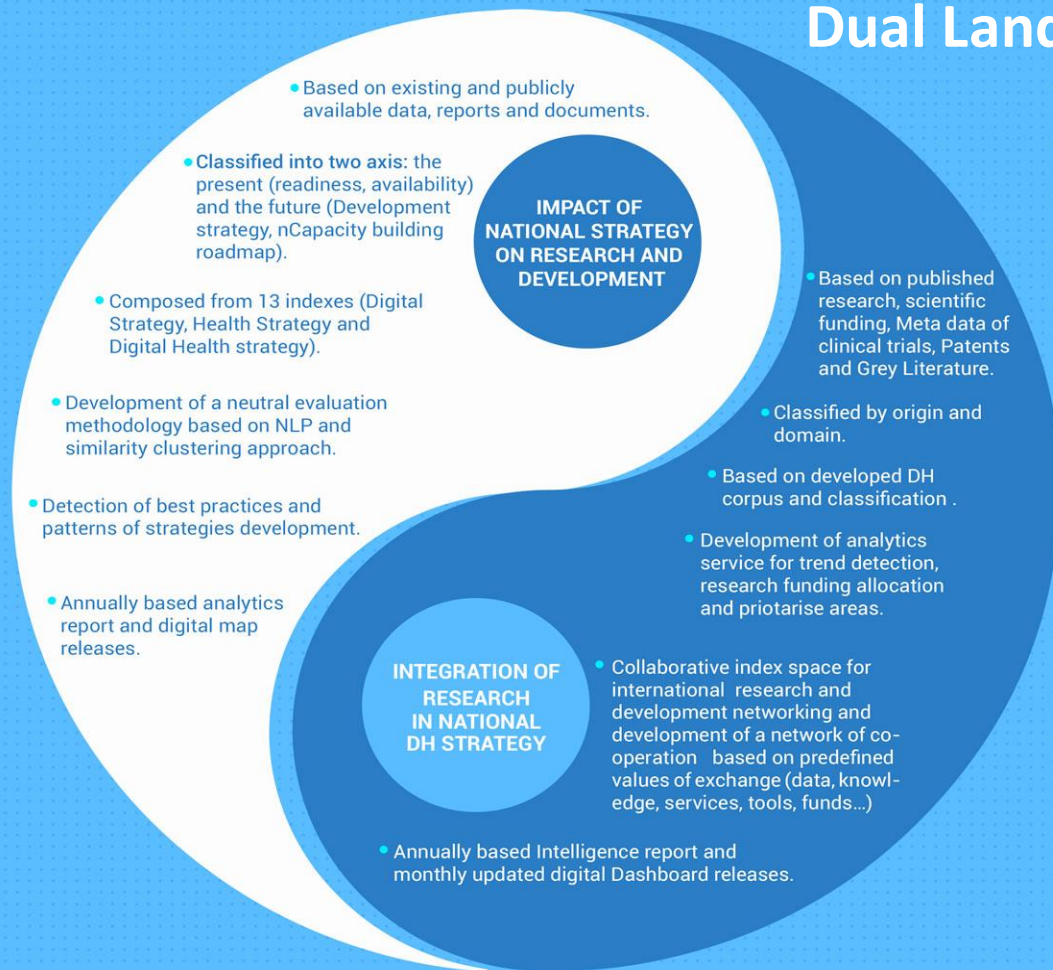


GRM

RESEARCH
AND
DEVELOPMENT

NATIONAL
HEALTHCARE
STRATEGY

Dual Landscape Analysis



R&D Landscape



I-DAIR The Global Research Map of R&D

Data details

<https://grm.i-dair.org/>
[View all charts](#)

Patents and Development Landscape

Total Patents

27,434

Total from LMIC

13,843

Top Development Trends

Diagnostics and Therapeutics

Trends in Patents

Diagnostics and Therapeutics (32.92%)

Disease/Disorder Targeted (30.97%)

Real-Time Monitoring and Tracking (24.16%)

Electronic Medical/Health Records (EMR/EHR) (21.86%)

Healthcare Facility (Hospital) Information System (12.07%)

Patent Status

Inactive 3,046

Active 23,870

Granted 8,356

Pending 19,021

Non-Disputed 27,408

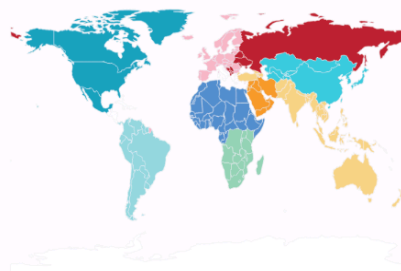
Disputed 26

Distribution of Patent by Country and by Region

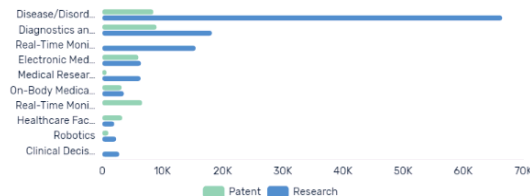
Region	Top Country	Region(%)	Global(%)
Asia Central and East Asia	China	80.03%	47.52%
Americas North America	United States Of Amer...	95.41%	23.48%
Europe Northern, South and Western Europe	Germany	28.14%	2.46%
Asia South East, South, Western and Australasia	India	67.31%	2.93%
MENA	Israel	89.07%	0.98%
Rest of Europe	Russian Federation	69.34%	0.54%
Americas Latin America and Caribbean	Colombia	39%	0.28%
Africa SADC and East Africa	South Africa	75%	0.02%
Africa Central and West Africa	Sudan	100%	0.01%

27,434
Patents Number93,833
Research Publication

Global



Trends in R&D of Digital Health



Scientific Research Landscape

Total Publications

93,833

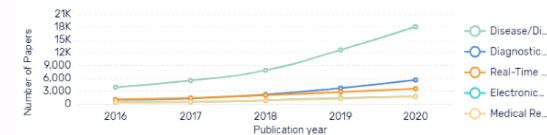
Total from LMIC

26,186

Top Research Trends

Disease Disorder Targeted

Subject of Publication Trends Evolution



Publications 2019-2020



Distribution of Publication by Country and by Region

Region	Top Country	Region(%)	Global(%)
Americas North America	United States Of Amer...	87.73%	24.74%
Europe Northern, South and Western Europe	United Kingdom	24.28%	5.42%
Asia Central and East Asia	China	66.79%	14.82%
Asia South East, South, Western and Australasia	India	48.68%	8.45%
MENA	Iran	38.23%	1.87%
Rest of Europe	Russian Federation	28.14%	0.72%
Americas Latin America and Caribbean	Brazil	61.93%	1.19%
Africa SADC and East Africa	South Africa	60.49%	0.21%
Africa Central and West Africa	Nigeria	70.3%	0.12%



I-DAIR

DH national strategies

Benchmarking

	Readiness	Availability	Development strategy	Capacity building
Governance				
IT workforce and Infrastructure				
Healthcare workforce and Infrastructure				
IA workforce				

	Readiness	Availability	Development strategy	Capacity building
Digital Health (DH) Governance				
DH Infrastructure				
Workforce (Technical and Health care)				
Defined Strategy				
Long term strategy				
Funding and resources				
Research Program and funding				
Literacy (patient+ workforce)				

	Readiness	Availability	Development strategy	Capacity building
Governance-Healthcare	<ol style="list-style-type: none"> 1. National Healthcare Policy / National Healthcare Act 2. Health financing strategies & plans 3. Country has the Universal Health coverage as per policy 4. Laws on Health-data privacy and confidentiality 5. Policy for Controlling Diseases/Disease prevention 6. Agency for new drug regulations and approval 	<ol style="list-style-type: none"> 1. National agency monitoring the policy enforcement -5 2. Dedicated workforce to monitor locally/regionally -5 3. Percentage of GDP Spent on Public Health -4 4. Availability of Web based National Health portals, as per policy -4 5. Health Insurance for Citizens -3 6. Government's Engagement with the Private Sector for Stronger Implementation of the National Health Policy -3 	<ol style="list-style-type: none"> 1. Any Improvement strategy for the better quality of the healthcare -5 2. Any strategy to strengthen and reform health institutions, laws and regulations, including legal frameworks for universal health coverage -4 3. Any Strategy for developing latest medical advancement/ eradicate any specific disease -3 4. Strategy for building digital healthcare -385. Funding development in healthcare sector -4 	<ol style="list-style-type: none"> 1. Dedicated budget/funding -5 2. Upskilling of workforce for the National Agency -4 3. Public - Private Partnerships -3
Governance IT	<ol style="list-style-type: none"> 1. National IT Strategy - 5 2. General Data Protection Regulation (GDPR)/Personal Data Protection Laws - 4 3. Interoperability Framework - 3 4. Law of Cybersecurity, cyberspace -4 5. Governance principles by which all IT initiatives will be governed - 3 6. Strategy for Application of IT in Different Sectors (Agriculture, Healthcare, Transport) -3 	<ol style="list-style-type: none"> 1. National agency monitoring the policy enforcement-5 2. Dedicated workforce to monitor locally/regionally -5 3. Availability of Government Online Services - 4 4. Government Open Data Portal -4 5. Agencies to monitor Laws/Acts on improving efficiency, Data accuracy/transparency and accountability. -5 	<ol style="list-style-type: none"> 1. Regulatory and Security Framework Strengthening - 4 2. Integration of digital dimension in future strategies - 4 3. E-Gov Strategies and ranking - 4 4. Identified requirements - 3 	<ol style="list-style-type: none"> 1. Dedicated budget /funding - 5 2. Upskilling of Workforce for the National Agency - 4 3. Public-Private Partnerships - 3
IT Workforce & Infrastructure	<ol style="list-style-type: none"> 1. IT Workforce - Number of IT Graduates, including a) Retained in the Country b) Brain Drain / Migration to other countries 2. Employment in ICT Sector - 4 3. Network Readiness Index - 3 4. Telecommunications Infrastructure Index - 3 	<ol style="list-style-type: none"> 1. Broadband Connectivity -5 2. Mobile Subscriptions - 5 3. Availability of electronic devices for Education - 2 4. Availability of Disruptive Technologies (IoT and AI Services) - 4 5. Cloud Services Usage - 3 6. Internet Usage - 5 7. 5G Network - 3/ 4 ??? 8. IT research hubs/labs - 3 	<ol style="list-style-type: none"> 1. Creating IT / ICT workforce - 5 2. Enhancing Broadband Connectivity - 5 3. Developing 5G Infrastructure - 3/4 ??? 4. National Satellites for communication - 2 5. Promoting Cybersecurity Policy - 4 6. Promoting IoT and AI - 4 7. Promoting ICT Application in Education, Medicine, and Other Fields - 2 8. Digital Literacy Initiatives - 3 	<ol style="list-style-type: none"> 1. Introducing ICT Curriculum or Programming - 4 2. Promoting ICT Research and Development - 4 3. Dedicated budget for Capacity Building in IT - 5 4. Public-Private Partnerships - 3
Healthcare workforce and Infrastructure	<ol style="list-style-type: none"> 1. Primary care Access - 5 2. Emergency Healthcare Access - 4 3. Ranking on Global Health Security Index - 3 4. Existing Strategy for Increasing Skilled Professionals and Infrastructure - 2 	<ol style="list-style-type: none"> 1. Practicing Doctors / 1000 People - 5 2. Practicing Nurses / 1000 People - 5 3. Number of Hospitals and clinics - 4 4. Availability of Hospital Beds - 5 5. Digital Data Access in Health Care Facilities - 4 6. Access to Critical Care, surgery/intensive - 3 7. Medical/Imaging devices - 5 8. Healthcare Research Hubs - 3 	<ol style="list-style-type: none"> 1. Long Term Or Short Term Development Strategy - 3 2. Strategy for Regulating Healthcare Infrastructure - 4 3. Increasing / Regulating Public Healthcare Spending / Establishing Sustainable Funding Sources - 4 4. Private Sector Collaboration - 4 5. Promoting Skilled Manpower in Remote Regions - 3 6. Integration of Digital Dimension - 3 7. Creating More Workforce - 5 8. Strengthening Primary Healthcare - 6 	<ol style="list-style-type: none"> 1. Integration of advanced technologies - 3 2. Public Funding of Medical Education - 4 3. Funding development for Healthcare research - 4 4. Increasing Number of Graduate Schools Teaching Medical Science or Public Health- adequacy of graduates with respect to market/country need - 4
AI Workforce /Infrastructure	<ol style="list-style-type: none"> 1. Existing National AI Strategy - 5 2. Framework for Ethical use of AI - 4 3. Data Protection and Privacy Legislation - 4 4. Existing Cybersecurity Initiatives - 4 5. Overall AI Index - 3 6. AI Infrastructure- data centres, high speed performing computers - 4 	<ol style="list-style-type: none"> 1. National agency monitoring the policy enforcement-5 2. AI expertise in existing IT workforce - 4 3. Digital Infrastructure for AI (Telecommunication Infrastructure, 5G and Internet Bandwidth) - 5 4. Availability of data for AI Models - Open Data - 4 5. Open source software libraries and toolkits - 2 6. AI Research Hubs - 3 7. Number of companies working in AI field - 4 	<ol style="list-style-type: none"> 1. Creation of data trusts /transparency - 3 2. Digital Infrastructure - 5G and Full Fibre Networks - 5 3. AI Infrastructure - 4 4. Open source software libraries and toolkits - 2 5. AI Talent Development - 4 6. Supporting AI Start-ups and Technology Unicorns - 4 7. Private Sector Engagement - 4 8. Attracting AI experts from abroad - 3 9. Availability of datasets - 4 	<ol style="list-style-type: none"> 1. Funding in AI field - 5 2. Promoting AI Research/ Training programme - 4 3. AI Curriculum in Schools & Universities - 4 4. Public-Private Partnerships for AI based projects - 3

	Readiness
Governance - Healthcare	<ol style="list-style-type: none">1. National Healthcare Policy / National Healthcare Act2. Health financing strategies & plans3. Country has the Universal Health coverage as per policy.4. Laws on Health-data privacy and confidentiality5. Policy for Controlling Diseases/Disease prevention6. Agency for new drug regulations and approval

A. National Healthcare Policy / National Healthcare Act **(25)**

1. Does the Country have a National Healthcare Policy? (10)

Answer : YES

2. Is the National Healthcare Policy Updated? (5)

Answer : YES

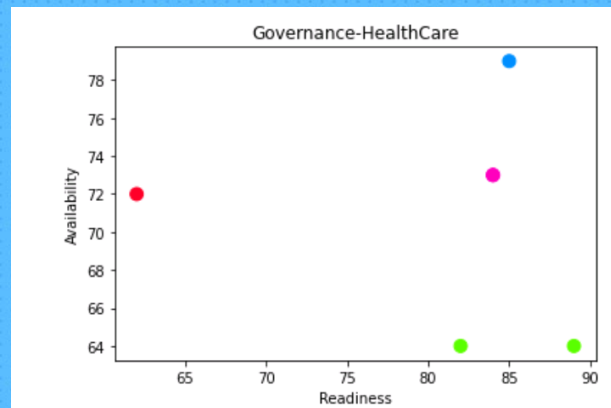
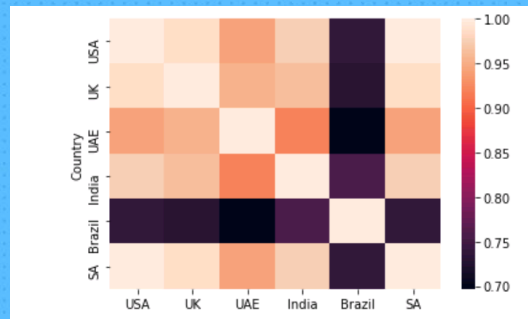
3. Is it a Short Term Strategy(Duration ≤ 5) ? (5)

Answer : YES

4. Does the National Healthcare Strategy Focus on Strengthening Digital Dimensions in Healthcare? (5)

Answer : YES

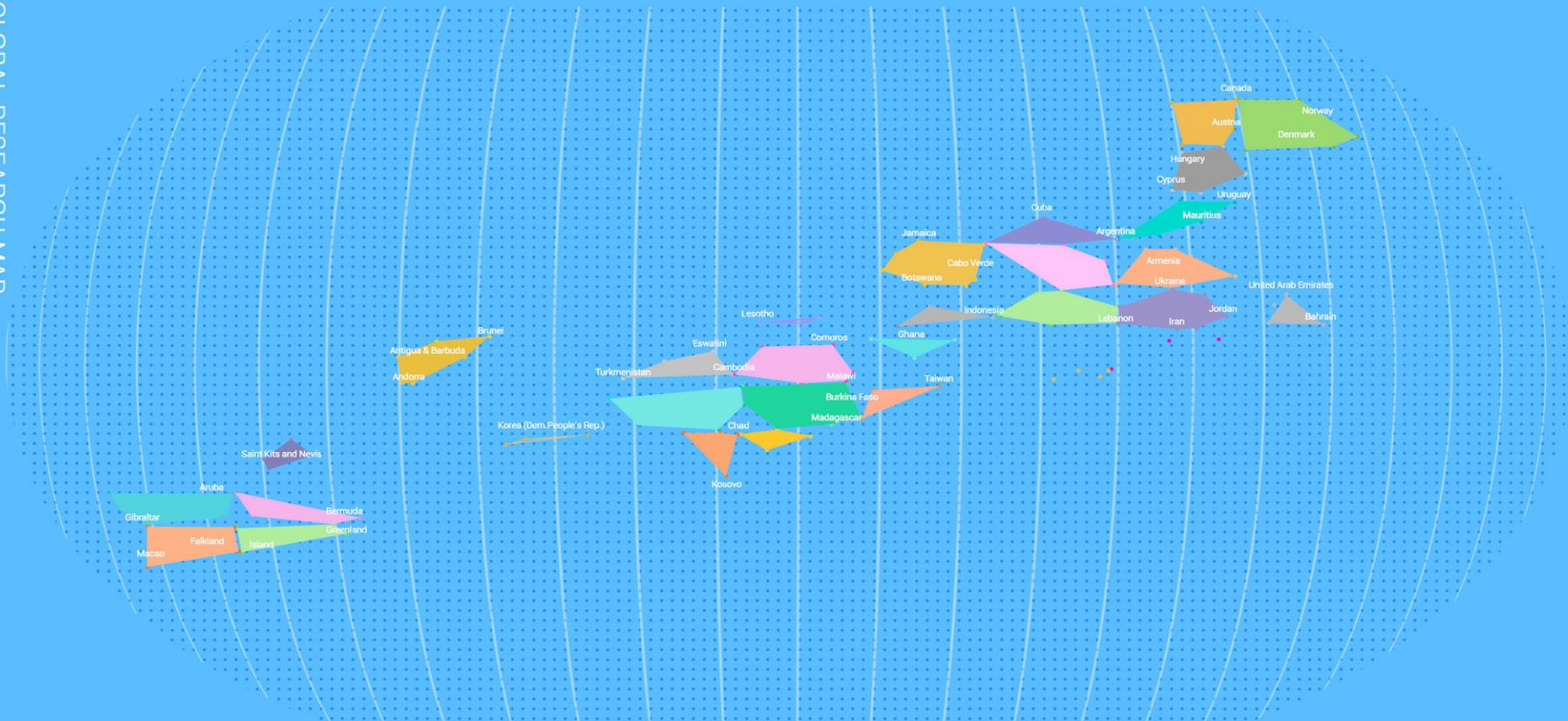
Country	Readiness	Availability
USA	84	73
UK	85	79
UAE	89	64
India	82	64
Brazil	62	72
South Africa	84	73

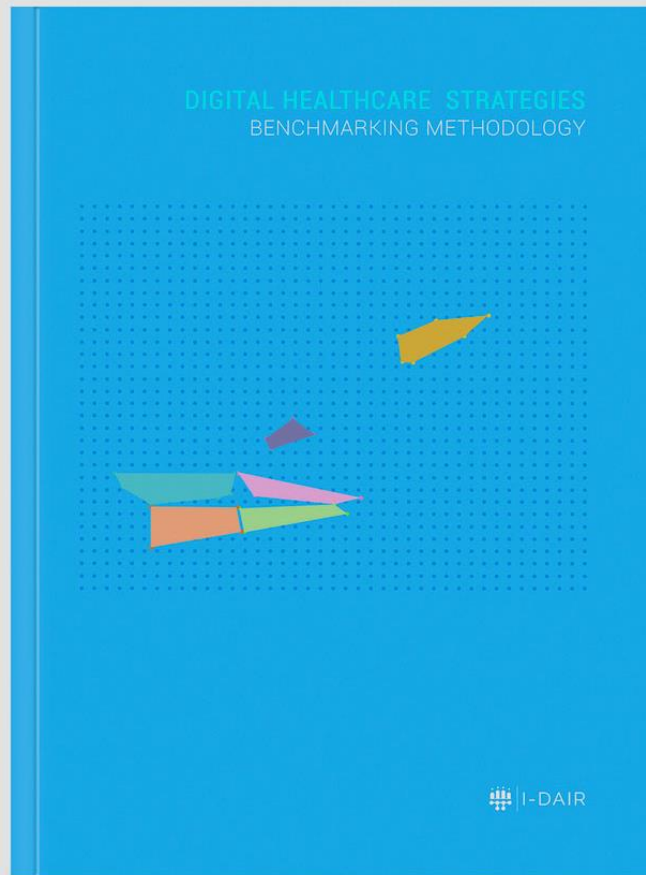


AI for AI benchmarking

Country	USA	UK	UAE	India	Brazil	SA
USA	1	0.988	0.944	0.976	0.738	1
UK	0.988	1	0.955	0.965	0.729	0.988
UAE	0.944	0.955	1	0.921	0.697	0.944
India	0.976	0.965	0.921	1	0.756	0.976
Brazil	0.738	0.729	0.697	0.756	1	0.738
SA	1	0.988	0.944	0.976	0.738	1

	min similarity
	max similarity





GRM Purpose

- The GRM could provide a floor to discussions in global policy bodies.
- Relevant stakeholders can use it in conjunction with the detailed customised report to identify policy and governance gaps in AI and digital health for the achievement of universal health care and the sustainable development goal (SDG.3).
- It also helps donors, development agencies and Digital health actors to quickly identify area of interest for investment and development.
- It helps in the building of research and development cooperation network

Thank you. For further information please contact:

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