Vital Wave℠

digital square

Digital Health Market Analytics

Phase I Summary Findings

October 2020

Context

- To inform donor behavior and investment strategies in digital health for LMICS, we investigated the quality (accessibility, usability, level of fit-for-purpose), sustainability, and impact of digital health solutions.
- From a market perspective, we assessed solutions available, their sustainability of the delivery models and value chains, the value they bring as demonstrated by affordability of the solutions and illustrations of their impact.
- The resulting analyses addressed three provocative questions about how stakeholders operate in the digital health sector.
- The COVID-19 pandemic has increased the salience of these questions, as health systems increasingly rely on digital systems to safely share information and support population health.

Three Provocative Questions

- Why do digital health innovations scale in LMICs at a different pace, sometimes slower (e.g., EMRs) and sometimes faster (e.g., WhatsApp)?
- Does development actor behavior accelerate or hinder the scale of digital health innovations in LMICs?
- What are the biggest structural incentives preventing ‘digitally-enabled health systems’?

Healthy Market Dynamics Exemplar: EMRs in India

Major EMR Implementations

- **eHospital**- National health management system with robust EMR functionality
- **ANMOL-** National mHealth solution to capture health beneficiary data by nurse midwives
- **PMJAY-** National universal insurance system with health records and transaction management functionality

India's robust EMR landscape is host to a variety of both clinical and administrative solution implementations and displays many of the characteristics required for a sustainable digital health market.

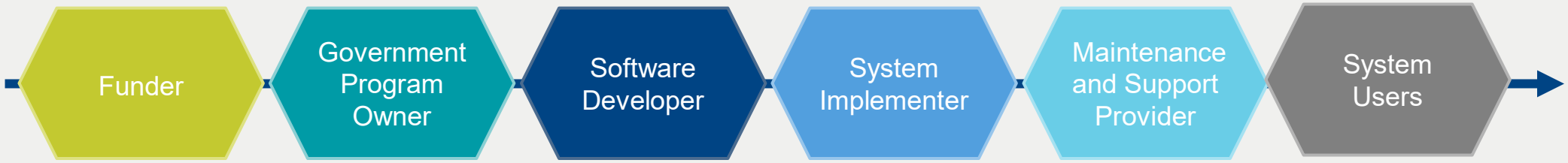
- **Funding** comes primarily from government agencies and private hospitals, rather than donors, who create demand for record systems that support administrative and patient tracking and payments management, in addition to clinical functionality.
- Robust ICT **software development** and **implementation** capacity exists in both government agencies and private-sector firms.
- Long-term **maintenance** for solutions is ensured by procurement regulations that require end-to-end support from the public and private vendors.
- Less optimally, **end users** (health workers and ministry officials) have to deal with growing numbers of non-interoperable systems.

Methodology

Vital Wave and PATH teams conducted secondary research and 73 in-depth interviews with global subject matter experts and country actors. Data were analyzed using consistent value chain frameworks.

Value Chain Assessment

View market factors through the lens of the software value chain to determine incentives and disincentives for private-sector engagement and opportunities for global goods and develop actionable recommendations.



Expert Interviews- 15

- Supply Chain Information Systems
- Electronic Medical Records
- Master Facility Registry
- Lab Information Systems

Inform understanding of value chain actors, dynamics, and ecosystems at the global level

Country Interviews- 58

- Mozambique - 13
- Kenya – 21
- India/Uttar Pradesh - 24

Inform contextual use and deployment of digital tools in each value chain in a variety of market maturity levels

The three countries represent varying degrees of digital health market maturity and allow for extrapolation of conclusions from Mozambique, Kenya, and India to LMICs more broadly.

Introducing Four Digital Health Solutions

Each value chain category includes a range of solution types that vary in terms of complexity and health system level. See slide 54 for further detail.

SUPPLY CHAIN IS

Manage the acquisition, distribution, and management of health commodities.

ELECTRONIC MEDICAL RECORDS

Collect and store individual patient data, such as diagnoses, medicines, medical tests, and treatment plans.

LAB IS

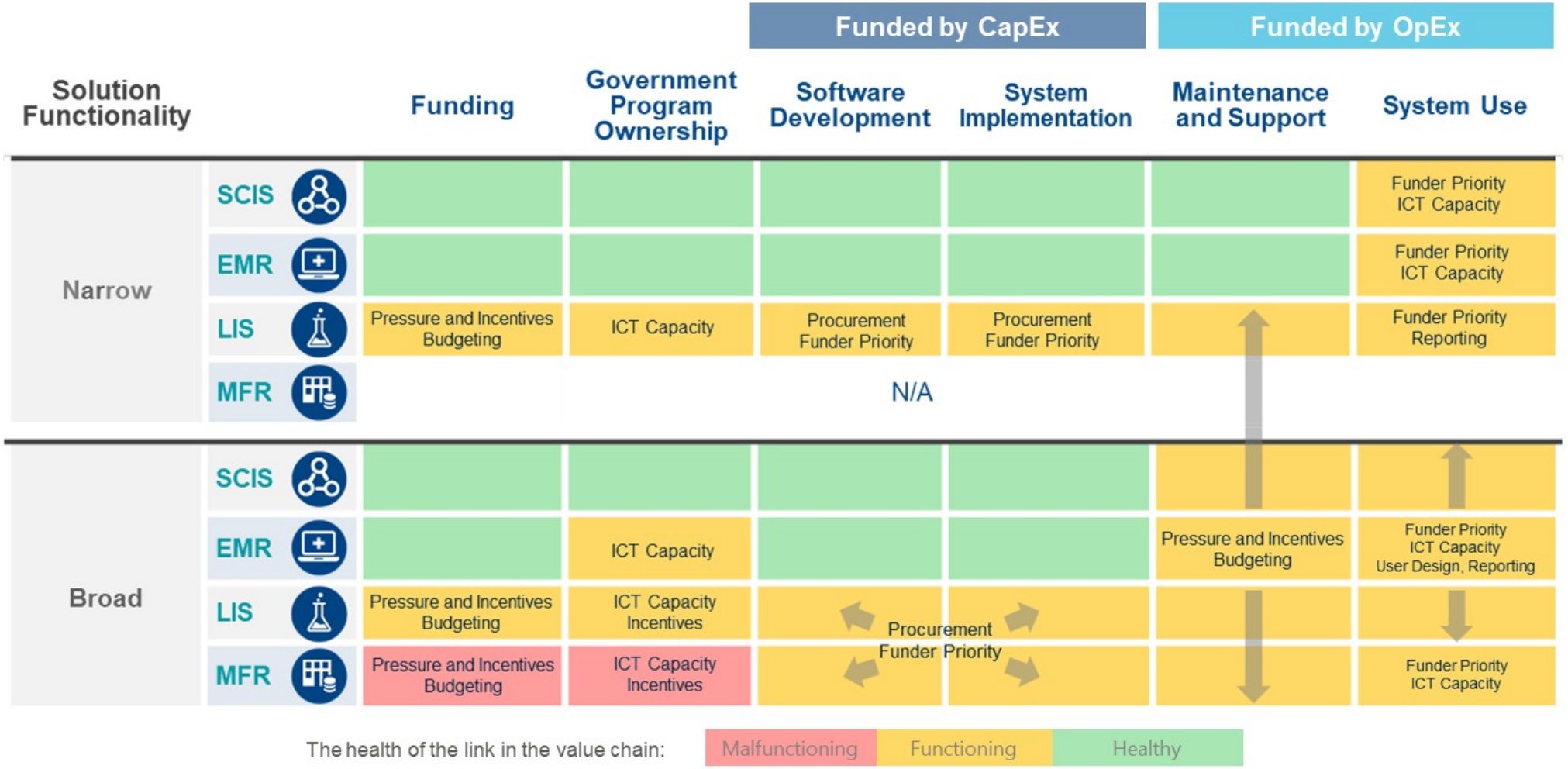
Record, manage and store data such as test orders, results, and interpretations for clinical laboratories and health facilities.

MASTER FACILITY REGISTRIES

Store list of all healthcare facilities, public and private, and may include facility attributes, e.g., number of beds, ventilators, services provided.

Value Chain Health by Actor Category and Root Cause

Overall, value chain functions funded by CapEx are healthier than functions funded by OpEx. Maintenance and support providers are often not budgeted for.

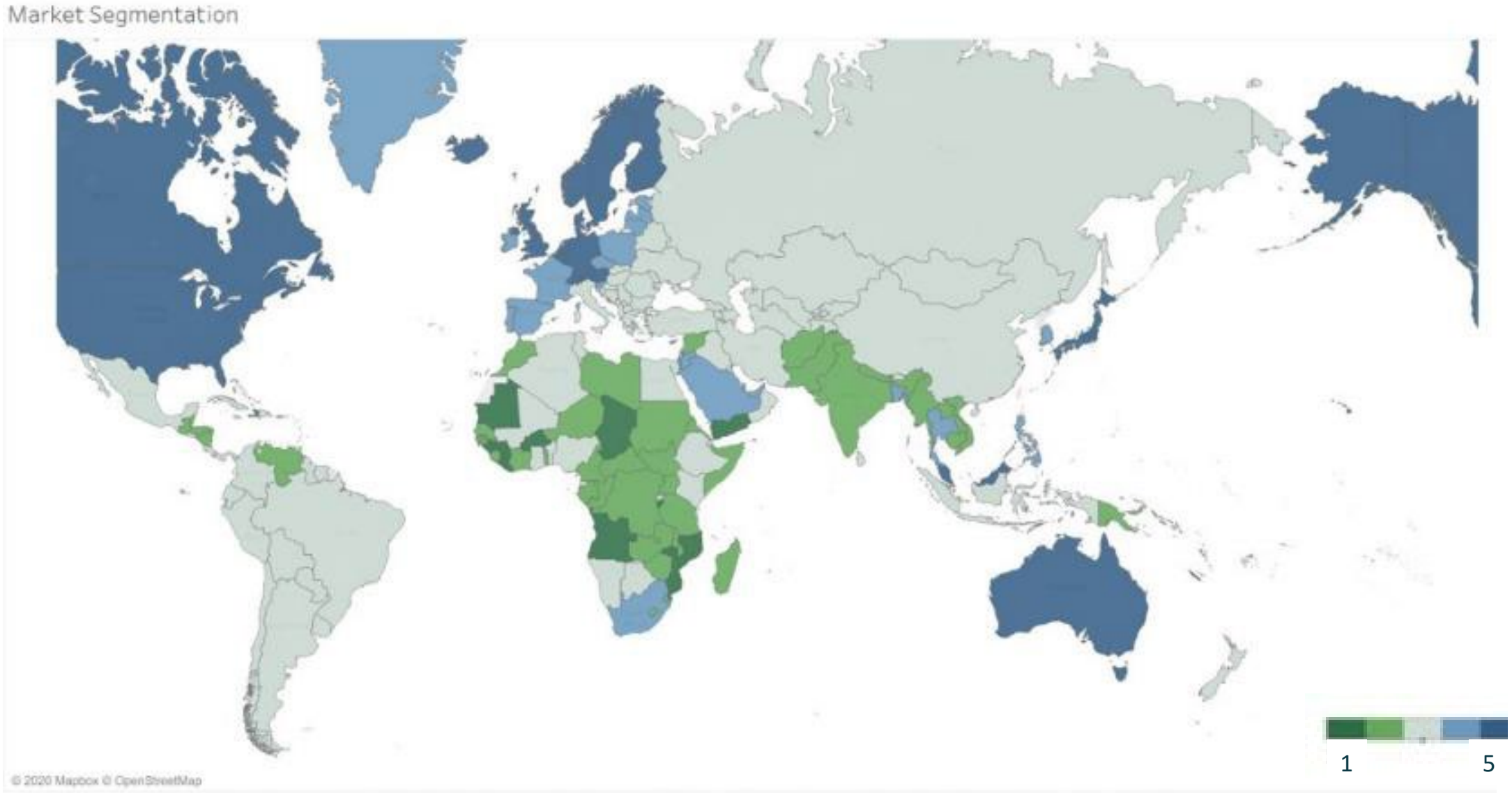


Most People in the World Are in Digital Health Maturity Levels 2 and 3, yet Few Digital Health Products Have Scaled in These Markets

Market Segmentation Criteria	PATH used World Economic Forum Network Readiness Indicators and the Global Digital Health Index to segment countries by digital health maturity level	1	2	3	4	5	Data Source/Notes
							World Economic Forum Pillars • **Pillar 1:** Political and regulatory environment (9 indicators) • **Pillar 3:** Infrastructure and digital context (4 indicators) • **Pillar 5:** Skills (4 indicators) https://www.digitalhealthindex.org/
	Example countries	Haiti	Congo	Mexico	South Africa	Canada	
	# of countries	*10*	*49*	*98*	*35*	*25*	PATH analysis
	Total population	*166 million*	*2,357 million*	*3,471 million*	*707 million*	*774 million*	World Bank
	Income level	*Mostly low; some lower-middle*	*Mostly lower-middle and low*	*Mostly upper-middle and lower-middle*	*Mostly high; some upper-middle*	*High*	World Bank

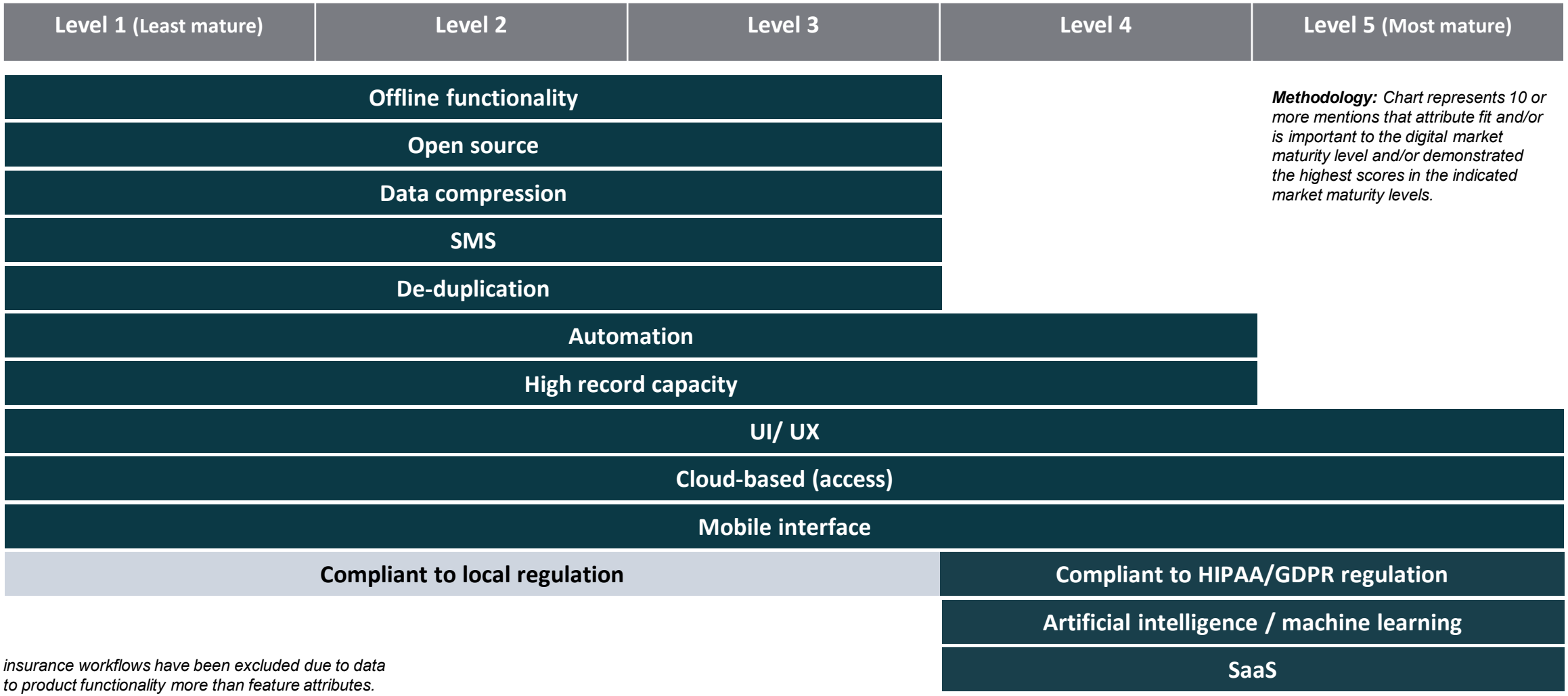
Source: https://wiki.digitalsquare.io/index.php/Market_Maturity_Methodology

Less-Mature Markets (Segments 1 & 2) are Highly Concentrated in Africa and Southeast Asia



End-User Product Requirements Differ by Maturity Level, and Product Developer Incentives May Be Needed To Move Into New Segments

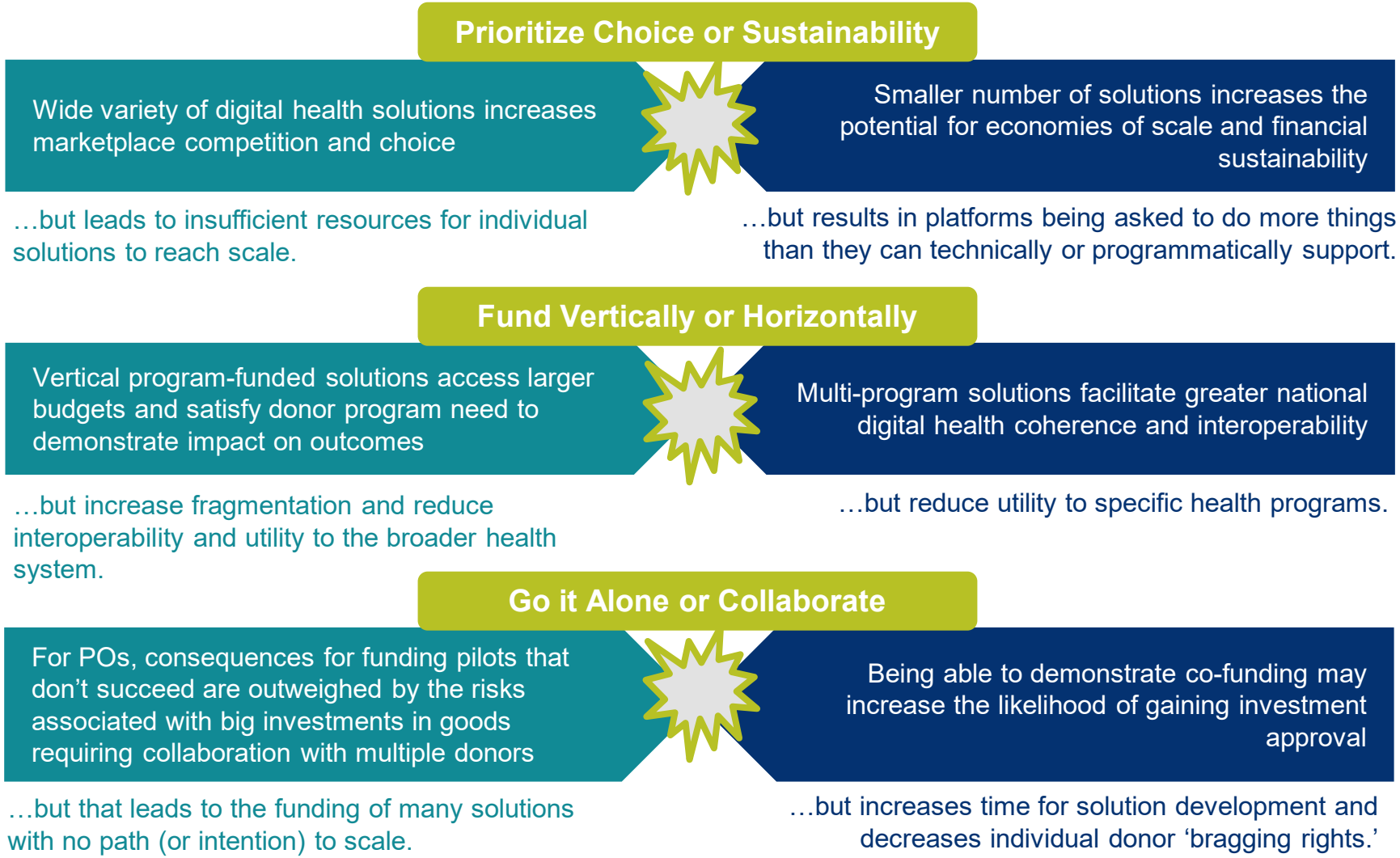
Relevancy of product attributes, by digital health market maturity level[1]



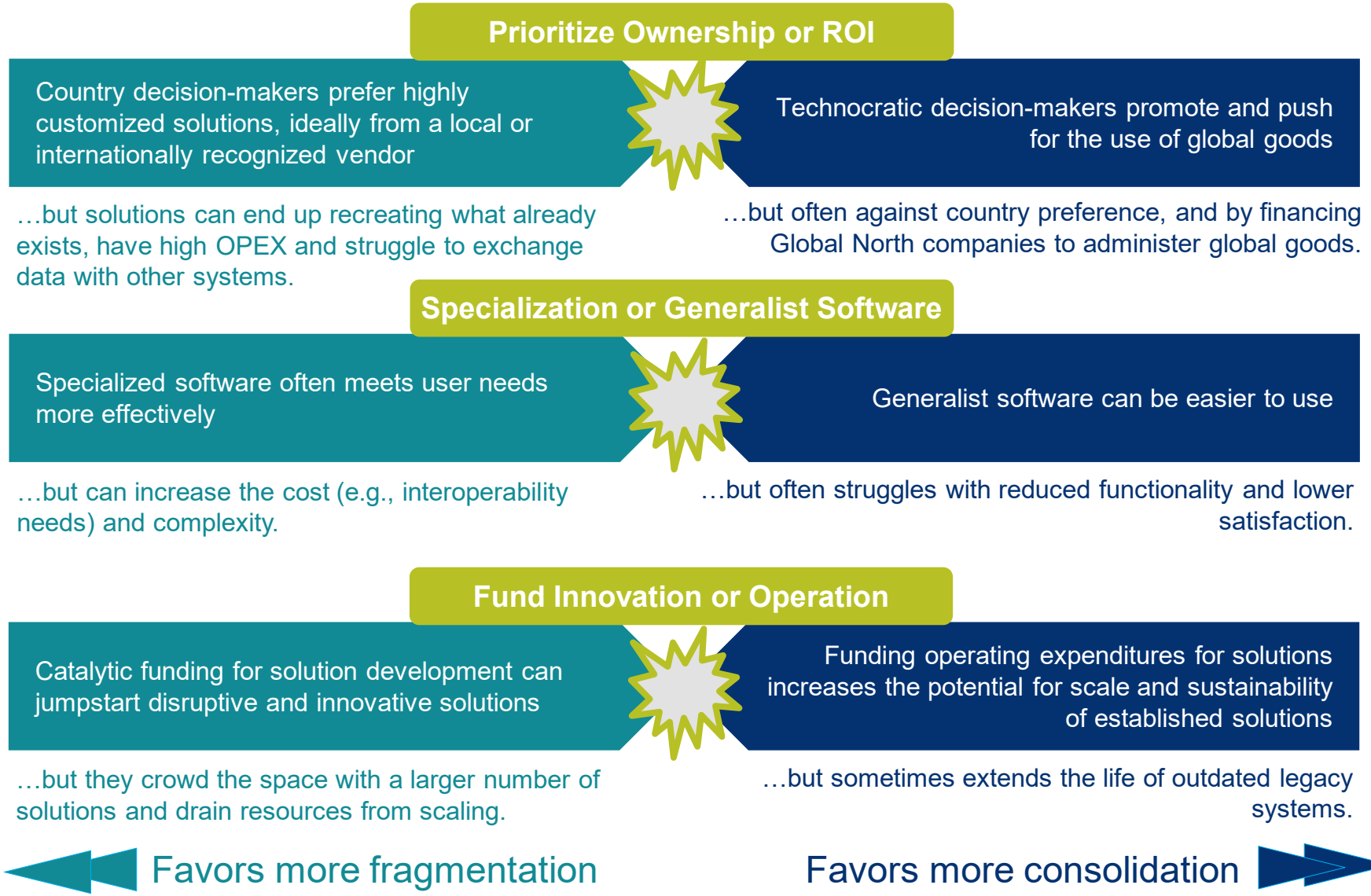
Methodology: *Chart represents 10 or more mentions that attribute fit and/or is important to the digital market maturity level and/or demonstrated the highest scores in the indicated market maturity levels.*

[1]*Health insurance workflows have been excluded due to data relating to product functionality more than feature attributes.*

Differing Incentives Create Tensions Between Government and Funder, Within-Funder and Within-Government (I)



Differing Incentives Create Tensions Between Government and Funder, Within-Funder, and Within-Government (II)



Overview of root causes of suboptimal market functioning in low digital health maturity contexts

1. **Lack of authoritative, transparent market information** leads to inaccurate budgeting, particularly relating to operating expenses, and mistrust among stakeholders

2. **Lack of equitable access to learning opportunities** leads to talent gaps in governments and local organizations, resulting in long-term inability to operate systems

3. **Financing is too unreliable** for global proprietary solution providers to design for low-maturity markets, nor for many global goods to achieve sustainable scale

4. **Structural incentives reward siloed, time-bound investments** which frequently fail to capture the efficiencies of cross-cutting digital platforms, and can alienate end-users

Three Provocative Questions (and Pithy Answers)

- Why do digital health innovations scale in LMICs at a different pace, sometimes slower (e.g., EMRs) and sometimes faster (e.g., WhatsApp)?

- Market needs vary by digital health maturity
- Scale accelerates when (1) product attributes fit market needs, (2) appropriate capacity supports scale, and (3) financing flows through the value chain

- Does development actor behavior accelerate or hinder the scale of digital health innovations in LMICs?

- Scale and sustainability require reliable financing for ongoing operating expenses
- In low GDP-per-capita communities, no one receives a net positive utility for financing ongoing operating expenses

- What are the biggest structural incentives preventing 'digitally-enabled health systems'?

- Philanthropic investors can collectively catalyze a solution for the operating expense challenge
- Doing so will require a restructuring of incentives within funding agencies

So Where Do We Go From Here?

Pragmatic next steps

- Donor checklist
- Learn from positive exemplars
- Increase visibility on issues around sustainable financing for digital health through greater communication
- Build global alignment on the *value* of digital health
- Strengthen capacity

Game-changing next steps

- Align on total cost, and total value, of digital transformation for health systems
- Restructure incentives for each of three long-term financers:
  - Governments and other demand aggregators (e.g., health insurance)
  - Philanthropic donors
  - Customers/out of pocket
- Establish appropriately designed financing and procurement mechanisms to scale the highest-value digital innovations