Data
25.11.2022	Ministry of Environment	<b>Rauno Künnapuu</b> , Ministry of Environment
29.11.2022	Government Office	<b>Dmitri Burnašev</b> , Deputy Strategy Director <b>Erik Ernits</b> , Head of Data <b>Ivar Hendla</b> , Strategy Adviser
1.12.2022	Government Office, Ministry of Environment	<b>Erik Ernits</b> , Head of Data of Government Office <b>Rauno Künnapuu</b> , Ministry of Environment
6.12.2022	Government Office	<b>Erik Ernits</b> , Head of Data <b>Ivar Hendla</b> , Strategy Adviser
8.12.2022	Government Office, Ministry of Environment	<b>Erik Ernits</b> , Head of Data of Government Office <b>Rauno Künnapuu</b> , Ministry of Environment
8.12.2022	Government Office	<b>Erik Ernits</b> , Head of Data
9.12.2022	Government Office, Statistics Estonia	<b>Erik Ernits</b> , Head of Data of Government Office <b>Veiko Berendsen</b> , Statistics Estonia <b>Maiki Ilves</b> , Statistics Estonia <b>Kaja Sõstra</b> , Statistics Estonia <b>Ott Karp</b> , Statistics Estonia
12.12.2022	Government Office	<b>Erik Ernits</b> , Head of Data
22.12.2022	Government Office, Ministry of Environment,	<b>Dmitri Burnašev</b> , Deputy Strategy Director <b>Erik Ernits</b> , Head of Data <b>Rauno Künnapuu</b> , Ministry of Environment <b>Ivar Hendla</b> , Strategy Adviser
12.01.2023	Government Office, OECD, DG Reform	<b>Arturo Rivera</b> , OECD, Lead, Data-driven public sector & South-East Asia, Digital Government and Data Unit <b>Cecilia Emilsson</b> , OECD, Policy analyst <b>Erik Ernits</b> , Head of Data <b>Akshay Bakhai</b> , DG Reform, Advisor
16.01.2023	Government Office	<b>Erik Ernits</b> , Head of Data
24.01.2023	Government Office	<b>Erik Ernits</b> , Head of Data
31.01.2023	Government Office, Data Officers Roundtable	<b>Erik Ernits</b> , Head of Data 19 participants from various Ministries and Public Sector Institutions
07.02.2023	Government Office, Data Officers Roundtable	<b>Erik Ernits</b> , Head of Data 5 participants from various Ministries and Public Sector Institutions
07.02.2023	Government Office, Estonian Language Institute	<b>Erik Ernits</b> , Head of Data 4 participants from Estonian Language Institute

Date	Organisation	Participants, organisation/role
07.02.2023	Government Office, OECD, DG Reform	<b>Arturo Rivera</b> , OECD, Lead, Data-driven public sector & South-East Asia, Digital Government and Data Unit <b>Erik Ernits</b> , Head of Data <b>Akshay Bakhai</b> , DG Reform, Advisor

## 5.2 Link to Proof of Concept

The Proof of Concept is available online on the Power BI web platform at [this weblink](#).

**Government data-driven decision-making (DDDM) framework implementation. Test case: crisis management REFORM/SC2021/076 (21EE02)**

Deliverable 1.6: Proof of Concept  
Version: FINAL  
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