Plan Overview

A Data Management Plan created using DMPonline

Title: Health Systems Performance Assessment: Re-thinking indicators for resource management

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Template: TU Delft Data Management Plan template (2025)

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Project abstract:

Health systems rely on core resources, including the health workforce; the physical infrastructure and medical equipment; and pharmaceuticals and other consumables (such as single use medical devices); to deliver quality care and improve population health. These resources are essential to system performance and sustainability, yet they are often underrepresented in assessments of health system performance. The 2022 World Health Organization Health Systems Performance Assessment (HSPA) framework identifies “resources” as one of four key functions, alongside governance, financing, and service delivery. However, existing indicators for measuring resource-related capabilities within health systems tend to be generic, decontextualized, and poorly aligned with countries’ planning and decision-making needs. There is a pressing need to improve how we measure resources to better reflect realities across diverse health system settings. Our study aims to identify, assess, and co-produce a set of relevant and feasible indicators to measure the resource function of health systems.

We will (i) conduct a systematic review to identify existing resource indicators, assess their validity and links to performance outcomes, and map gaps in current coverage; (ii) undertake a modified Delphi study with experts from low- and high-income countries to reach consensus and co-produce a core set of the most important and feasible resource-related indicators. This study aims to improve the relevance, usability, and policy value of health systems performance assessments by strengthening how resources are measured. By developing indicators that are context-sensitive and aligned with decision-making needs, we hope to support more informed resource planning, priority-setting, and accountability.

ID: 180639

Start date: 01-03-2023

End date: 31-03-2026

Last modified: 11-11-2025

Grant number / URL: N/A Internal TU Delft funded

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Health Systems Performance Assessment: Re-thinking indicators for resource management

0. Administrative questions

1. Provide the name of the data management support staff consulted during the preparation of this plan and the date of consultation. Please also mention if you consulted any other support staff.

Nicolas Dintzner, Data Steward at the Faculty of Technology, Policy and Management, has reviewed this DMP on 4-July-2025.

2. Is TU Delft the lead institution for this project?

- Yes, the only institution involved

I. Data/code description and collection or re-use

3. Provide a general description of the types of data/code you will be working with, including any re-used data/code.

Type of data/code	File format(s)	How will data/code be collected/generated? *For re-used data/code: what are the sources and terms of use?*	Purpose of processing	Storage location	Who will have access to the data/code?
Personally Identifiable Information (PII) of Delphi participants: name, email	.xls	from participants	For administrative purposes: obtaining consent and communicating with participants	Surfdrive	Saba Hinrichs-Krapels; Tina Comes
Informed Consent Forms	.pdf	Informed consent forms signed digitally.	To obtain and document informed consent.	Surfdrive	Saba Hinrichs-Krapels; Tina Comes
Responses (i.e. votes) of participants during Delphi consensus survey	.xls	from participants during workshop and online survey	Part of data collected for the research outcomes	Surfdrive	Saba Hinrichs-Krapels; Tina Comes
Data from open sources on health systems performance indicators	.csv; xls; pdf	From online open-sources	to inform the Delphi consensus study (research purpose)	Surfdrive	Saba Hinrichs-Krapels; Tina Comes
Analysis script	R or python	Created by research team	to analyse the survey results	Surfdrive	Saba Hinrichs-Krapels; Tina Comes
Workshop recordings	audio files	via MS Teams	to capture insights of experts during workshops [research purposes]	Surfdrive	Saba Hinrichs-Krapels; Tina Comes
Workshop transcripts	docx	from MS Teams	to capture insights of experts during workshops [research purposes]	Surfdrive	Saba Hinrichs-Krapels; Tina Comes

II. Storage and backup during the research process

4. How much data/code storage will you require during the project lifetime?

- < 250 GB

5. Where will the data/code be stored and backed-up during the project lifetime? (Select all that apply.)

- TU Delft OneDrive
- SURFdrive

III. Data/code documentation

6. What documentation will accompany data/code? (Select all that apply.)

- Procedure – A description of data processing procedure(s) (such as laboratory setup, simulation workflows).
- Data – README file or other documentation explaining how data are organised
- Data – Codebook describing the contents, structure, layout, and variable definitions of the data
- Data – Methodology of data collection

IV. Legal and ethical requirements, code of conducts

7. Does your research involve human subjects or third-party datasets collected from human participants?

If you are working with a human subject(s), you will need to obtain the HREC approval for your research project.

- Yes – please provide details in the additional information box below

In this three-phrase study, we will (i) conduct a systematic review to identify existing resource indicators, assess their validity and links to performance outcomes, and map gaps in current coverage; (ii) undertake a modified Delphi study with experts from low- and high-income countries to reach consensus and co-produce a core set of the most important and feasible resource-related indicators, and (iii) develop an adaptable, open-access repository to support national and cross-country learning on critical resource management (using open source data).

HREC will be required for step (ii) only.

I have applied for (and received) ethical approval from the Human Research Ethics Committee on [date] with HREC application number [#12345].

8. Will you work with personal data? (This is information about an identified or identifiable

natural person, either for research or project administration purposes.)

- Yes

For the Delphi study, we will collect participants personal data such as email, country, name, and role/expertise.

9. Will you work with any other types of confidential or classified data or code as listed below? (Select all that apply and provide additional details below.)

If you are not sure which option to select, ask your Faculty Data Steward for advice.

- No, I will not work with any other types of confidential or classified data/code

10. How will ownership of the data and intellectual property rights to the data be managed?

For projects involving commercially-sensitive research or research involving third parties, seek advice of your Faculty Contract Manager when answering this question.

This is an internal TU Delft research project.

11. Which personal data or data from human participants do you work with? (Select all that apply.)

- Other types of personal data or other data from human participants – please provide details below
- Free text fields (for instance, in questionnaires) in which participants could unintentionally share personal data
- Proof of consent (such as signed consent materials which contain name and signature)
- Audio recordings
- Job title and/or employer
- Telephone number, email addresses and/or other addresses as contact details for administrative purposes
- Date of birth and/or age
- Gender
- Names as contact details for administrative purposes

Location/country of operation for participants.
Gender and age (range only) is collected only to create gender balance in the group of participants.

12. Please list the categories of data subjects and their geographical location.

We envisage that the panel will comprise of decision-makers from hospital management, the wider

health services such as primary care and mental health, and policy makers from the Ministry of Health within respective countries. Participants invited to the panel will include low- and middle-income countries such as Indonesia, Malawi and South Africa; and high-income countries such as the Netherlands, Italy, Germany, UK, Australia and New Zealand. Health system experts identified from other countries will also be included for invitation.

13. Will you be receiving personal data from or transferring personal data to third parties (groups of individuals or organisations)?

- No

16. What are the legal grounds for personal data processing?

- Informed consent

17. Please describe the informed consent procedure you will follow below.

The researcher will inform the potential participants about the goals and procedures of the research project. The researcher will also inform them about the personal data that are being processed and for what purpose. This information will be provided to the potential participants as follows: study information and informed consent form are sent to participants before survey/workshops. They can reach out to the researcher if any questions arise. All participants will be asked for their consent for taking part in the study and for data processing by signing a digital informed consent form before the survey/workshop.

18. Where will you store the physical/digital signed consent forms or other types of proof of consent (such as recording of verbal consent)?

Same storage solutions as explained in question 6

19. Does the processing of the personal data result in a high risk to the data subjects? (Select all that apply.)

If the processing of the personal data results in a high risk to the data subjects, it is required to perform a Data Protection Impact Assessment (DPIA). In order to determine if there is a high risk for the data subjects, please check if any of the options below that are applicable to the processing of the personal data in your research project.

If any category applies, please provide additional information in the box below. Likewise, if you collect other type of potentially sensitive data, or if you have any additional comments, include these in the box below.

If one or more options listed below apply, your project might need a DPIA. Please get in touch with the Privacy team (privacy-tud@tudelft.nl) to get advice as to whether DPIA is necessary.

- None of the above apply

23. What will happen with the personal data used in the research after the end of the research project?

- Anonymised or aggregated data will be shared with others

24. For how long will personal research data (including pseudonymised data) be stored?

- Other – please state the duration and explain the rationale below

A followup study is intended. We would like to give participants the option of taking part in a followup study within 5 years of the end of this study. This will be indicated in the consent form.

25. How will your study participants be asked for their consent for data sharing?

- In the informed consent form: participants are informed that their personal data will be anonymised and that the anonymised dataset is shared publicly

In the informed consent form: participants are informed that their personal data will be anonymized and that the anonymized dataset is shared publicly.

V. Data sharing and long term preservation

27. Apart from personal data mentioned in question 23, will any other data be publicly shared?

Please provide a list of data/code you are going to share under 'Additional Information'.

- All other non-personal data/code produced in the project

Survey results (fully anonymous) will be shared.
Analysis script (anonymous) will be shared.
Methodology will be shared.

29. How will you share research data/code, including those mentioned in question 23?
Select all that apply and provide additional details below.

- All anonymised or aggregated data, and/or all other non-personal data/code will be uploaded to 4TU.ResearchData with public access

30. How much of your data/code will be shared in a research data repository?

- < 100 GB

31. When will the data/code be shared?

- As soon as corresponding results (papers, theses, reports) are published

32. Under what licence(s) will the data/code be released?

- CC BY-SA

VI. Data management responsibilities and resources

33. If you leave TU Delft (or are unavailable), who is going to be responsible for the data/code resulting from this project?

Co-investigator: Tina Comes; and Alexander Verbraeck.

34. What resources (for example financial and time) will be dedicated to data management and ensuring that data will be FAIR (Findable, Accessible, Interoperable, Re-usable)?

4TU.ResearchData is able to archive 1TB of data/code per researcher per year free of charge for all TU Delft researchers. We do not expect to exceed this and therefore there are no additional costs of long term preservation.

35. Which faculty do you belong to?

- Faculty of Technology, Policy and Management (TPM)