MIND STEP

MODELLING INDIVIDUAL DECISIONS TO SUPPORT THE EUROPEAN POLICIES RELATED TO AGRICULTURE

Deliverable D 7.3: List of data storage and processing capacities required by partners WP 2-6

AUTHORS	Neuenfeldt, Sebastian, Gocht, Alexander (Thuenen)
APPROVED BY WP MANAGER:	Gocht, Alexander (Thuenen)
DATE OF APPROVAL:	18-11-2019
APPROVED BY PROJECT COORDINATOR:	Hans van Meijl (WR)
DATE OF APPROVAL:	28-11-2019
WP NUMBER & TITLE	WP 7 ICT platform of MIND STEP and the MIND STEP model toolbox
DISSIMINATION LEVEL	Public
PROJECT WEB SITE:	https://mind-step.eu

This document was produced under the terms and conditions of Grant Agreement No. 817566 for the European Commission. It does not necessary reflect the view of the European Union and in no way anticipates the Commission's future policy in this area.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 817566.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 773901.

TABLE OF CONTENTS

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 817566.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 817566.

EXECUTIVE SUMMARY

This report summarises the results of a questioner sent to the partners of the mind step consortia to report on the storage and processing requirements for the project. We ask the partner to report the requirement for each economic model and/or for each data processing foreseen in the project. The result is listed in the table. In addition, partner should indicate if they need additional resources provided by WP7. This is not the case as the partners and institutes can provide all required resources by them self.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 817566.

1. INTRODUCTION

In this deliverable we list the data storage and processing capacities required by MIND STEP partners for their models. Therefore, we prepared an Excel file in which the partners had to fill in their requirements of data storage and processing capacities. As this information is closely linked to WP2 “Data requirements for indicators on European policies related to agriculture and data management” with D2.1 “Summary of required data from WP 3/4/5”, we decided to build an Excel file which lists both information. For D2.1 the partners are asked to list their data sources they require for their models to properly run. Naturally those requirements are also important for their data storage and processing capacities needs. To put both information into one table gives additionally a good overview for all partners and interested persons. In this deliverable we only present the data requirements for the partners and their models, leaving the data sources for WP2.

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement N° 817566.

2. LIST OF DATA STORAGE AND PROCESSING CAPACITIES

In this chapter we present the information given by partners with regard to the data storage and processing capacities. The partners were asked to fill in an Excel file the information for their models and for the data they use. For this deliverable we present only the hardware requirements for each partner and their models.
The partners were asked to list three categories of requirements for their models: first, the hard disk storage (HDD) and memory (RAM) requirements; second, which and how many processors or graphic processing units they use; and third, which operating system and programming/statistical software are necessary to run their models. In **Error! Reference source not found.** the requirements are presented by each partner and model (column "Models by partners") with the corresponding tasks in MIND STEP and the three requirement categories ("HDD storage req./RAM", "CPU/GPU cores req." and "SYSTEM/Software"). We got the information from almost all partners, the information partners are indicated in red.
The crop model from INRA uses 2 terabytes of data storage and 64 gigabytes of RAM, 2 Xeon processors with 32 cores. They use Windows as their operating system and R and SAS as their statistical software. The risk management model from THUENEN uses national farm accountancy data (FADN data) and they are running their model at Windows with R and SAS as their statistical software and additionally the programming language GAMS. The farm exit model, also from THUENEN, uses farm population data and due to data protection rules it has to be run at the research data centre (RDC) in Berlin on a Windows machine with the statistical software R. AgriSpace from NIBIO runs at their own facilities and uses GAMS a corresponding graphical user interface (GUI). The supply chain model from UCSC runs only on their local facilities. The FarmDyn model uses over 5 terabytes of data storage and 128 gigabytes of RAM with a CPU of 32 cores. They run their models on Windows and use GAMS, R, Stata and Python. The current running version of IFM-CAP runs at their own facilities and adjusts the requirements as necessary. Further they running at Windows operating system with statistical software R, programming language GAMS and Excel.

During the kick-off meeting it turned out, that almost all partners have to run their own models at their own facilities due to data protection issues of the data they use in their models. The partners were also asked to indicate if they need data storage or processing facilities inside the MIND STEP project. There was no indication for the need of these requirements; therefore, the hardware requirements listed here do not mean that those have to be provided in MIND STEP. All partners meet their requirements at their own facilities. Additionally, partners like THUENEN with farm exit model have to run their model at the RDC in Berlin or the IFM-CAP team runs their current version at facilities in the Joint Research Centre due to data protection rules.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 817566.

Table 1: List of data storage and requirements sent by partners

	WP7 D7.3 requirements		
Models by partners	HDD storage req./RAM	CPU/GPUcores req.	SYSTEM/Software
Template model (Task 3.2)			
GHG Model (Task 3.3 WR)			
Crop Model (Task 3.4 INRA)	HDD 2tb/ RAM 64 Go	2 Xeon processors with 32 cores	Windows / R, SAS
Risk management model (Task 3.5 THUENEN)	National FADN only local	National FADN only local	windows / R/SAS/GAMS
Farm Exit Model (Task 4.2 (i) THUENEN)	not relevant as running on RDC	not relevant as running on RDC	windows / R
AgriSpace (Task 4.2 (ii) NIBIO)	N/A	N/A	GAMS/GUI
FarmAgripolis (Task 4.3 IAMO)			
Supply chain Model (Task 4.4 UCSC)	Only local	Only local	Only local
FarmDyn (Task 4.5 UBO)	>5 TB; 128 GB RAM	32 cores	Windows, GAMS, R, Stata, Python
IFM-CAP (Task 5.2 & 5.3 JRC)	Run in JRC servers. Storage requirements adjusted as necessary	Run in JRC servers. Dedicated RAM and CPUs adjusted as necessary	Windows, GAMS, R, excel
GLOBIUM (Task 5.2.1 IIASA)			
MAGNET (Task 5.2.1 WR)			

Source: Own contribution with information from partners

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 817566.

3. CONCLUSION

From the information given and the discussions during the kick-off meeting almost all models need high capacities of data storage, memory as much as possible and multi-processing units with a high number of cores. Most partners use the operating system Windows and the main programming and statistical software is R, SAS and GAMS.

We conclude, in all cases the hardware requirements listed here are not being provided in the MIND STEP project as all partners run their models on their own machines, because no partner indicated needs inside of MIND STEP. In deliverable D2.1 the joined Excel file with this deliverable is further elaborated and presented.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 817566.

ACKNOWLEDGMENT & DISCLAIMER

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 817566. Neither the European Commission nor any person acting on behalf of the Commission is responsible for how the following information is used. The views expressed in this publication are the sole responsibility of the author and do not necessarily reflect the views of the European Commission.

ANNEX I MIND STEP WP7 TEAM

Mr Sebastian Neuenfeldt (THUENEN)
Mr Alexander Gocht (THUENEN)
Mr John Helming & Mr Marc Müller (WEcR)
Mr Frank Stefan (IASA)

CONSORTIUM DESCRIPTION

The consortium of MIND STEP consists of 11 partners from 7 countries in Europe (the Netherlands, Germany, Austria (IIASA), Italy, France, Spain (JRC-Seville), Norway and Hungary). It includes partners from the private and public sector representing:

- Academia and higher education (UBO, UCSC, WU).
- SME dealing with research consultancy, data collection, strategic advice, normalization and policy in the field of energy, environment and sustainable development. This SME has also a strong track record in the field of communication, stakeholder engagement and exploitation (GEO)
- Public government bodies dealing with agricultural and environmental research and data collection and building agricultural models at different scales (WR, IIASA, IAMO, THUENEN, INRA, NIBIO, JRC)

The consortium has been carefully constructed in such a way that it is capable of jointly managing all activities and risks involved in all project stages. Each partner contributes its own particular skills, (inter) nationally wide network and expertise, and has a critical role in MIND STEP. Partner expertise smoothly complements each other and all together form the full set of capabilities necessary to lead MIND STEP to a success. Achieving the overall objective is determined by all partners in the consortium as well as their ability to involve other interested stakeholders in the process of developing, validating and disseminating the IDM models, indicators and methodologies (WR, UBO, IAMO, UCSC, WU, THUENEN and INRA) and linking IDM models to current agricultural policy models (WR, IIASA, UBO) included in the MIND STEP model toolbox. Dissemination and communication activities are steered by partner GEO who has graphic design, IT and marketing communication teams to deliver out-of-the-box and novel solutions for dissemination and communication and JRC who has a large network with policy makers. GEO has experience in leading comparable activities in H2020 projects as UNISECO and COASTAL. The coordinator WEcR is part of Stichting Wageningen Research (Wageningen Research Foundation, WR). WR consists of a number specialised institutes for applied research in the domain of healthy food and living environment. WR collaborates with Wageningen University (WU) under the external brand name Wageningen University & Research. One of the strengths of Wageningen University & Research (including WR) is that its structure facilitates and encourages close cooperation between different disciplines. The institutes Wageningen Economic Research (proposed coordinator of MIND STEP, WEcR) and Wageningen Environmental Research (WEnR) are involved in this proposal. The One-Wageningen approach will also be applied to MIND STEP. WEcR has a long standing reputation of leading large scale EU projects, such as SUPREMA, Foodsecure, SUSFANS, FLINT, SAT-BBE, and SIM4NEXUS.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 817566.