



EUROPEAN
HEALTH FORUM
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THINK OUTSIDE THE CIRCLE

D.A.S.H. PROTOTYPE - Decision Assistant for Sustainable Health using visual analytics for policy makers

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INTRODUCTION

Sustainable Development Goals (SDG) include 17 goals with 169 integrated and indivisible targets, outlining a plan that should lead us to a more peaceful and prosperous world by 2030⁽¹⁾.

Although it is easy to argue that every single target in SDG has an important public health pertinence, there are 33 indicators more health-related than others (Fig.1)⁽²⁾. Global Burden of Disease (GBD) Study, a collaboration coordinated by the Institute for Health Metrics and Evaluation (IHME[®]), analyses countries' progress towards achieving those targets⁽³⁾. In their latest report, they found big discrepancies among countries in progress made in the past as well as projected in future years.



Figure 1 - SDGs used for health-related index (specific indicators available in IHME[®], 2018)

Dashboards can be an effective way to represent key performance indicators, including health-related SDGs indicators and goals, improving decision making and increasing transparency^(4,5). Here we focus our attention in visual representations of health metrics data related with SDGs, highlighting their potential to support policy makers decisions and improve comparisons between countries.

METHODS

For this brief review and prototyping proposal, three researchers searched for visual representations best practices in health sciences, including published articles available in PubMed database and grey literature.

Based on GBD Study 2015 health-related SDG indicators data retrieved from the IHME[®] in August 2018, alternative visual representations were tested and presented as possible visual supports for policy-makers decision process.

RESULTS

In IHME data visualization tool, health-related SDGs data can be accessed in radial bars graphics (Fig.2), maps, line charts and raw data (Microsoft Excel[®]). We propose using⁽⁶⁾:

- **Bullet chart** (Fig.3) for SDGs indicators comparison with defined goals;
- **Bar chart** (Fig.4) for SDGs indicators comparison with other countries;
- **Line chart** (Fig.5) for SDGs indicators past, present and future trends;
- **Boxplot graphic** (Fig.6) to highlight discrepancies among countries;

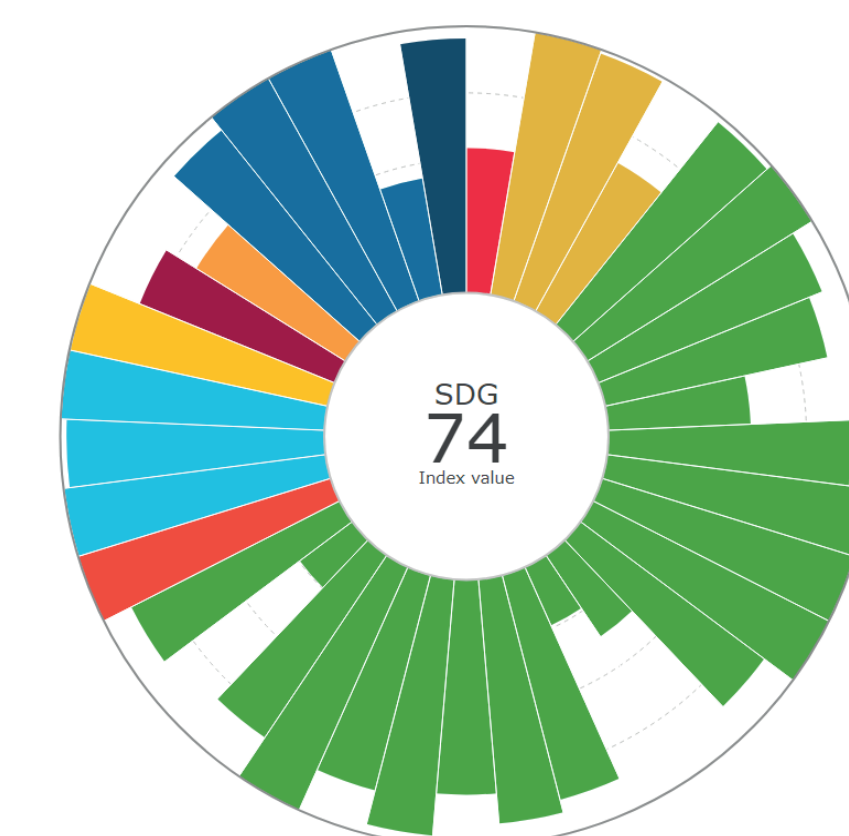


Figure 2 - Current radial visual representation (IHME[®], 2018)

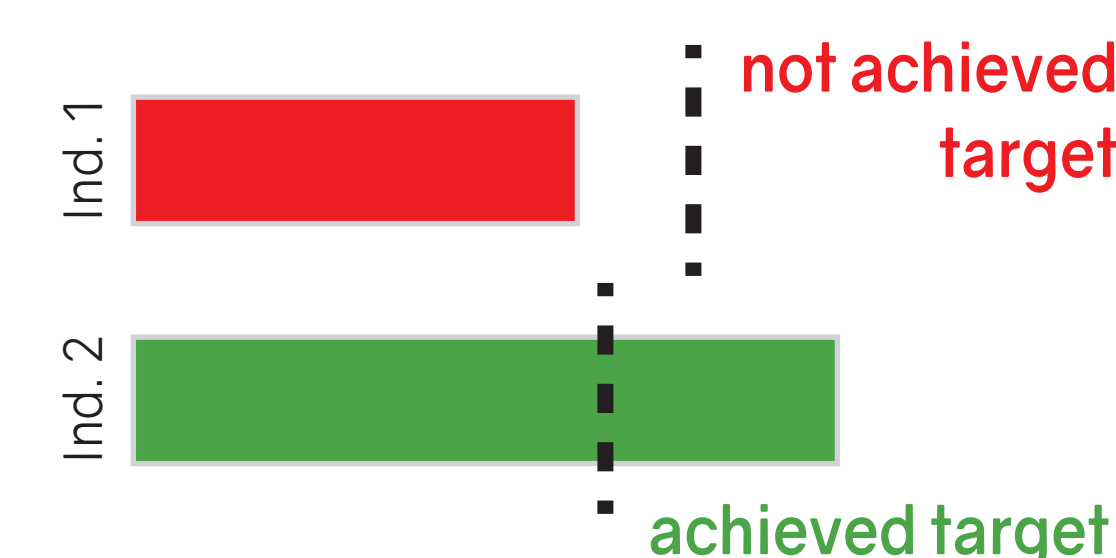


Figure 3 - Bullet chart sketch

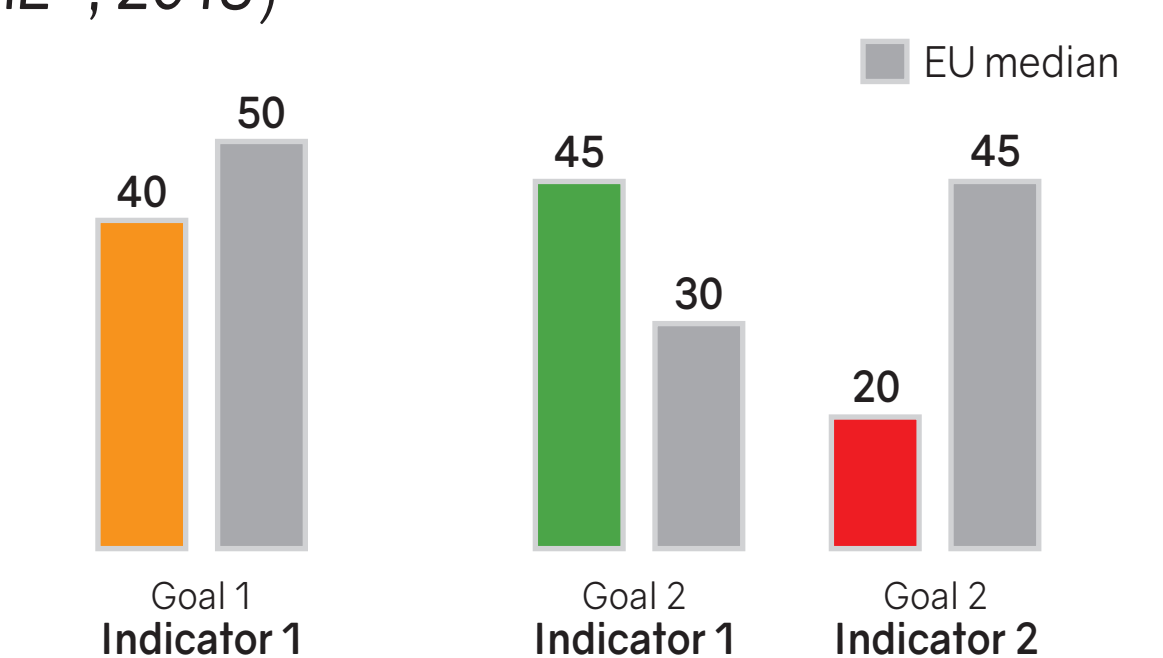


Figure 4 - Bar chart sketch

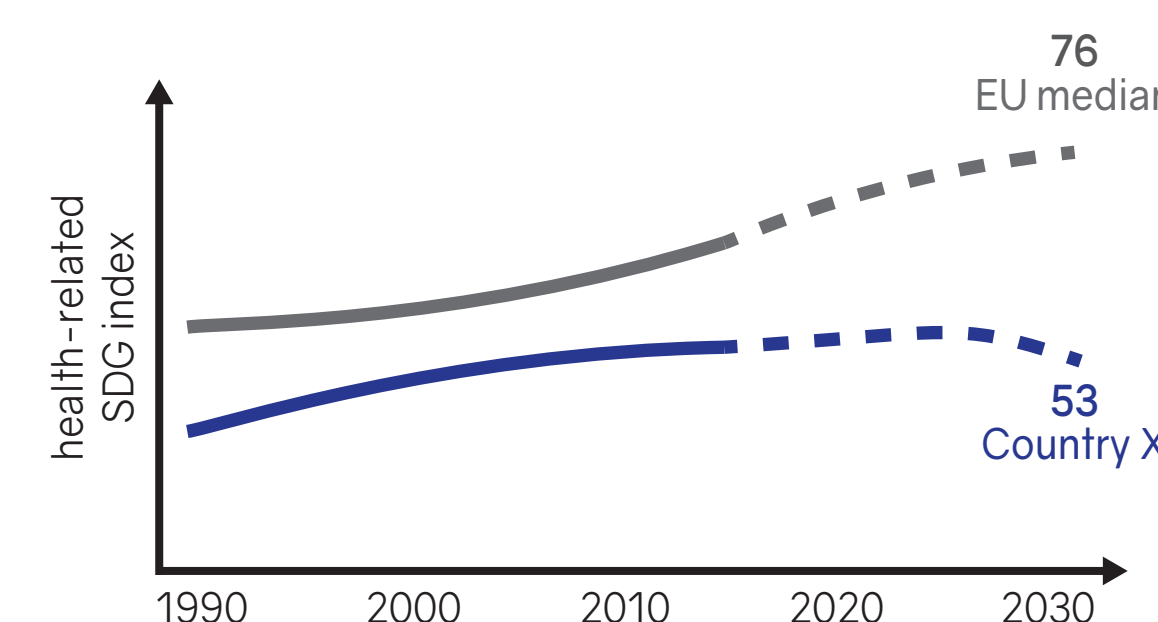


Figure 5 - Line chart sketch

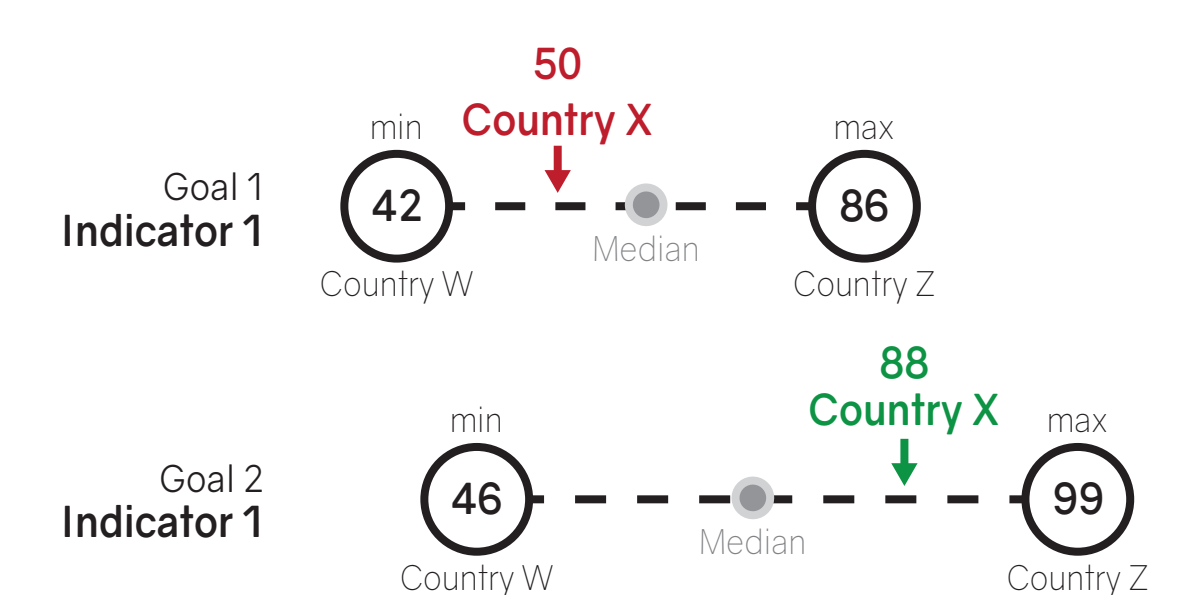


Figure 6 - Boxplot graphic sketch

Finally, we suggest an interactive strategical dashboard including previous examples of visual data representation and:

- **Editable fields** for tailored use in different settings;
- **Targets definition** and use of **colour to highlight achievements**⁽⁷⁾;
- **Track performance** rather than compare⁽⁷⁾.

DISCUSSION & RECOMMENDATIONS

Next steps
piloting
alternative
designs for visual
representations
and dashboards
with group of
policy makers

Treasure Measure

There are big differences between health-related SDGs, even when comparing European countries.

IHME's data shows great **potential to measure SDG achievements**, enhance **comparison between countries** and **progress evaluation**.

Unfulfilled Potential

IHME's data visualization tools are often **underused in preparing policy proposals** and should be able to **promote target definition**, **comparisons** and **performance tracking**, supporting decisions.

Isolated ratings by themselves are poor performance indicators⁽⁵⁾.

Decision by Dashboard

Health-related SDGs data visualizations in IHME could be improved by using:

- **Colour to highlight** performance, instead of goals association⁽⁷⁾;
- **Non-circular charts** to enhance comparison and target tracking⁽⁶⁾;
- **Interactive dashboard** tool to organize information for policy, with drill-down feature^(4,7).

REFERENCES

- 1 - United Nations. [Transforming our world: The 2030 agenda for sustainable development](#). Resolution Adopted by the General Assembly. 2015
- 2 - Murray CJL. [Choosing indicators for the health-related SDG targets](#). The Lancet. 2015 Oct 3;386(10001):1314-7.
- 3 - Fullman N, Barber RM, Abajobir AA, Abate KH, Abbafati C, Abbas KM, et al. [Measuring progress and projecting attainment on the basis of past trends of the health-related Sustainable Development Goals in 188 countries: an analysis from the Global Burden of Disease Study 2016](#). The Lancet. 2017
- 4 - Jespersen S. [Dashboard Design Guidelines for Improved Evidence Based Decision Making in Public Health in Developing Countries](#). Dep. of Informatics - University of Oslo. 2017
- 5 - Bartlett J, Tkacz N. [Governance by Dashboard - A Policy Paper](#). Economic & Social Research Council. Demos. 2017
- 6 - Hardin M, Hom D, Perez R, Williams L. [Which chart of graph is right for you? Tell impactful stories with data](#). Tableau software. 2012
- 7 - Ganapati S. [Key Features for Designing a Dashboard](#). PM2 Connections - Performance, Measurement & Management. Government Finance Review. 2011