



Healthcare Systems Sustainability and Resilience: Creating an Index

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Background

- The COVID-19 pandemic has highlighted the need for sustainable and resilient healthcare systems to protect population health.
- To achieve this, there is a need to assess current healthcare system sustainability and resilience and to measure the progress of health systems towards becoming more sustainable and resilient.
- This requires an understanding of the factors that contribute to a more sustainable and resilient healthcare system.
- Our research complements and builds upon a pilot study undertaken by the Partnership for Healthcare System Sustainability and Resilience (PHSSR) that qualitatively explored health systems' sustainability and resilience in several countries¹.

Aim

To pilot the development of a country-level index that will enable countries to quantitatively assess potential areas of strength and weakness not only within their healthcare system but external factors which can impact the sustainability and resilience of the healthcare system.

Methodology

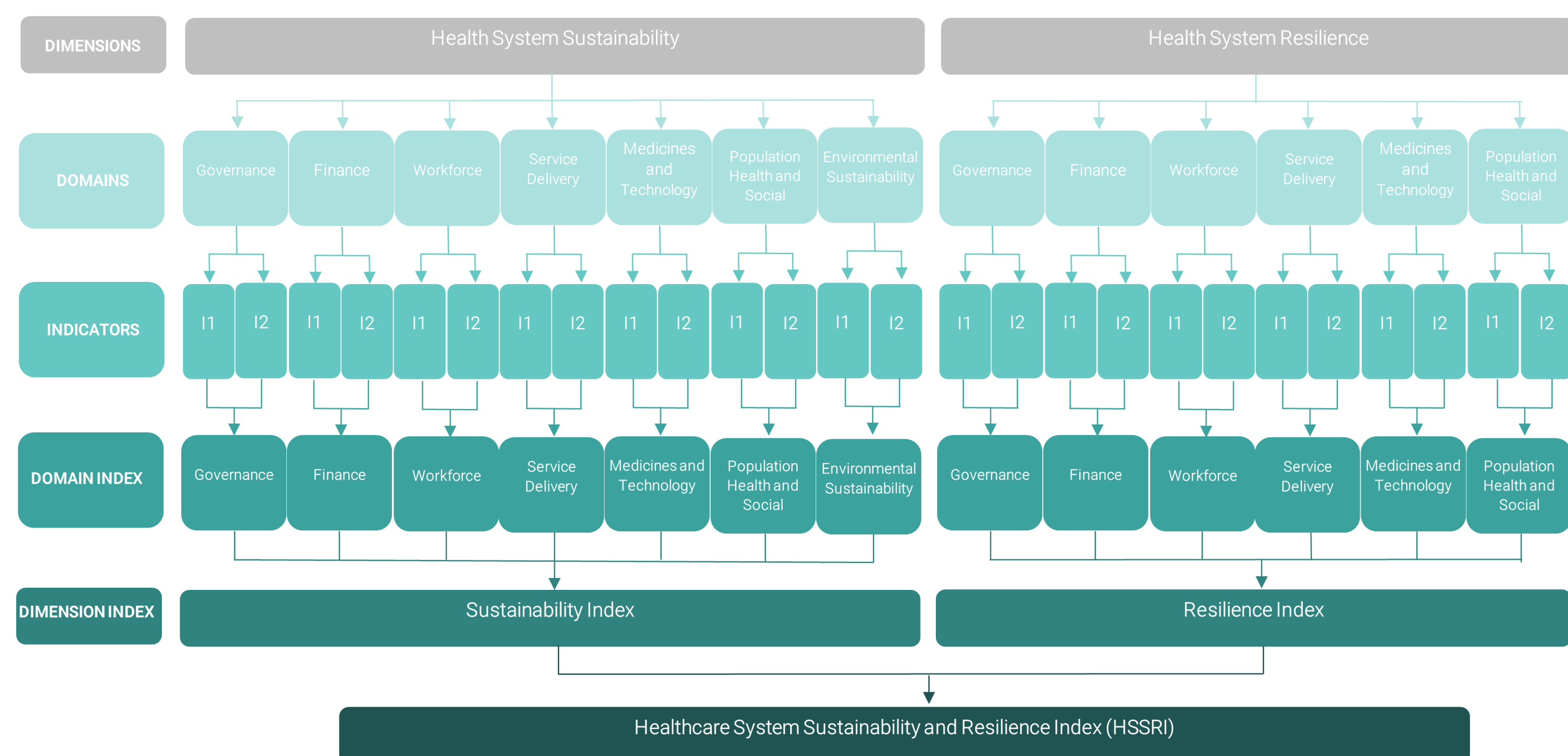
Dimensions: The Healthcare System Sustainability and Resilience Index (HSSRI) includes two dimensions: **health system sustainability** and **health system resilience**. Each of these dimensions is characterised by several domains.

Domains: The domains we propose for the HSSRI build upon the domains explored in PHSSR's qualitative research¹ and include i) **health system governance**, ii) **health system financing**, iii) **health system workforce**, iv) **medicines and technologies**, v) **health service delivery**, vi) **population health and social determinants**, vii) **environmental sustainability**. Domains i) to vi) are included in both dimensions. Domain vii) is only included in the sustainability dimension.

Indicators: To identify indicators for each domain, we conducted a rapid evidence assessment using two bibliographic databases: PubMed and Google Scholar. The search criteria aimed to extract information on indicators reflecting the necessary domains to capture health systems' sustainability and resilience. In addition, we conducted a targeted review of sources of data and key websites. The literature examination identified a long list of potential indicators for each domain. To evaluate their suitability for consideration in our index, each identified indicator was assessed using two criteria: publication quantity and publication quality. In addition, only indicators where relevant data was available from publicly available data sources were included.

Populating the Index: The high-income countries of interest for this pilot were France, Germany, Japan, Poland, and the United Kingdom. Data were collected from 2000 to 2020.

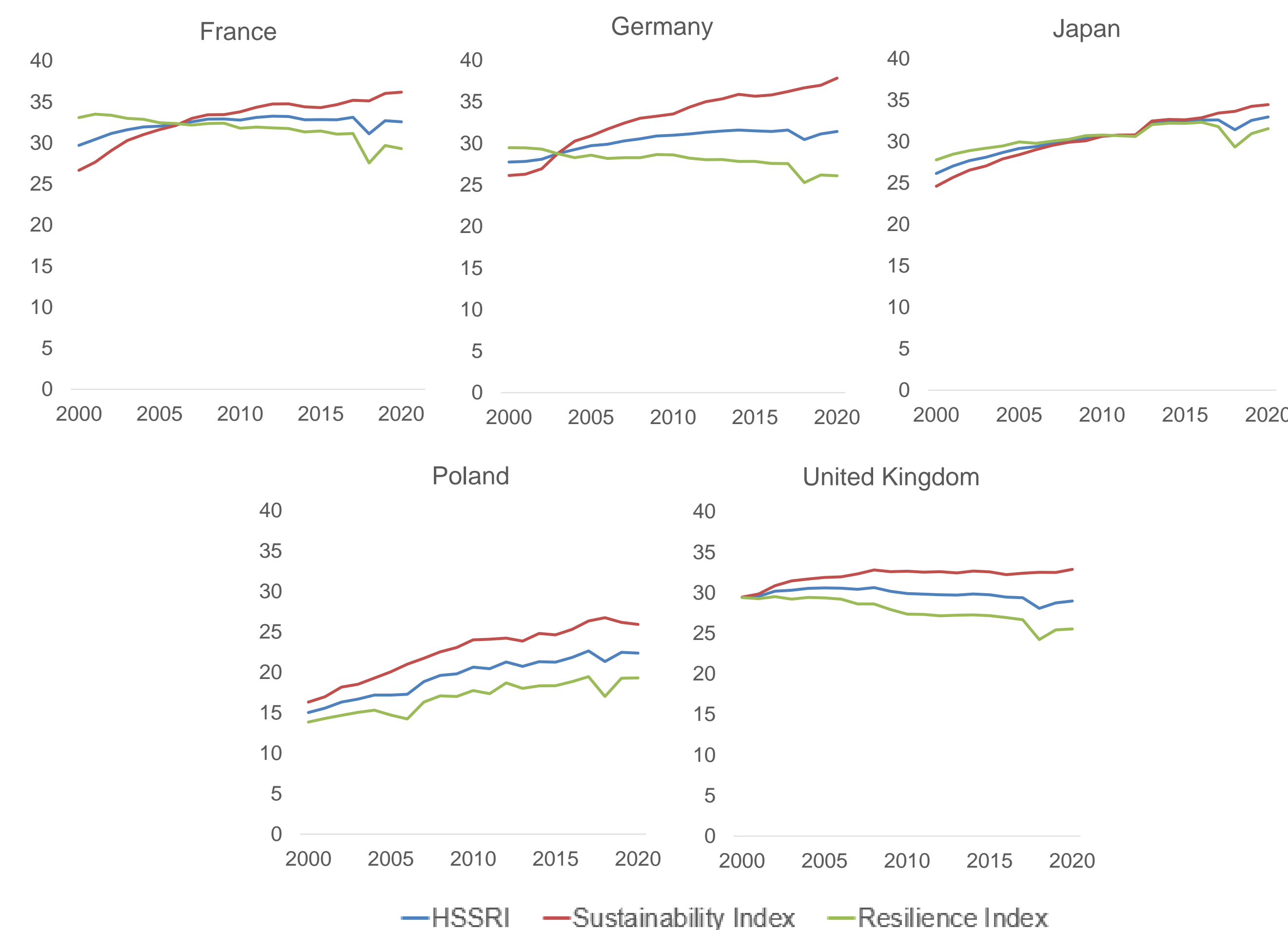
Index Construction: We propose using a **weighted average of all indicators** - and then domains - to calculate the sub-indices. This approach would allow users of the index to vary the weights of the indicators and domains. However, for this pilot, we applied equal weights to all indicators and dimensions. We did so by obtaining the sub-indices as **geometric means** of their components. A geometric mean is also used to combine the Sustainability and Resilience dimensions indices into one final index – the HSSRI.



Note: When data is unavailable for an indicator for a country across the entire period, it is removed from the index calculation for that country. This changes the weights applied to each indicator to construct the domain index, and so impacts our ability to compare index values across countries.

Results

A HSSRI value of 100 indicates maximum healthcare system sustainability and resilience. The graphs below show the HSSRI and its two dimensions sub-indices on the same plane. These figures illustrate which dimension is driving the evolution of the HSSRI over time in each country and demonstrate that there is heterogeneity in performance both within and across countries. This is likely to be driven by country-specific and policy-related differences.



Conclusion

The indices reveal considerable room for improvement for all countries with regard to their healthcare system sustainability and resilience. This pilot study is a first step towards the implementation of healthcare system sustainability and resilience indices, enabling countries to better understand and monitor their system's strengths and weaknesses.

To move forward and beyond this pilot study, further research could include:

- ❖ Validation of the indicators - including by international health organisations
- ❖ Examination of the applicability of the sustainability and resilience dashboard across regions (e.g., Asia vs Europe) to explore how the index can be adapted to support the varying needs of different healthcare systems
- ❖ Methodological improvements for robust comparisons across countries
- ❖ Inclusion of more countries
- ❖ Creation of a policy tool based on categorical variables identified in the PHSSR qualitative phase
- ❖ Creation of a platform-based dashboard that generates graphical displays of the indices and subindices.

References

1. Wharton, G., Gocke, D., McGuire, A. and Sturm, T., 2021. The Partnership for Health System Sustainability and Resilience. Partnership for Health Sustainability and Resilience. [online] Available at: https://www3.weforum.org/docs/WEF_PHSSR_Interim_Report_of_the_Pilot_Phase.pdf.

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