TNO HIVE
Health Innovation Venue for Enterprises

TNO innovation for life

WHY?
80% of innovations fail despite urgent needs in health. Product development and adoption are critical pain points for many innovators

MISSION
Our mission is to foster innovation and productivity of SMEs in Digital Health through collaboration on shared challenges in R&D

STRATEGY
Our strategy revolves around creating synergies through

i.   Co-development in short-cycle innovation projects
ii.   Leveraging TNO expertise to accelerate R&D of SMEs
iii.   Establishing strategic partnerships with end-users, regulators and funders in healthcare

TNO | Fast Track

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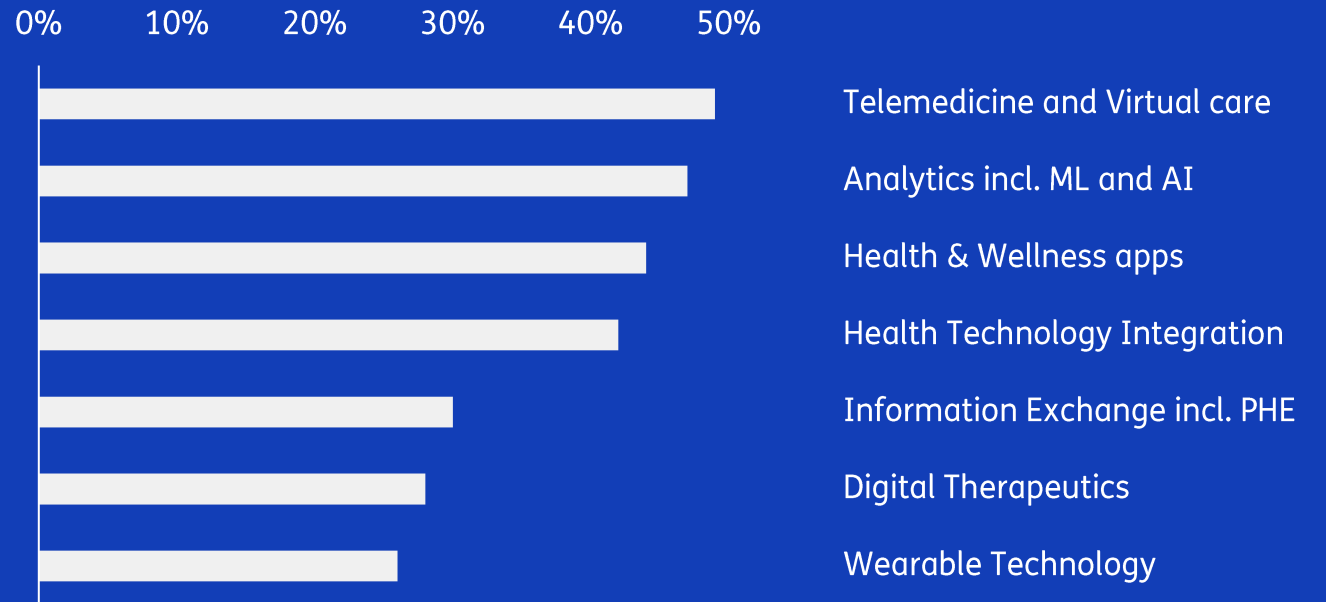
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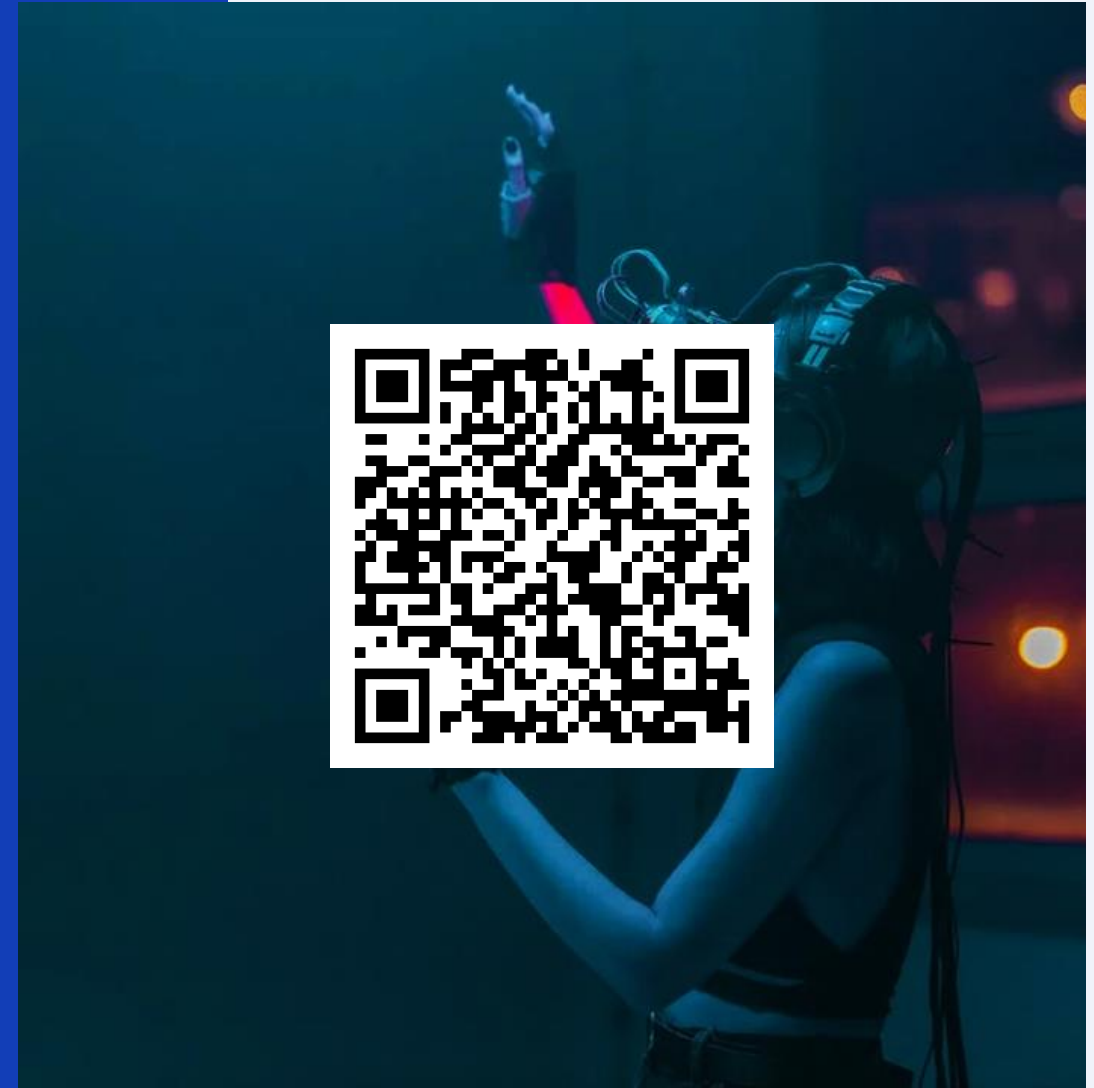
We have asked SMEs in digital health about their needs

Overview of participants

50 SURVEY PARTICIPANTS

5 QUALITATIVE INTERVIEWS

SMEs WORKING ON

Bar chart with horizontal axis from 0% to 50%:
- Telemedicine and Virtual care
- Analytics incl. ML and AI
- Health & Wellness apps
- Health Technology Integration
- Information Exchange incl. PHE
- Digital Therapeutics
- Wearable Technology

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SMEs in Digital Health often face common challenges

In what areas does your organization face R&D challenges?
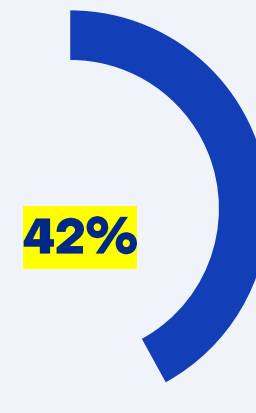
74%

49%

47%

42%

40%
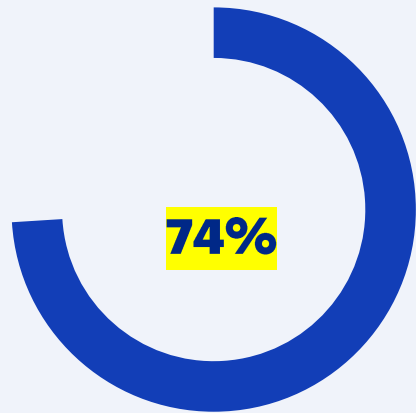
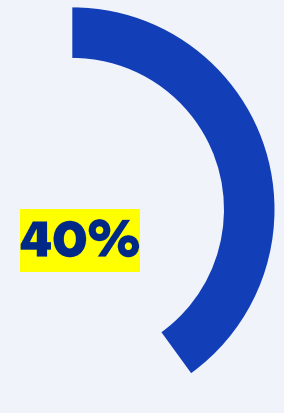1. Integration in healthcare systems (including funding)
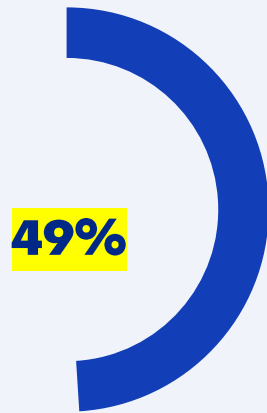
2. User adoption and engagement
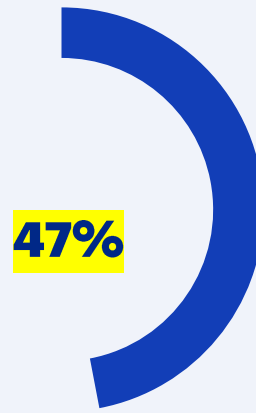
3. Data privacy and security

4. Evidence generation

5. Interoperability and data exchange

> *"**Integration with established healthcare systems** – they are very protective and not easy to connect to, unless you have a large customer. This makes innovation extremely difficult. Also the **Privacy discussion** is always an issue - it's not always clear what is included or excluded. A basic checklist would be nice."*

> *"Health care systems are currently not developed in such a way that you can easily **use data for AI.** Next to that it is very difficult to introduce new business models in the healthcare market. The Dutch market is very conservative. **Our healthcare system is focused on cure, not on prevention."***

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Yet, solving these challenges remains difficult and leads to loss of value

How does your organization currently address these challenges?

Integration in healthcare systems

"We think we have a potential game changer at hand. But we see that health care professionals are not eager to adopt innovations although it might reduce their workload. There is no potential incentive for them to do so because health care insurance companies often respond with their wallet and introduce lower budaets."

New emerging technologies are adopted by the Dutch healthcare system for the pilot phase, but hardly anyone takes them further to market adoption.

Dealing with regulations

"Investigate regulations and ask other companies for advice/insight for the technology in development. Which is time consuming"

"Reaching out to colleges and universities for data and spending a lot of time and resources to make sure our company isn't a medical device"

User adoption and engagement

"For engagement, we are looking customized customer journeys and other products offered on our platform."

"Trial and error..."

Evidence generation

"Working with B2B clients who are in a less 'controlled' environment (no scientific evidence needed)"

"Collaboration with research organizations such as UvA, VU and others. Communicating with practitioners through other channels."

Interoperability and data exchange

"Creating a platform for distribution of medical data. Yet us and competitors are all creating this."

"Much manual work in data integration and control. Releasing not fully finished open source software."

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Collaboration on shared challenges in R&D is one of primary needs

What types of activities, events, or resources would you find valuable in solving your challenges in R&D?

73%

65%

65%

60%

60%

1. Networking & collaboration sessions

2. Collaborating in TNO projects

3. Direct expert support

4. Access to testing and validation services

5. Peer-to-peer support with other companies

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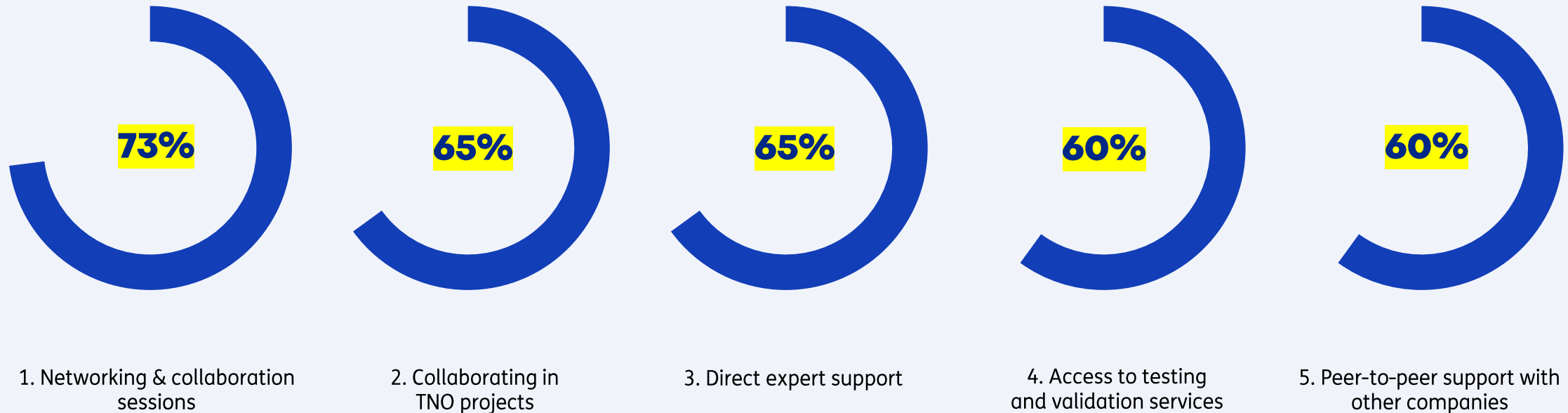
The HIVE addresses key needs of SMEs in R&D

HIVE Membership

Network & Learning

Access to thematic events, monthly calls and a digital market place

Knowledge Development

Access to ongoing TNO research on adoption of digital health

Expert support

Arrange direct expert support through TNO Fast Track

Co-development

Participate in short-cycle projects with TNO on shared challenges

Ecosystem

Knowledge development

Project development

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Knowledge development: support in adoption of innovation

Innovation route	**Stakeholders**	**Innovation Stage**	**Requirements**
What route fits my innovation?	What actors are involved?	What phase is your solution in?	What requirements to meet?

- Direct to consumer
- Healthcare provider
- Health insurance
- Municipality
- Governmental

- Patients
- Patient federations
- Healthcare providers
- Health insurers
- Municipalities
- Executing bodies
- Etc.

- Ideation stage
- Piloting stage
- Launch stage
- Adoption stage

- Clinical
- Technical
- Regulatory
- Business case

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Expert support: support in R&D from TNO

INTAKE	EXPERT SUPPORT	PUSH FORWARD

- Uncover and scope your R&D question
- Get in touch with right experts

- Expert session (from 800 EUR)
- Expert session XL (4k)
- Kickstart in the lab (tailor made)

- Problem solved, further on your own
- Entering existing program
- Follow-up innovation project
- Fast forward to partners

Free consultation

Up to 50 hours against flat rate

Potentially with TNO pre-investment*

* Conditions apply

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Co-development: tackling shared challenges with peers

THEME SELECTION → **PROJECT DEFINITION** → **FUNDRAISING** → **Tollgate** → **STAGED INNOVATION (6-9 MONTHS)**

HIVE Monitor → Themes

Ideation workshop → Project idea

Project registration → Requirements

Explore → Validated idea

PoC → Prototype

Pilot → Minimum viable product

Exploit → Apply
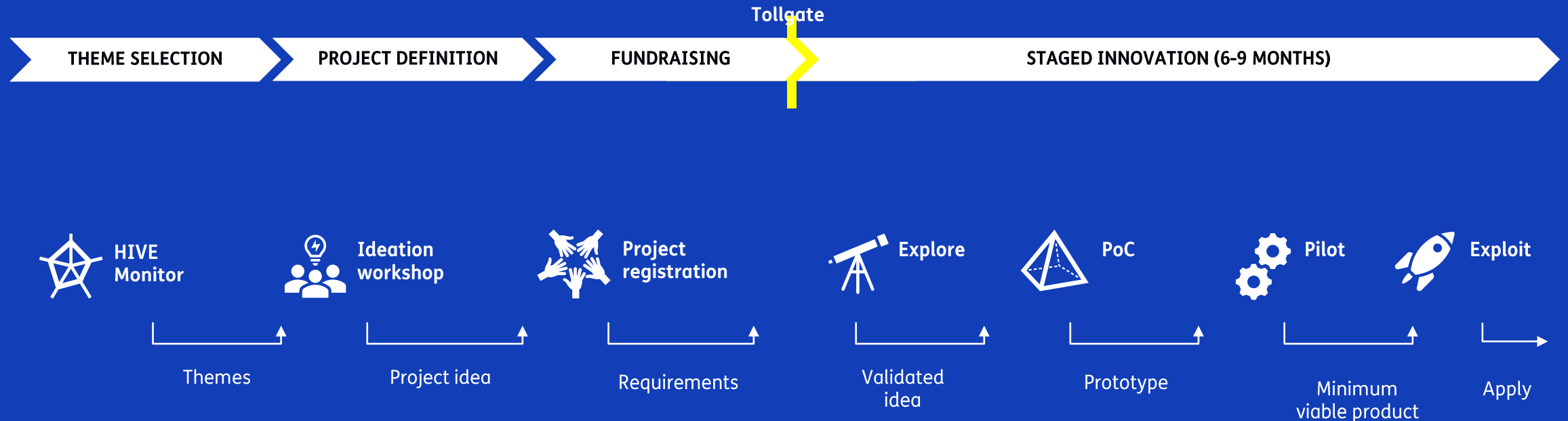
Way of working

1. The HIVE annually selects leading themes in the area of Digital Health to work on. A community survey facilitates this process.

2. Project ideas are generated from these themes in collaborative ideation sessions.

3. SMEs register for project participation and fundraising starts. For selected projects, TNO can match the project fund if conditions are met.

4. Project are developed using staged innovation, moving from idea to exploitation.

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The stakeholder landscape around HIVE

TNO HIVE

Stakeholder category	Role
SMEs in digital health Providers of DHT	Developers and providers of digital health solutions
Investors & RDA's Accelerators of DHT	Help accelerate development of SMEs through investments
Healthcare providers Implementors of DHT	In many cases the target end users of digital health solutions
Insurers (& municipalities) Financers of DHT	Involved in the structural reimbursement of digital health solutions in different healthcare segments
Government Policy makers of DHT adoption	Responsible for developing policies that enable adoption of digital health solutions

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Join the HIVE

HIVE membership

The HIVE membership gives SMEs working on Digital Health products access to the TNO HIVE ecosystem, network events and shared research. Additionally it also provides expert support against reduced fees and opportunities to participate in short-cycle projects in the future.

Your free benefits as a HIVE Member
- ✓ Access to ecosystem with peers in DHT
- ✓ Access to HIVE research and publications
- ✓ Access to HIVE network events
- ✓ Access to HIVE Marketplace

Access to paid additional services
- ✓ Fast track:
  - ✓ Direct expert support against flat rates
  - ✓ In-depth thematic workshops
  - ✓ Feasibility studies
- ✓ Participation in HIVE co-development projects

Not a Digital Health SME but interested in our developments?
- ▪ Contact ismail.ismail@tno.nl for partnership opportunities
- ▪ Join our newsletter

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