Focus Europe

#Smart**Health**Systems

International comparison of digital strategies

SUMMARY

empirica

BertelsmannStiftung

Countries surveyed by #SmartHealthSystems
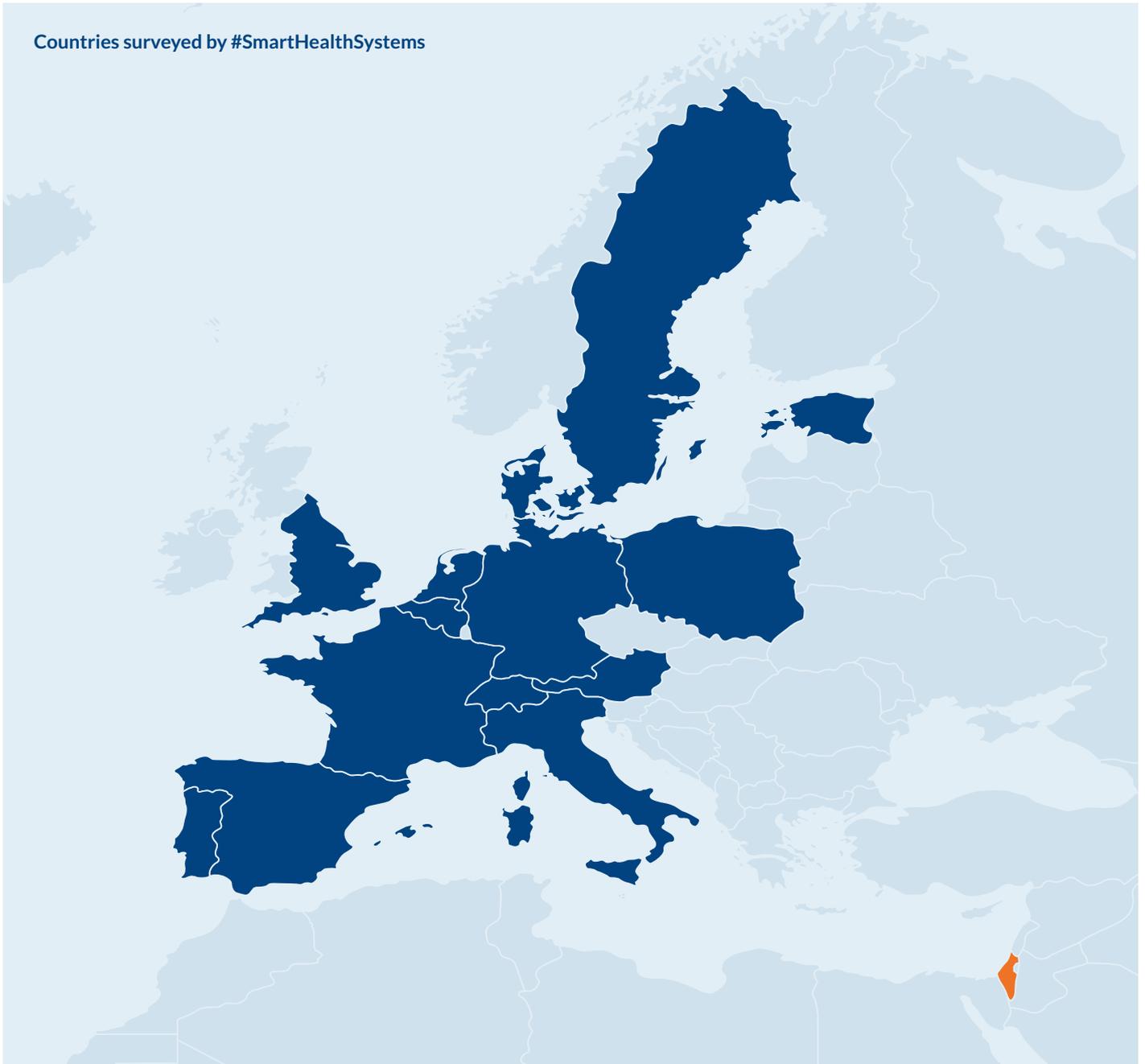
■ EU member states ■ OECD countries
Figure 1 | Source: The authors

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Digitisation requires political leadership, a strategy that is driven by health policy goals, and a coordinating institution

- In the digital transformation of the healthcare sector, European Union Member States are advancing at different speeds

- Countries that are succeeding in digitalizing their healthcare systems feature an effective strategy, strong political leadership and a coordinating institution with a clear national mandate

- Taking pragmatic steps that are driven by the expected benefits for patients and the healthcare delivery alike is key to shaping digital transformation

- Promoting acceptance for professionals and patients through strategies such as co-design measures is essential to success

- The European Commission and Member States should continue to foster the exchange of best practices between health systems and promote common technical specifications and standards for digital health tools and exchange formats

Why the #SmartHealthSystems study?

Digital Health has a significant potential to improve public healthcare delivery in various areas, to name a few: telemedicine provides patients access to medical expertise no matter where they are. Digital exchange of information between outpatient care providers and inpatient care providers can increase safety and efficiency of treatment. Available online information can contribute to enhancing patients' autonomy in handling their condition.

On behalf of the Bertelsmann Stiftung, the Bonn–based research institute empirica Communication and Technology Research conducted an extensive cross–national study of digitisation strategies and the progress made in 17 different national health–care systems (figure 1).

Research aimed to identify the countries that successfully have been digitizing their healthcare systems, which strategies the surveyed countries pursued, and finally what lessons can be drawn from the experience of successful countries.

What is the analytical and methodological scope of #SmartHealthSystems?

The study aims at providing more than a simple description of the extent to which digitisation has been adopted within a given healthcare system. It focuses on the framework conditions, paths taken and success factors that are specific to each country and which can differ considerably.

Countries of varying size and with different types of healthcare systems were selected for analysis; they include 14 EU Member States and three OECD countries (i.e., Australia, Canada and Israel). In the first part of the study, each of the 17 countries was benchmarkinged and then compared to each other with a new Digital Health Index that was developed specifically for the study. The second part of the study examines five of the 17 countries in greater detail.

What are the results of the Digital Health Index?

Digital Health Index results are plain and clear: EU Member States and OECD countries digitize their healthcare systems at very different speeds. Estonia, Denmark and Canada rank at the top of the index, whereas France, Germany and Poland trail behind.

However, none of the countries surveyed have fully realized digitisation, i.e., have reached a perfect state of digitisation. The study shows that there is no evidence that a country's size or infrastructure, the type of healthcare system or the resources available will necessarily make digital transformation any easier.

The top countries of the Index are leading in all three areas examined: policy activity and strategy, technical implementation and readiness and the actual use of data. They show the various ways in which healthcare delivery can be digitized (figure 2):

› In Canada, for example, the digital transmission of ePrescriptions is a matter-of-fact, as is the use of electronic patient summaries, which store a patient's most important health information.
› In Estonia and Denmark, all citizens can view their examination results, medication plans or vaccination data online and they can also determine which physicians and other healthcare professionals have access to their information.
› In Israel, intelligent algorithms are being used to predict and prevent illnesses and for research and development. This is possible thanks to the data made available through the presence of an electronic health record that has been in place for several years.

Thirteen of the 17 surveyed countries feature a clearly formulated national digital health strategy. Generally, these strategies are comprised not of rigid and detailed plans but of a goal-oriented vision that helps solutions designed for local or regional use to scale nationally without losing the capacity to adapt to local or regional developments (figure 3).

#SmartHealthSystems Methodology

Part I: Digital Health Index
- Digital Health Index comprised of three sub-indices:
  - Policy activity: Political and strategic processes (legal framework, governance, institutions)
  - Digital health readiness: Technical implementation and semantic maturity
  - Actual use of data in the healthcare sector
- Data collection and evaluation by national correspondents in 17 countries
- Questionnaire comprised of 154 questions and 34 indicators
- More than a statistical survey: draws on both qualitative and quantitative data

Part II: In-depth country analyses
- Denmark, France, Israel, the Netherlands and Switzerland
- Additional on-site interviews conducted with representatives from ministries and associations as well as independent experts.
- Focus: Factors contributing to success/failure of digital solutions, lessons learned
- Examination of political preferences as well as economic and cultural factors

Digital Health Index as the sum of the sub-indices, per country

Reading instructions: The sub-indices are presented in bar format. In this regard, they are simply added one to the other, and the bars are accordingly stacked one on top of the other. The composite index value is obtained by dividing the total height of the bars by three.
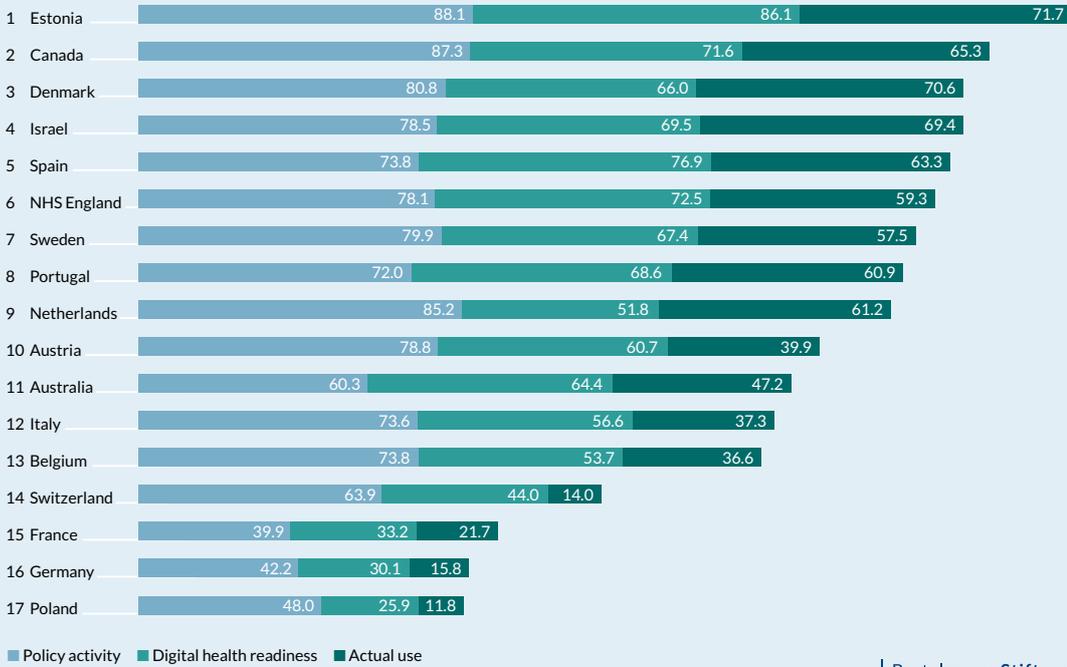
Rank	Country	Policy activity	Digital health readiness	Actual use
1	Estonia	88.1	86.1	71.7
2	Canada	87.3	71.6	65.3
3	Denmark	80.8	66.0	70.6
4	Israel	78.5	69.5	69.4
5	Spain	73.8	76.9	63.3
6	NHS England	78.1	72.5	59.3
7	Sweden	79.9	67.4	57.5
8	Portugal	72.0	68.6	60.9
9	Netherlands	85.2	51.8	61.2
10	Austria	78.8	60.7	39.9
11	Australia	60.3	64.4	47.2
12	Italy	73.6	56.6	37.3
13	Belgium	73.8	53.7	36.6
14	Switzerland	63.9	44.0	14.0
15	France	39.9	33.2	21.7
16	Germany	42.2	30.1	15.8
17	Poland	48.0	25.9	11.8

■ Policy activity ■ Digital health readiness ■ Actual use
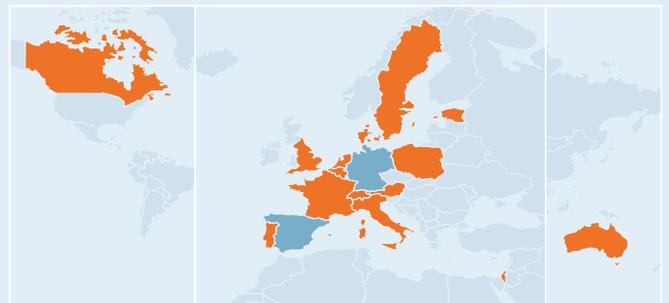
Figure 2 | Source: The authors

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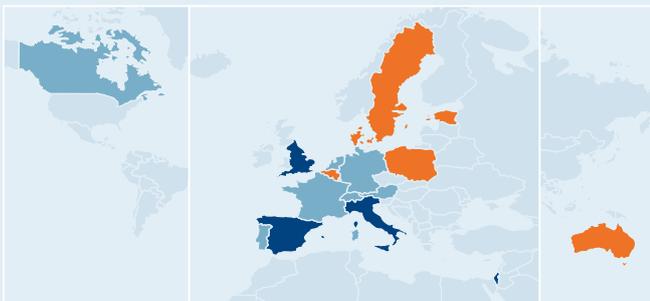## National strategies, digital health institutions and digital applications: presence and reach
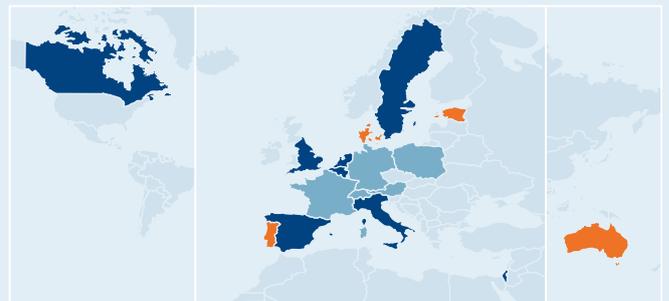
Digital health strategies
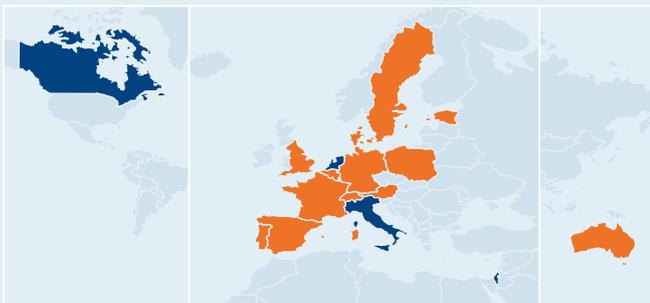
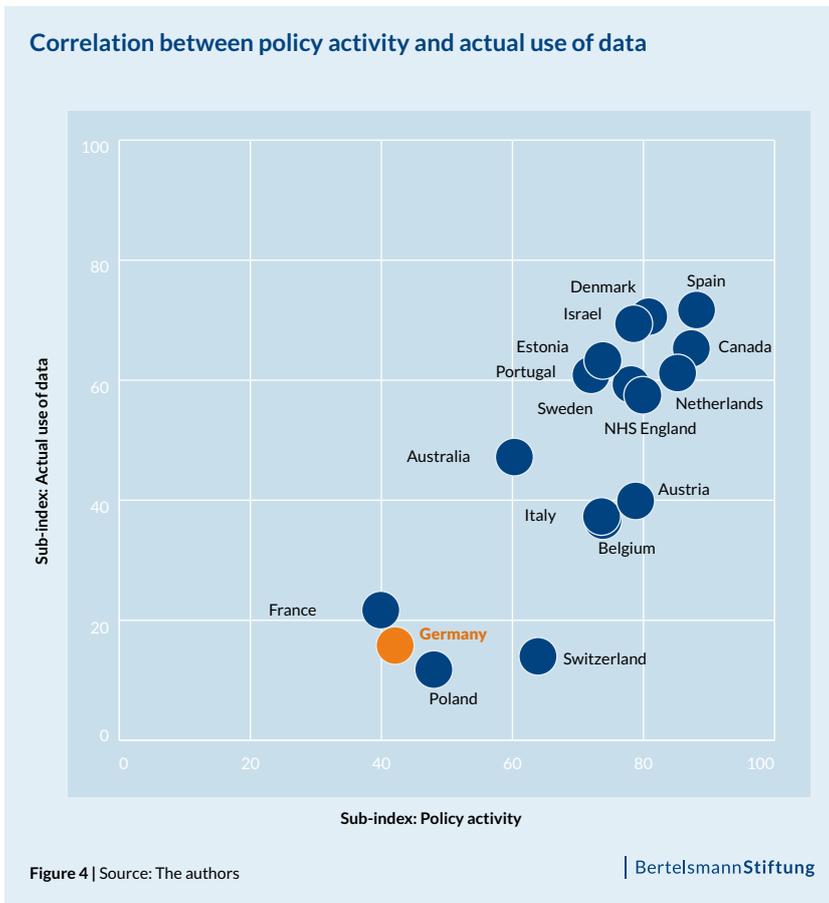**Digital health institutions**

ePrescriptions

EHRs and patient summaries

■ available nationally   ■ available regionally   ■ Surveyed countries

Figure 3 | Source: The authors

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Correlation between policy activity and actual use of data

Figure 4 | Source: The authors

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Digitisation processes need coordination: With the exception of Germany and Spain, each of the surveyed countries have a centralized institution of expertise or agency for digital health. In seven countries, these politically mandated institutions serve not only an advisory and coordinating function, but also issue binding regulations and standards and are therefore actively involved in the development process itself (figure 3).

Which lessons can be drawn from the experience of successful countries?

Looking into successful countries confirms that **digitisation is not an end in and of itself.** Necessary processes must be geared towards the benefits they can deliver. There is no simple recipe for success for digitalizing a healthcare system (figure 5).

However, a clear pattern can be identified in the success stories: **Digital solutions are have been achieved on a national level in those countries where an effective strategy can be found, where the political leadership** is showing the way forward and which features either one or a number

of institutions with the political mandate to coordinate the process. The strategy should also be based embedded in **a vision that is shared by all key stakeholders** (figure 4).

Political leadership in digitisation does not involve simply prescribing measures from the top down. On the contrary: **Good health policy involves providing a clear framework that fosters acceptance and drives developments.** Centralized forms of digital health implementation are found in only a small number of countries. Often, regionally organized healthcare systems prove the most effective in integrating digitisation into routine care delivery.

Digital strategies should be policy oriented to the needs and imperatives of the individual health system – such as improving quality of care and services, increasing patient safety, or facilitating access to care in rural areas.

Advancing digital transformation best focuses first on individual, well-prioritized services: Countries with a proven record in digitisation target specific treatment pathways – such as diabetes – or focus on "simpler" processes such as introducing ePrescriptions or a nationwide electronic emergency data record. By contrast, large-scale, all-encompassing programs tend to fail.

Co-design is an effective means to promoting user acceptance: Resistance to the changes inflicted by digitisation is common in many countries. Physicians, in particular, often act as veto players. As a result, many countries have recognized that promoting acceptance is of strategic importance and that this requires spending corresponding resources. Canada and the Netherlands, for example, have each developed dedicated communication campaigns to promote acceptance.

Digital processes and solutions should be tailored to the needs of users: They should be co-designed by end-users and key stakeholders alike and whose involvement is integrated into the development process. This applies as well to the formulation of digital strategies – through the inclusion of focus groups, for example – as well as the conceptualization of products.

Unnecessary planning failures and costs associated with a pure digital health technology push should be avoided. **Accessing and exchanging data**

are not ends in themselves. Rather, such processes should always be designed with an eye toward benefits for the recipient of the data: to better treat patients, generate benefits for the patients themselves, or benefits for those engaging in secondary use.

Lessons learned for EU-level actions

A well-framed digital health strategy is a signpost and motor for the healthcare sector. In countries in which a digital strategy exists, it functions as a role model for key stakeholders. To assist Member States in pursuing digital reform, such national strategies could equally be promoted to become cross-border role models for driving uptake of digital solutions.

The mandatory application of standards and interoperability solutions has a far reaching impact on the level of digitisation. However, healthcare organizations and people must also understand the data, and must be able to process it for their intended purposes. National digital health efforts recently swung toward the development of clinical data models (structures, formats, standardized measurements, semantic coding). EU-wide standardisation efforts should be receptive to these developments.

International benchmarking and cross-national studies of digital strategies and their success criteria should regularly monitor progress, measure impact and exhibit lessons learned. Such insights and transfers are essential for working together and sharing at the EU level.

Genuine lessons have been learned in the context of EU eHealth initiatives. In international projects, national ministries have been able to see how far their neighbours have advanced, while learning from their European partners' previous experiences. These insights are the source of visions for the sustainable development of strategies and have been introduced into domestic structures and political systems, producing changes based on, and inspired by, these lessons.

Successful digitalization requires a trio of factors: effective strategies, political leadership and coordinating national institutions
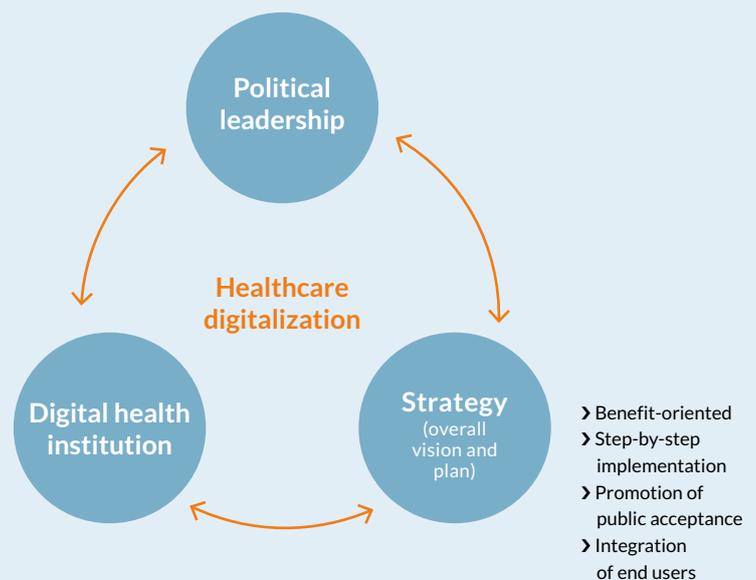
Political leadership

Healthcare digitalization

Digital health institution

Strategy (overall vision and plan)

> Benefit-oriented
> Step-by-step implementation
> Promotion of public acceptance
> Integration of end users

Figure 5 | Source: The authors

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Website #SmartHealthSystems

Details on Digital Health Index findings, reports on the countries surveyed, and reactions to the report on social media can be found at our dedicated website www.smarthealthsystems.de/en

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