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Towards 2050:

Megatrends For Pharma & Healthcare

Wednesday, 6th September

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Presenters



Sophie Smyth-Osbourne

Pharmaceutical Industry Analyst

Sophie is a Pharmaceutical Analyst at BMI and covers key markets across Europe and the Sub-Saharan Africa, along with providing analysis of global trends in pharmaceuticals. Prior to joining BMI in 2022, Sophie completed a BSc degree in Biochemistry before earning an MSc degree in Biopharmaceutical Development both from the University of Leeds.



Claudette Igiraneza

Healthcare Industry Analyst

Based in Manchester, Claudette joined Healthcare & Medical Devices BMI team in 2021. She specialises in healthcare and medical device trends and developments across markets in Sub-Saharan Africa, Asia and North America. Claudette holds an MSc in Global Health Policy from the University of Edinburgh and BSc in Environmental Health from the American University of Beirut.

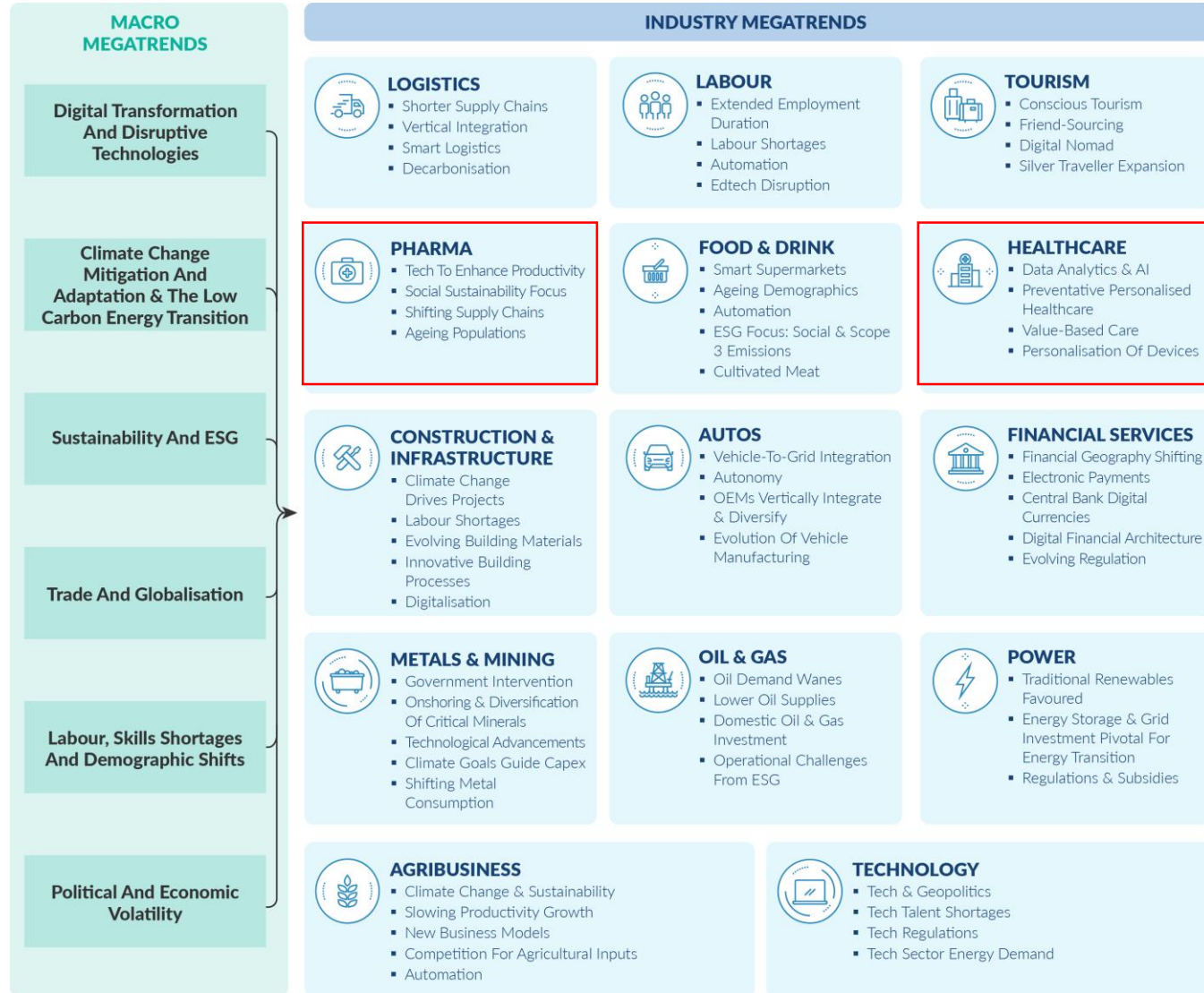


Megan Cordwell

Healthcare Industry Analyst

Megan joined the BMI Healthcare and Medical Devices team in Manchester in 2022. She covers healthcare and medical device trends and developments across European markets and specialises in digital health and consumer medical devices. Prior to joining BMI, Meg worked for consultancy firm SQW, where she evaluated public health schemes in the UK. Megan holds a BA in Geography from the University of Liverpool.

2023 Megatrends



The Megatrends coverage aims to understand how **industries, economies and geopolitics** will evolve over the coming decades to 2050

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Edition of
Megatrends

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Global Economic &
Geopolitical
themes

Megatrends Survey

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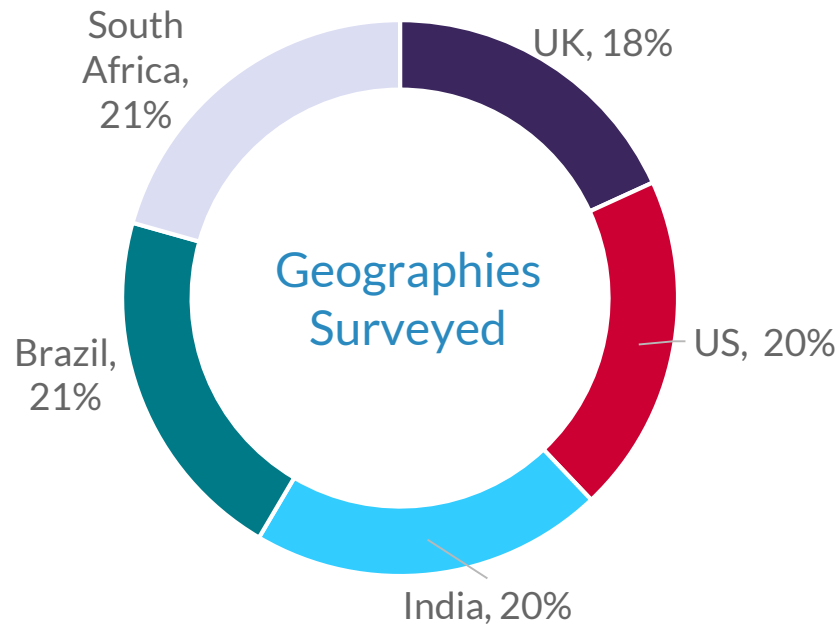
Geographies

15

Industries

1,000+

Middle & Upper
Managers

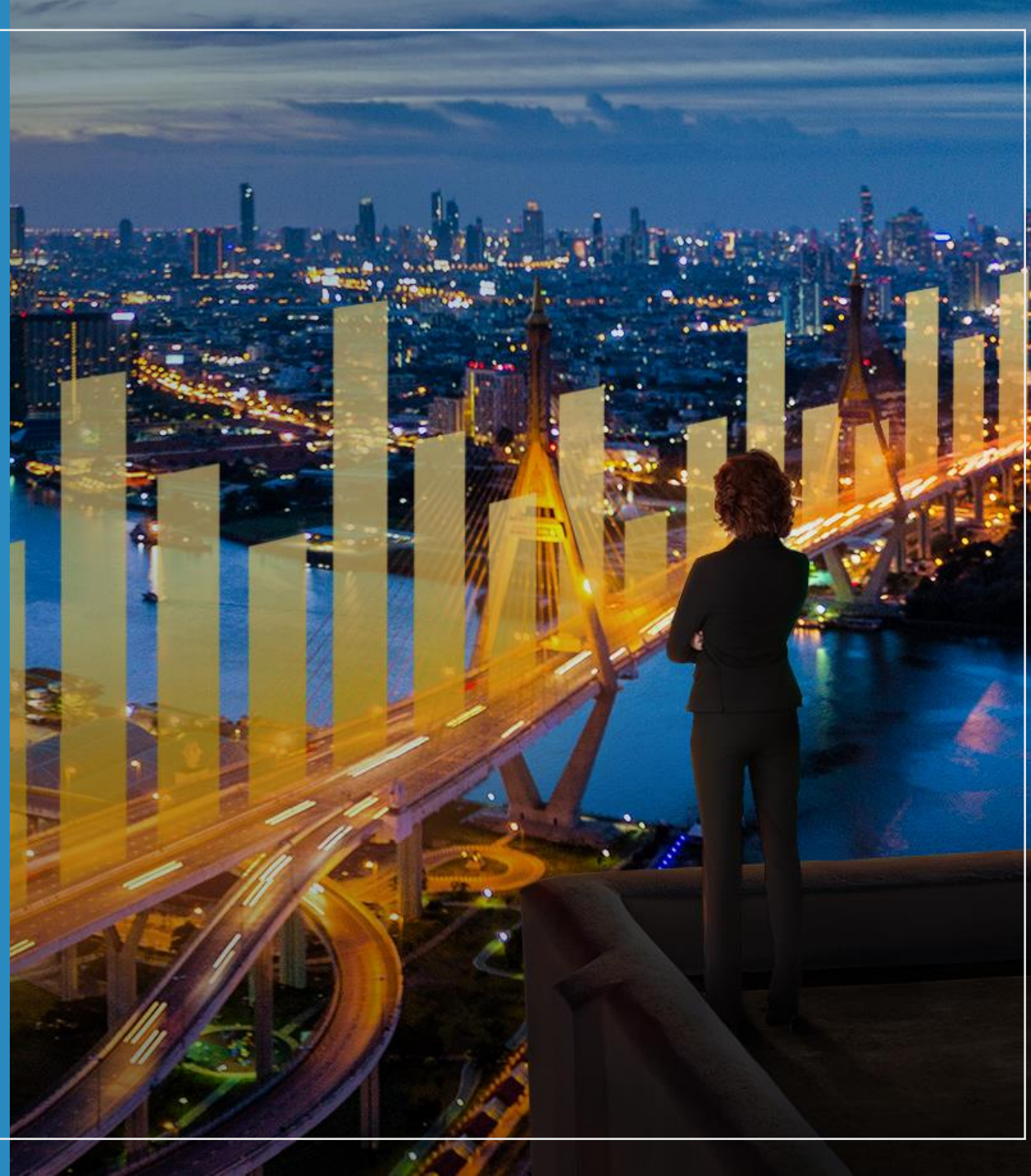


Industries Surveyed

- Agriculture/Livestock
- Automotive
- Banking/Financial Services
- Industrial Manufacturing
- Telecoms/Tech/IT
- Construction
- Professional Services
- Education/Training
- Energy, Utilities & Environment
- Food/Beverage/Restaurant
- Travel/Tourism/Hospitality
- Pharmaceuticals/Healthcare
- Metals & Mining
- Consumer/Retail
- Transport/Transportation/Logistics

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1. Pharmaceutical Megatrends: Technology Advancements, ESG Considerations And Ageing Population
2. Healthcare Megatrends: Artificial Intelligence, Robotics, Smart Hospitals And Value-Based Care
3. Medical Devices Megatrends: Personalised, Preventative Healthcare And Smart Manufacturing Of Personalised Medical Devices
4. Q&A





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Pharmaceutical Megatrends

Technology Advancements, ESG Considerations And
Ageing Population

Technological Advancements Will Disrupt The Pharmaceutical Industry

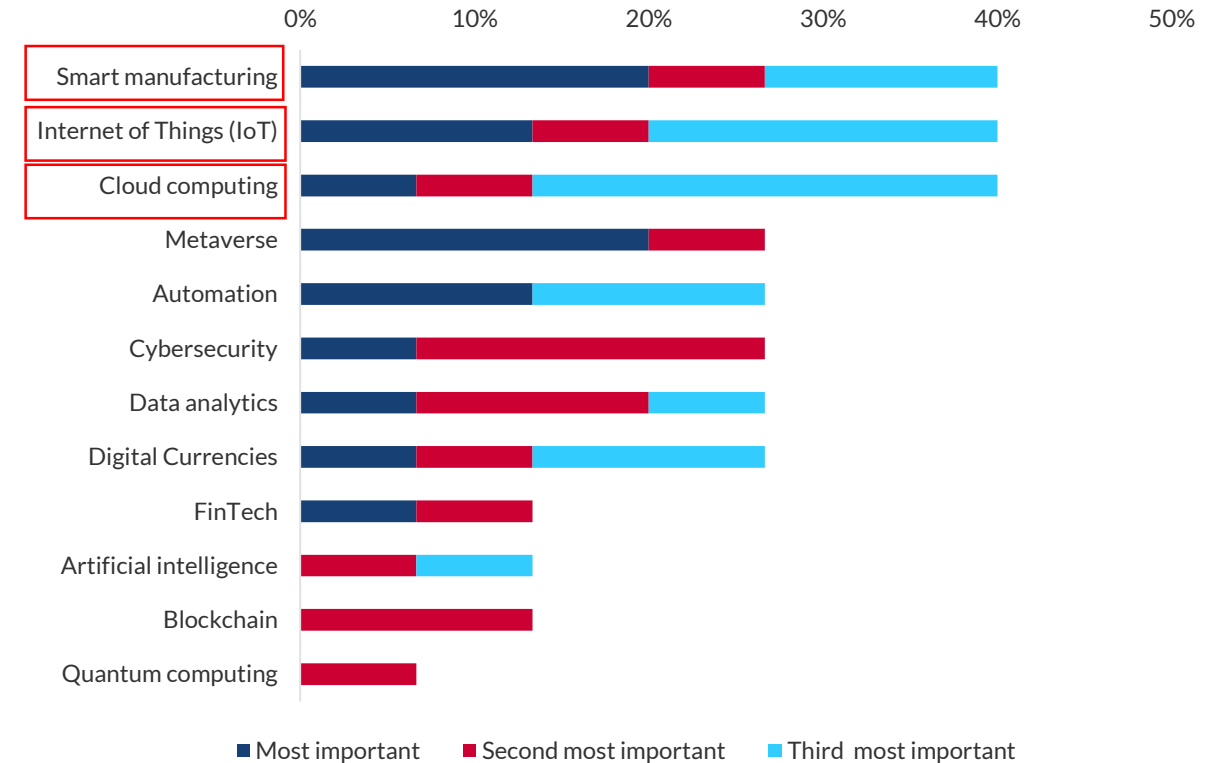
Impact Of Technology In Clinical Trials

Pharmaceutical Companies – Applications Of Technology In Clinical Trials



Advancing IT Techniques Key To Technology Strategy To 2050

Pharmaceutical Companies – Which Technology Most Likely Part Of Strategy To 2050?

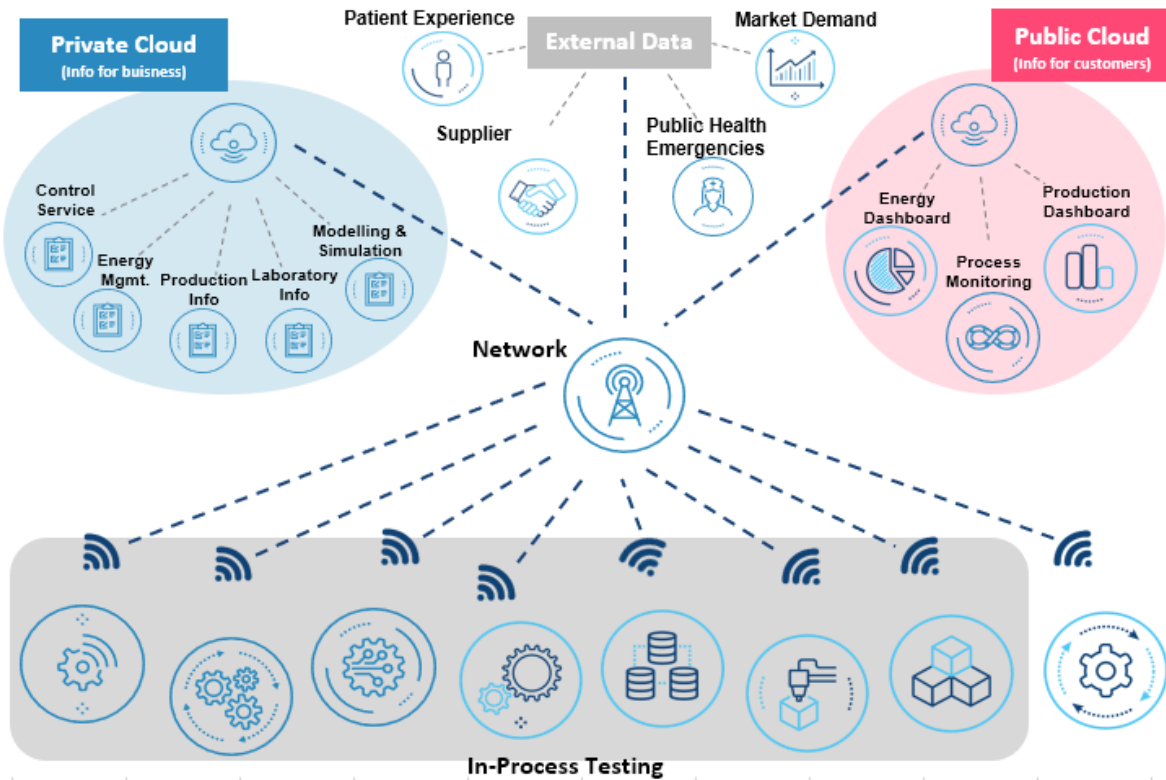


Note: the BMI Megatrend Survey is a B2B survey conducted in March 2023 and assesses the responses of 1,000 respondents across the UK, US, India, Brazil and South Africa. Source: BMI Megatrends Survey

Technological Advancements Will Disrupt The Pharmaceutical Industry

Data Analytics And AI Top Technology Strategies To 2050

Pharmaceutical Companies – Greatest Benefits Of Smart Manufacturing



Advancing IT Techniques Key To Technology Strategy To 2050

Pharmaceutical Companies – What Is The Greatest Benefit Of Smart Manufacturing?

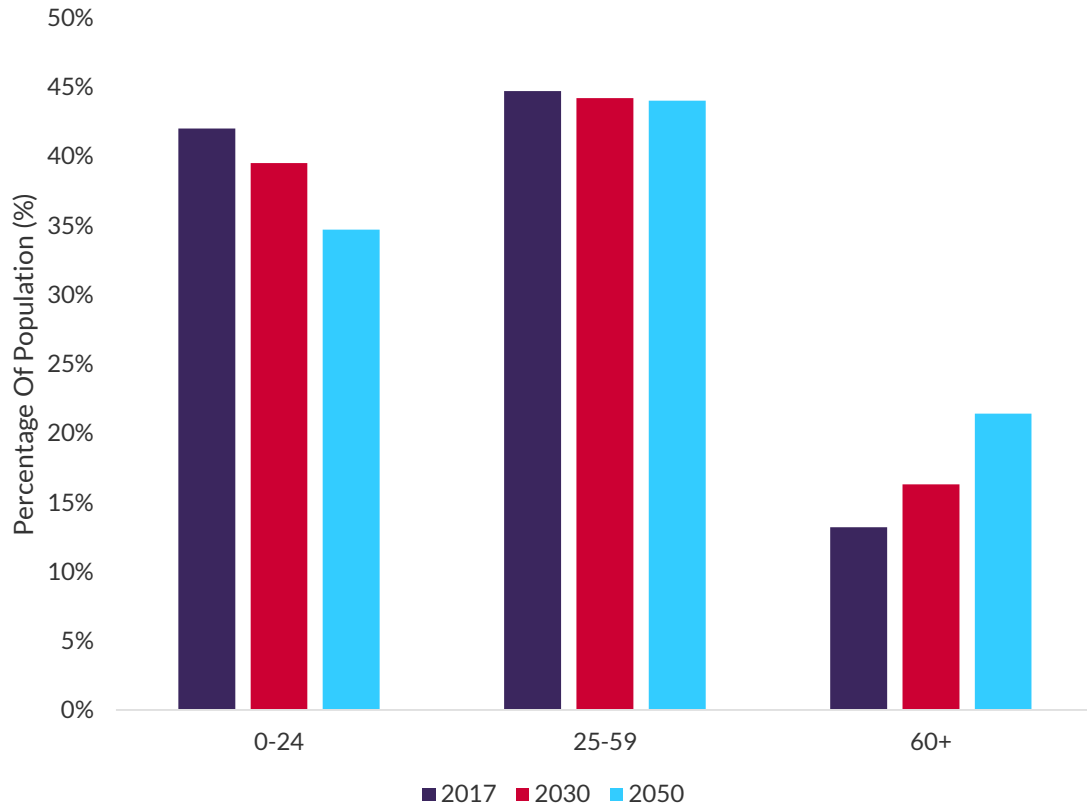


Source: BMI Megatrend Survey 2023

Ageing Population Will Drive New Strategic Priorities For Drugmakers

Ageing Populations Will Influence Drug Development

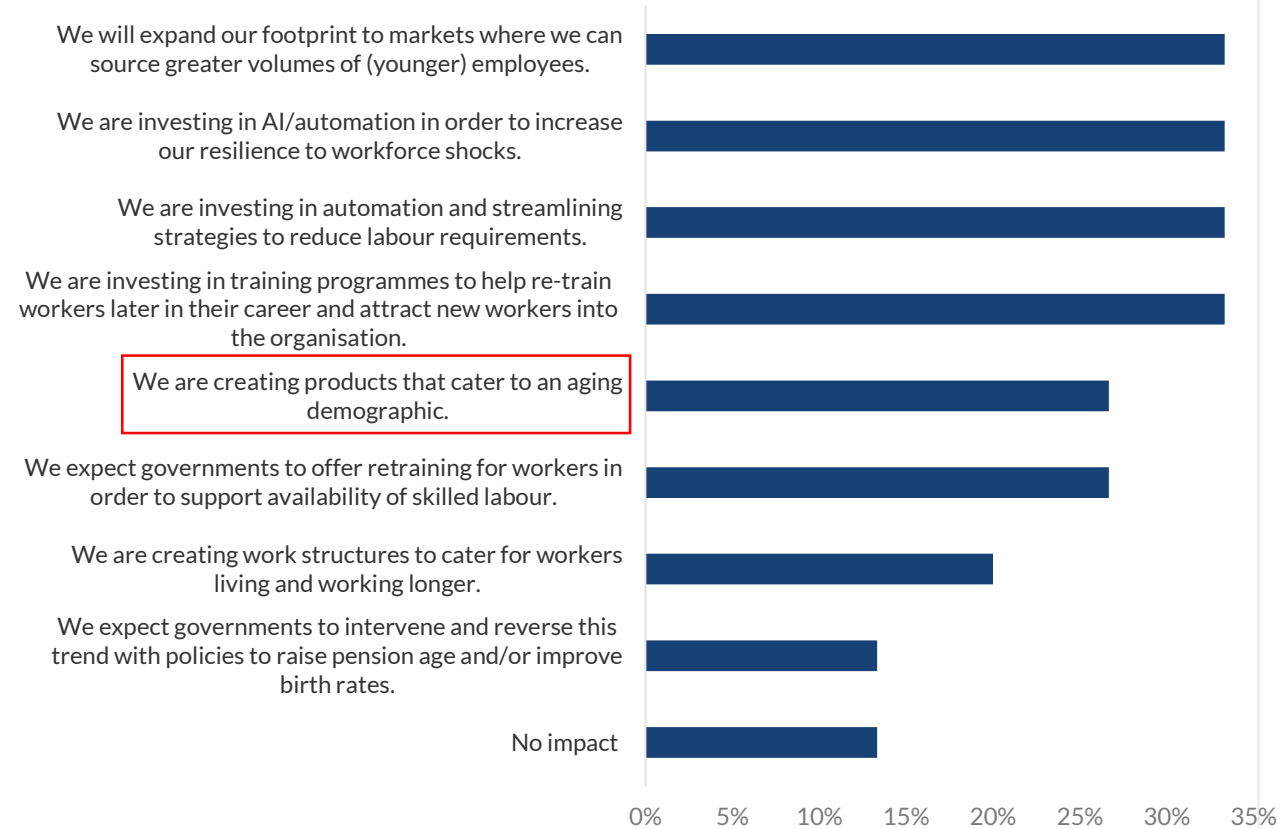
Global - Population Age By Group (%), 2017-2050



Source: United Nations

Drugmakers Will Develop Drugs For An Ageing Population

Pharmaceutical Companies – How Will Population Ageing Impact Your Company?

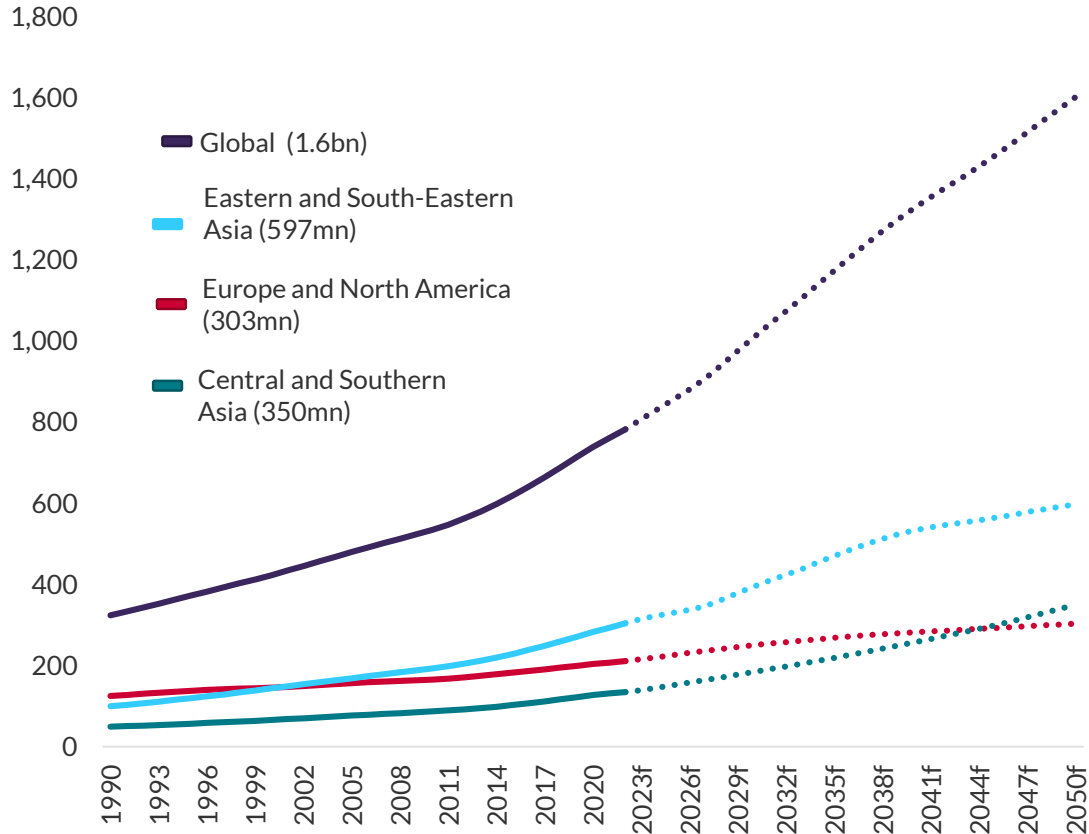


Source: BMI Megatrend Survey 2023

Ageing Population Will Drive New Strategic Priorities For Drugmakers

Ageing Populations Will Influence Talent Pool-Sourcing

Global - Population Aged 65+ (mn), 1990 - 2050



Dotted lines = forecast. Source: United Nations Department of Economic and Social Affairs, BMI

Talent Sourcing And Workforce Resilience Will Be Key Issues

Pharmaceutical Companies – How Will Population Ageing Impact Your Company?

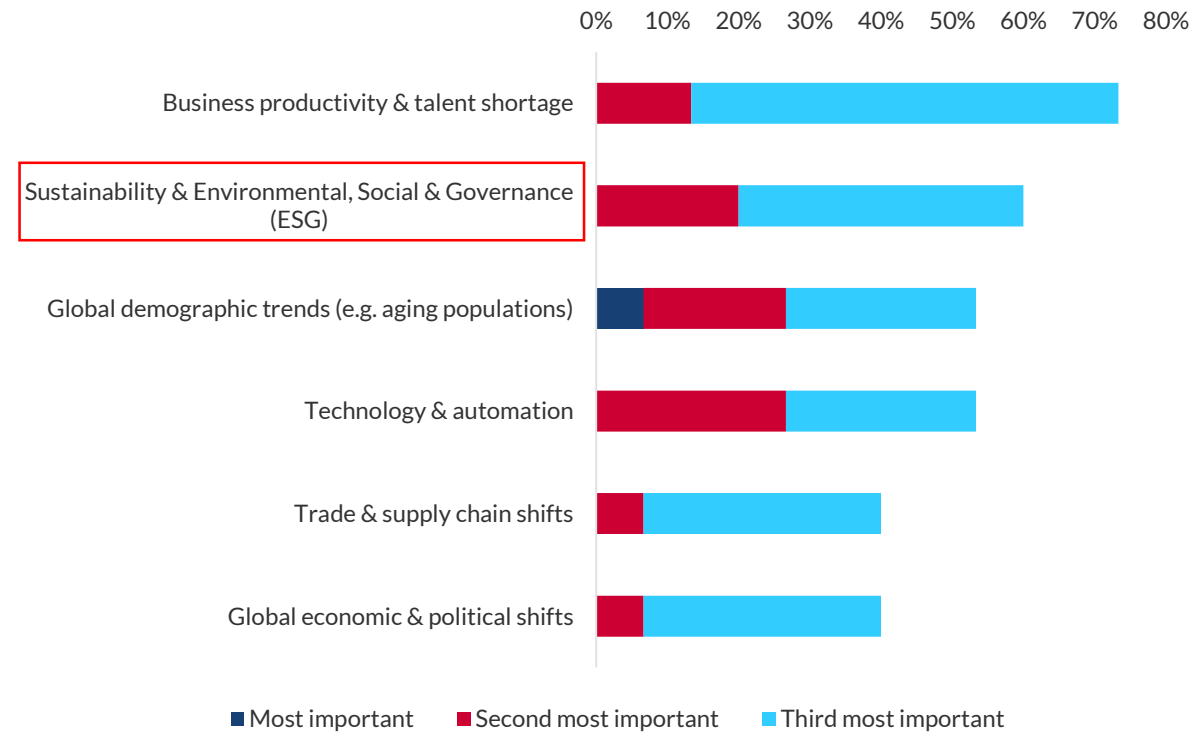


Source: BMI Megatrend Survey 2023

ESG Factors Will Become A Priority For The Pharmaceutical Industry

ESG Trends To Disrupt Pharmaceutical Industry By 2050

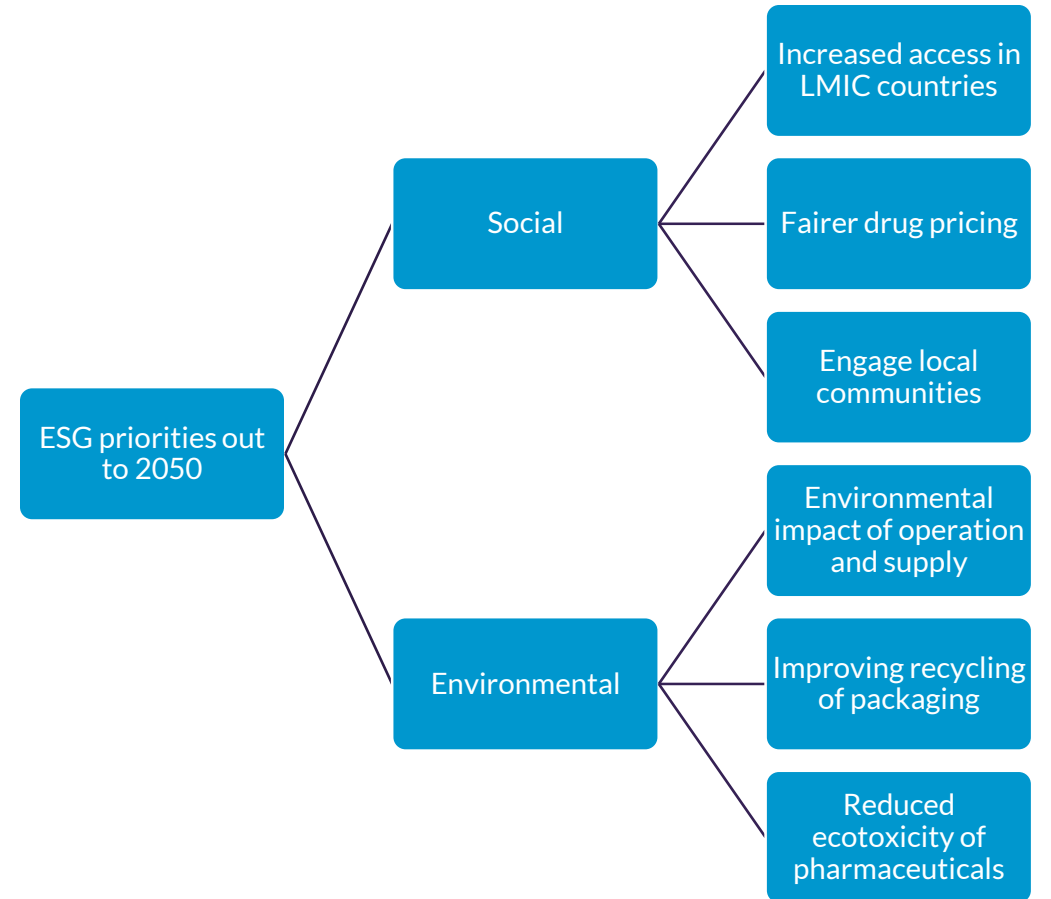
Pharmaceutical Companies – How Disruptive Will These Megatrends Be To 2050?



Source: BMI Megatrend Survey 2023

Social And Environmental Key To ESG Considerations To 2050

ESG Considerations For The Pharmaceutical Industry



Source: BMI

Social Initiatives Will Be At The Forefront Of Pharmaceutical ESG Trends

Rising Commitment To Increasing Medicine Access

Global - Recent Examples Of Access To Medicine Initiatives By Pharmaceutical Companies (2023)

In 2021, AstraZeneca pledged to supply 2bn doses of its Covid19 vaccine to LMICs, with a focus on equitable distribution and accessibility.

In 2023, Sanofi signed a Memorandum of Understanding with the government of Ghana to allow healthcare authorities to buy analog insulin at a discounted rate.

In 2023, GlaxoSmithKline signed an agreement to create a generic version of Cabotegravir LA for HIV pre-exposure prophylaxis (PrEP).

In 2023, Novartis announced the 'Zolgensma Global Managed Access Program' to collaborate with local governments to create innovative access programs for the gene therapy.

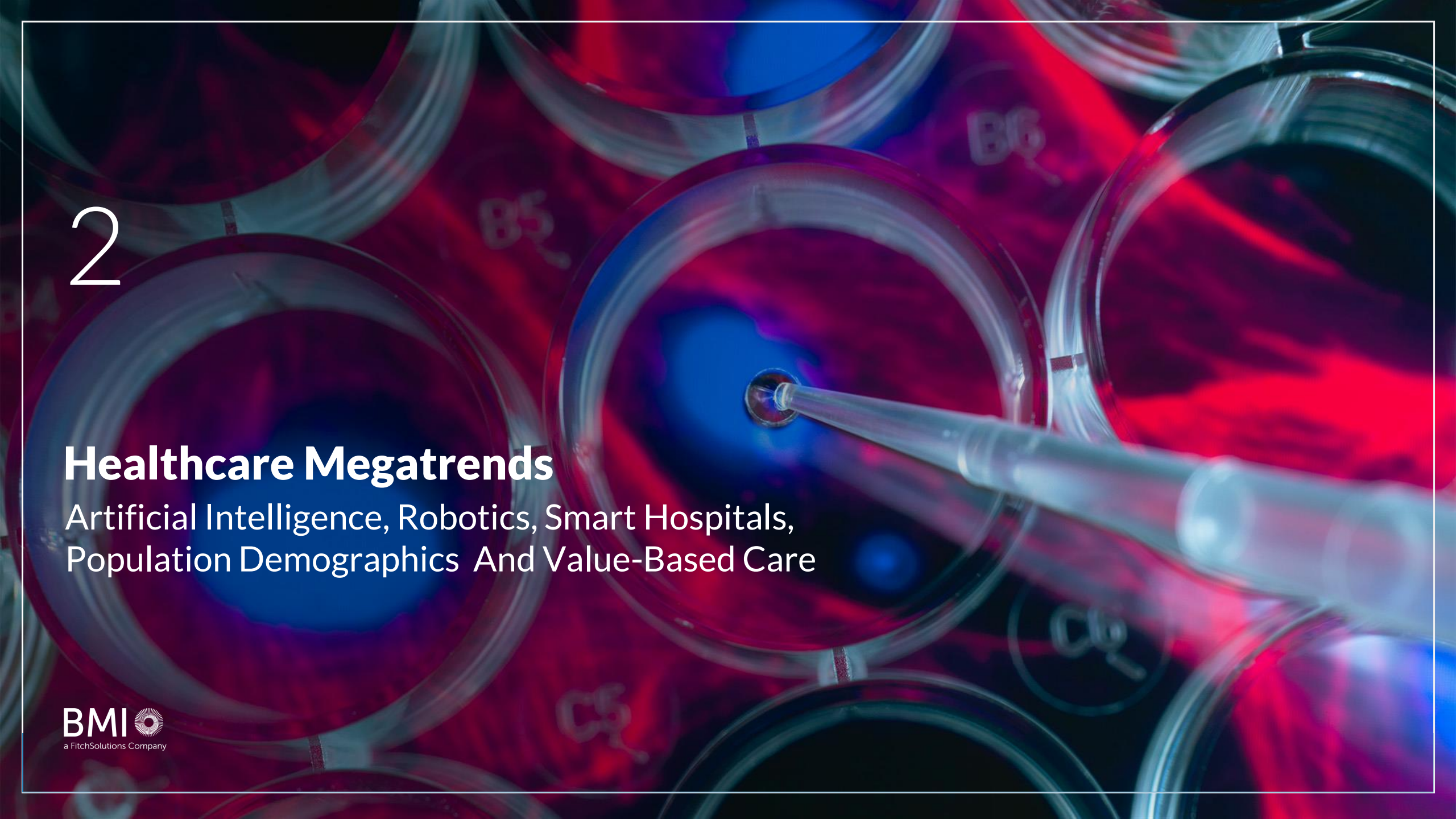
In 2022, Merck & Co entered into an agreement with UNICEF to supply up to 3mn courses of Covid 19 antiviral molnupiravir to LMICs.

In 2023, Takeda announced it would sell its dengue fever vaccine at a discounted rate in emerging markets.

In 2023, Eli Lilly announced it would supply it's active pharmaceutical ingredient for human insulin at a reduced price to improve patient access and affordability.

In 2023, Pfizer announced 'An Accord For A Healthier World' to offer medicines and vaccines on a not-for-profit basis to 45 LMICs.

Source: BMI



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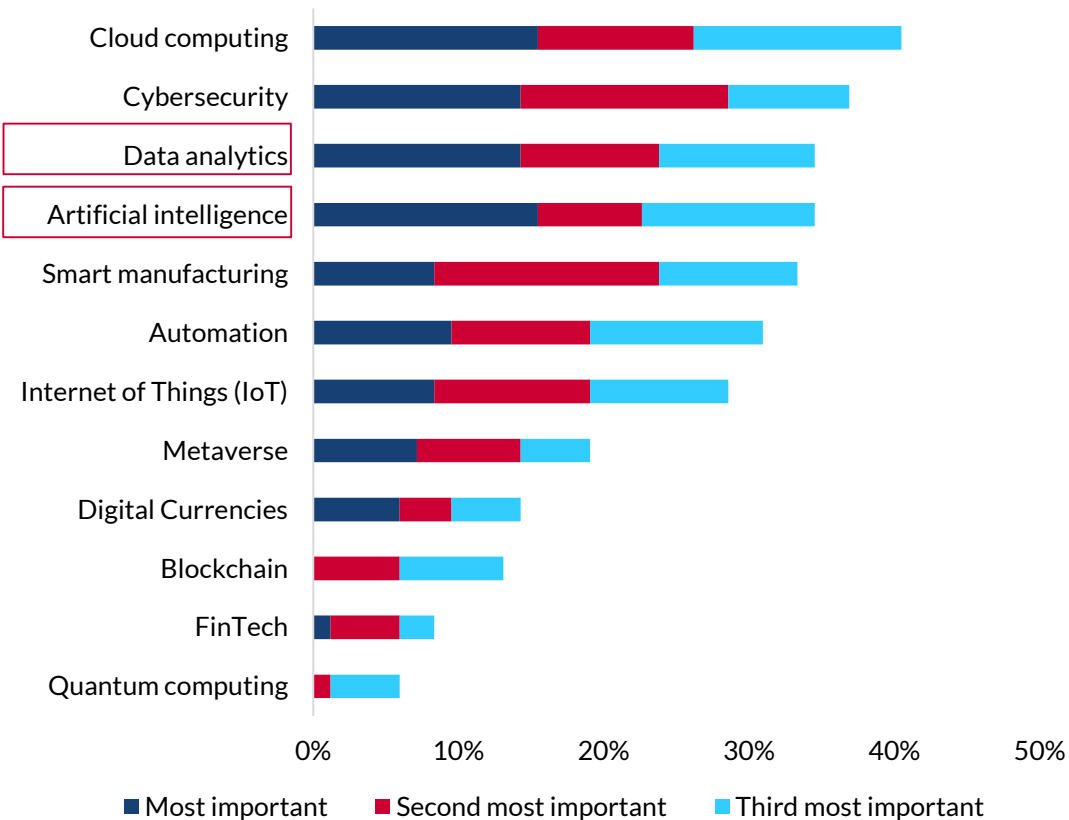
Healthcare Megatrends

Artificial Intelligence, Robotics, Smart Hospitals,
Population Demographics And Value-Based Care

Technology At The Core Of Transformation In The Healthcare Sector

Data Analytics And AI Top Technology Strategies To 2050

Medical Device & Healthcare Companies – Technology Strategies To 2050



Source: BMI Megatrend Survey 2023

Several Applications Of AI And Data Analytics In Healthcare

Key Applications And Benefits Of AI In Healthcare

Disease prediction and prevention



Improved patient monitoring



More accurate and faster diagnosis



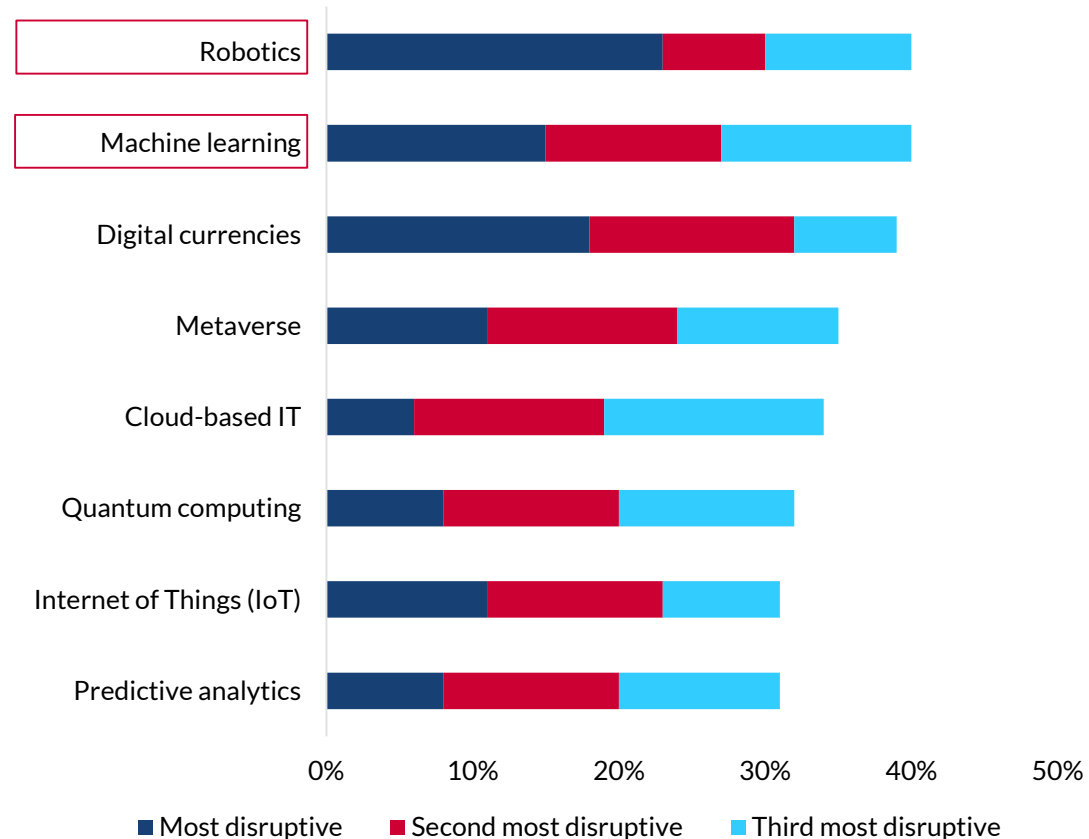
Personalised care



Technology At The Core Of Transformation In The Healthcare Sector

Robotics To Disrupt Healthcare And Medical Devices Space

Medical Device & Healthcare Companies – Tech Disruptors Over The Period To 2050



Source: BMI Megatrend Survey 2023

A Global Shortage Of 10 mn Healthcare Staff By 2030

Global – Estimated Healthcare Staff Shortages In Select Markets

Market	Healthcare Workforce Shortage Projections
Japan	960,000 medical and welfare service workers by 2040
Australia	200,000 full-time care workers by 2050
Canada	117,600 nurses by 2028
US	124,000 physicians by 2034
UK (NHS England)	44,000 community nurses by 2036
Singapore	24,000 healthcare staff by 2030
Africa	6.1 million health workers by 2030
Global	10 million health workers by 2030

Source: National sources, World Health Organization (WHO), BMI

Greater Uptake Of Smart Hospitals Is Expected To 2050

Developed Markets Will Dominate The Smart Hospital Landscape

Top Spenders On Health – Growth Outlook For Smart Hospitals And Examples

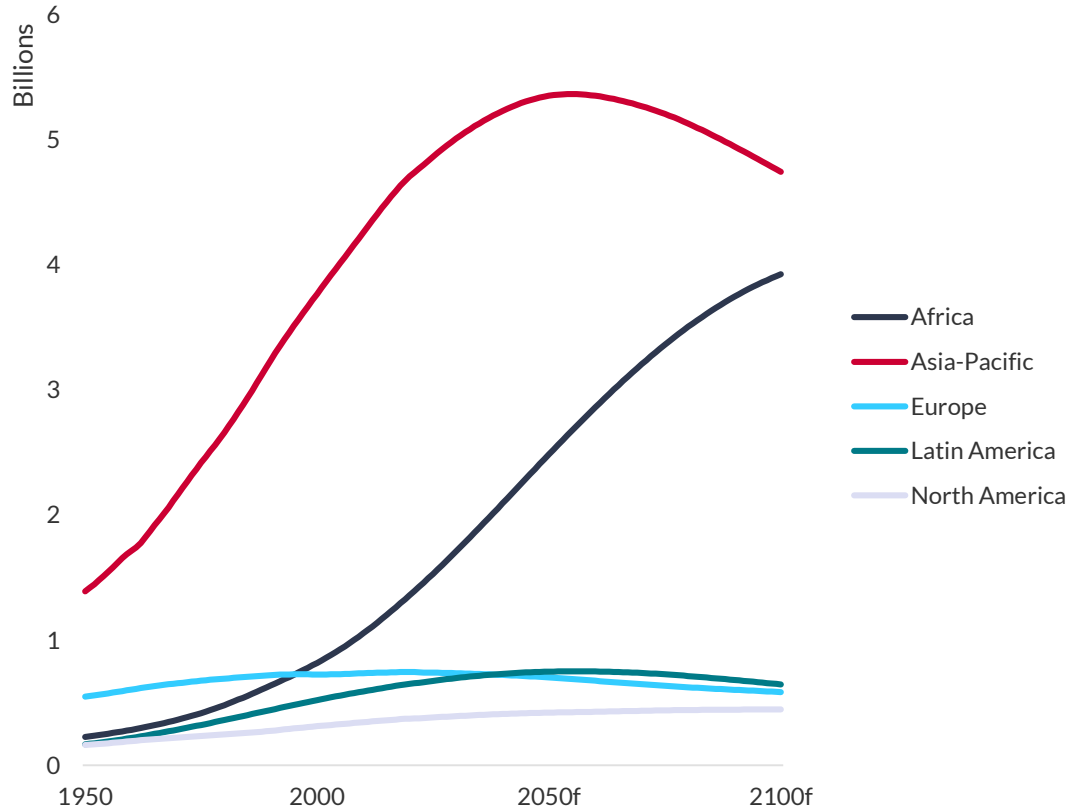
Rank Per Total Health Expenditure (2022)	Country	Smart Hospitals Outlook	Examples Of Smart Hospitals	Standout Category Of Technologies
1	US	Very high	Mayo Clinic	AI and Robotics
2	China (Mainland)	Moderate	Fosun Healthcare	AI and Robotics
3	Germany	Very high	Charité - Universitätsmedizin Berlin	AI and Machine learning
4	Japan	High	Kameda Medical Center	Telemedicine
5	France	High	AP-HP - Hôpital Saint-Louis	Digital imaging
6	United Kingdom	High	St Thomas' Hospital	Digital imaging
7	Canada	High	Centre hospitalier de l'Université de Montréal	AI
8	Brazil	Moderate	Hospital Israelita Albert Einstein	Robotics
9	Australia	High	Royal Melbourne Hospital	AI and Robotics
10	Italy	High	Azienda Ospedaliera San Camillo Forlanini	Telemedicine
11	South Korea	High	Samsung Medical Center	AI
12	Spain	High	Hospital Universitari Vall d'Hebron	Digital imaging
13	India	Low	Apollo hospitals	Robotic surgery
14	Mexico	Moderate	Hospital Médica Sur	Electronic functionalities
15	Switzerland	High	Universitätsspital Zürich	Digital imaging
16	Netherlands	Moderate	Radboud Universitair Medisch Centrum	Telemedicine
17	Russia	Low	Botkin Hospital	AI
18	Sweden	Very high	Radboud Universitair Medisch Centrum	AI and robotics
19	Belgium	Moderate	UZ Leuven - Campus Gasthuisberg	Electronic functionalities

Source: BMI

Increased Demand For Care Will Drive Adoption Of Value-Based Care

Africa And Asia Will Dominate Population Growth To 2050

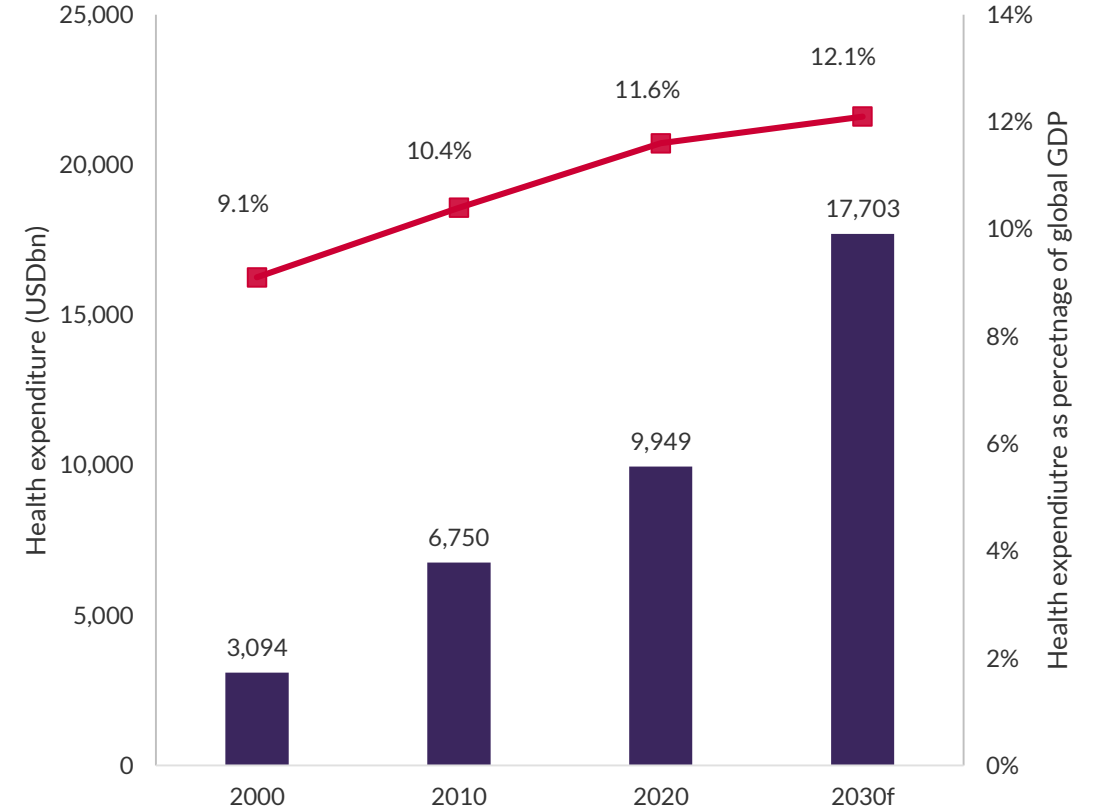
Global - Population Projections By Region, 1950 - 2050



Note: f= forecast. Source: United Nations World Prospects 2022, BMI

Healthcare Expenditure To Outpace Global GDP Growth

Global - Health Expenditure (USDbn), 2000-2030



Note: f = BMI forecast. Source: WHO, BMI

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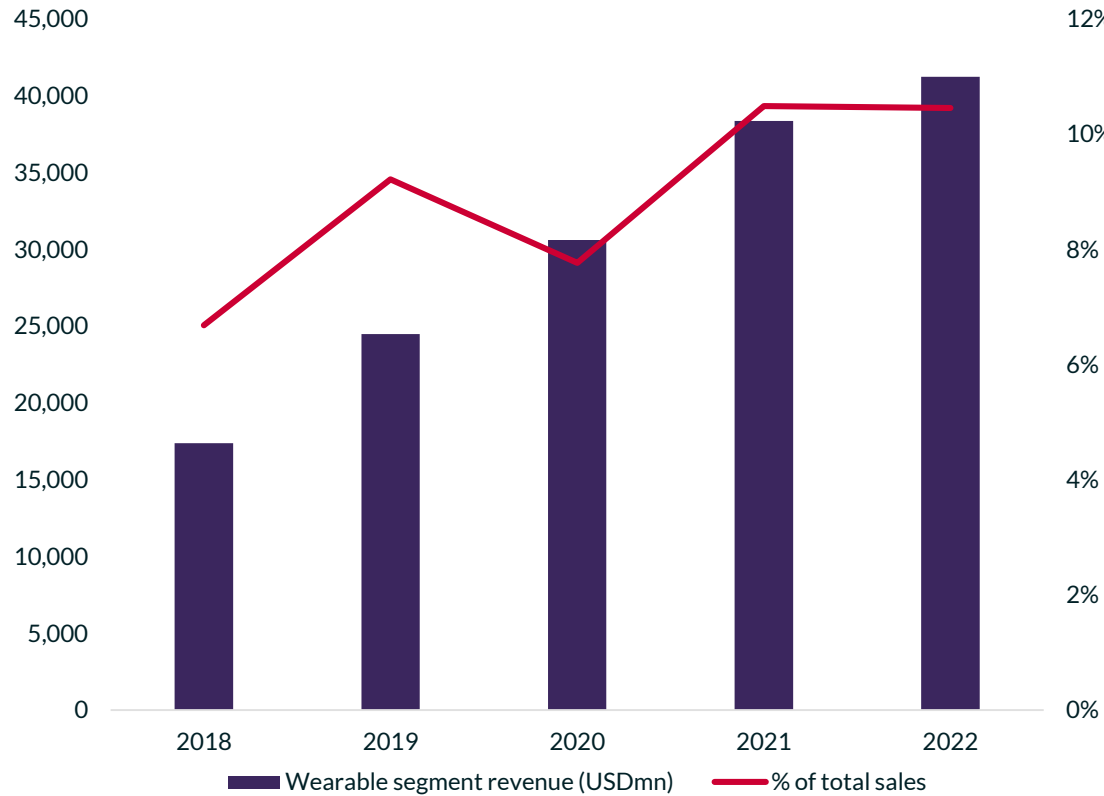
Medical Devices Megatrends

Personalised, Preventative Healthcare And Smart
Manufacturing Of Personalised Medical Devices

Consumers Will First Drive Personalised Preventative Healthcare

Consumer Health Monitoring And Advanced Healthcare Applications Will Drive Wearable Revenue Growth

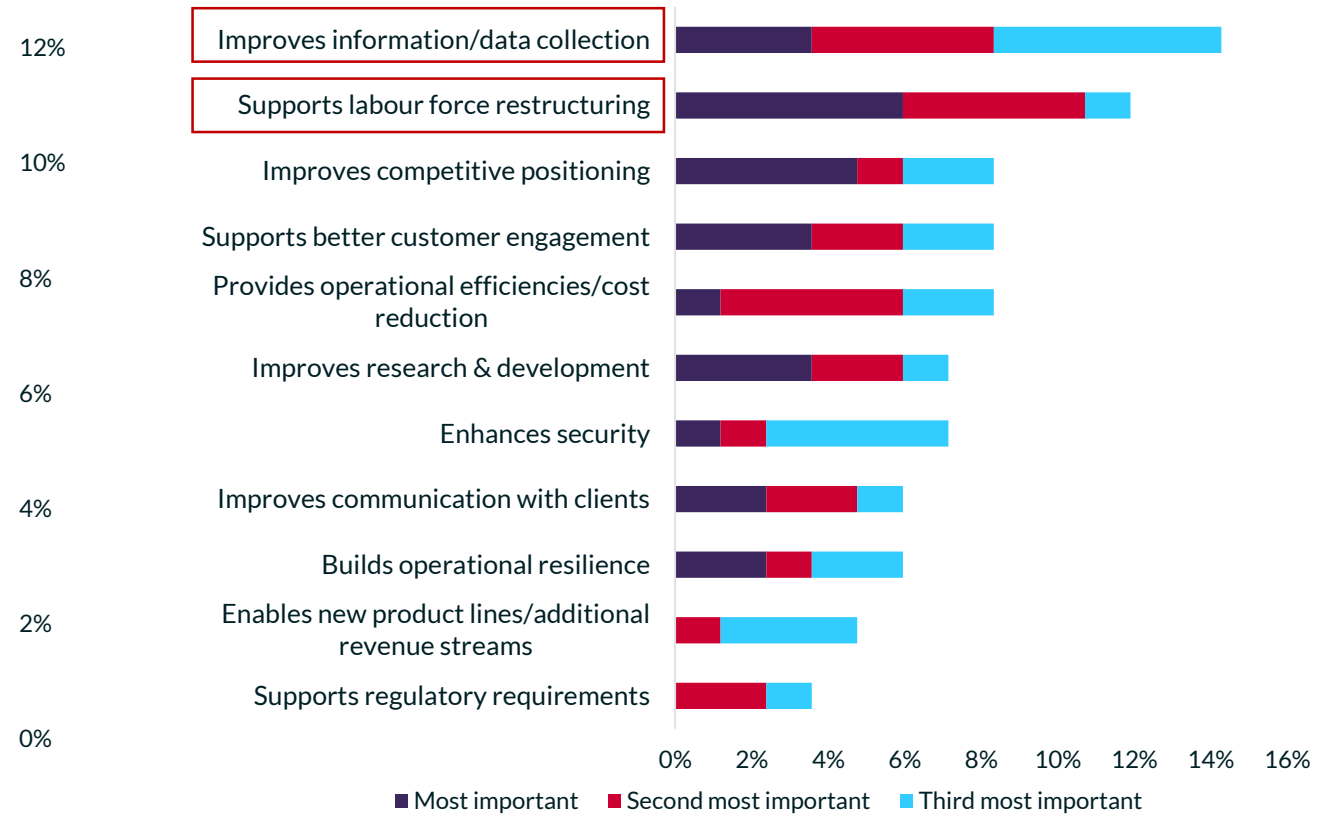
Apple – Wearable Segment Revenue (USDmn) (RHS), Wearable Revenue As % Of Total Revenue (LHS)



Source: Apple, BMI

Consumer IoT Devices Will Enable Personalised Care

Healthcare & Medical Device Companies – Greatest Benefits Of IoT Devices

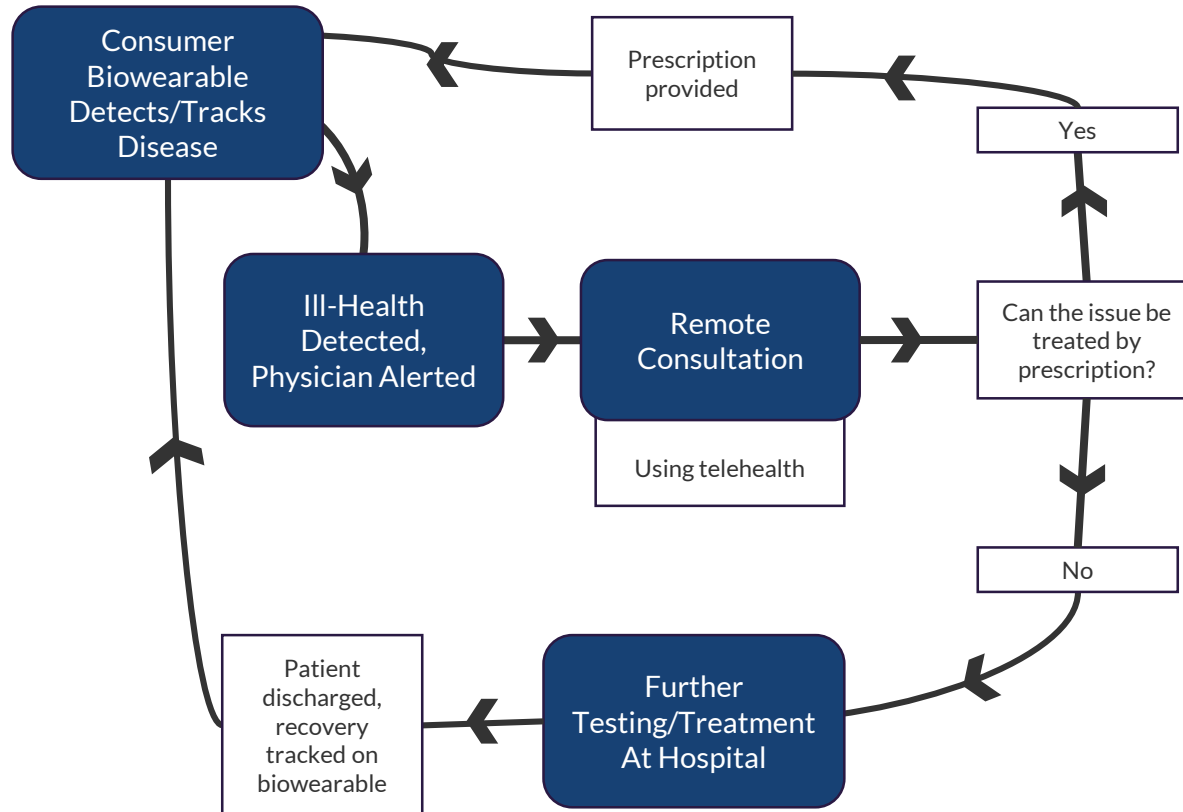


Source: BMI Megatrend Survey 2023

Barriers Remain For Fully Remote Outpatient Care

Biowearables And Telehealth Are Key To Remote Care To 2050

Possible Outpatient Journey With Integrated Connected Devices



Drivers

- Health-conscious individuals
- Healthcare systems aiming to improve efficiency amid staff shortages and high costs
- Policymakers to track and improve public health
- Health insurers aiming to better calculate premiums

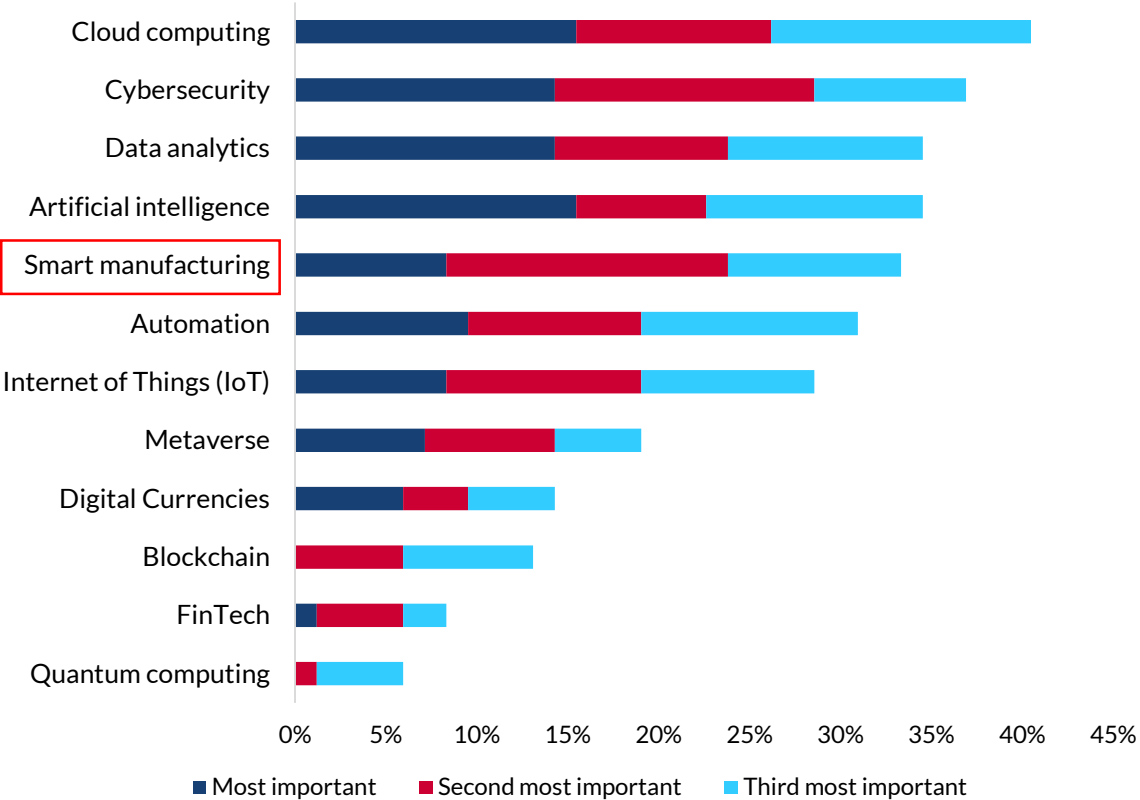
Barriers

- High upfront and operational costs, cost savings will be long-term
- Need for secure data collection and analysis
- Potential for exclusion due to out-of-pocket costs
- Need for available healthcare personnel, trained in digital health

Source: BMI

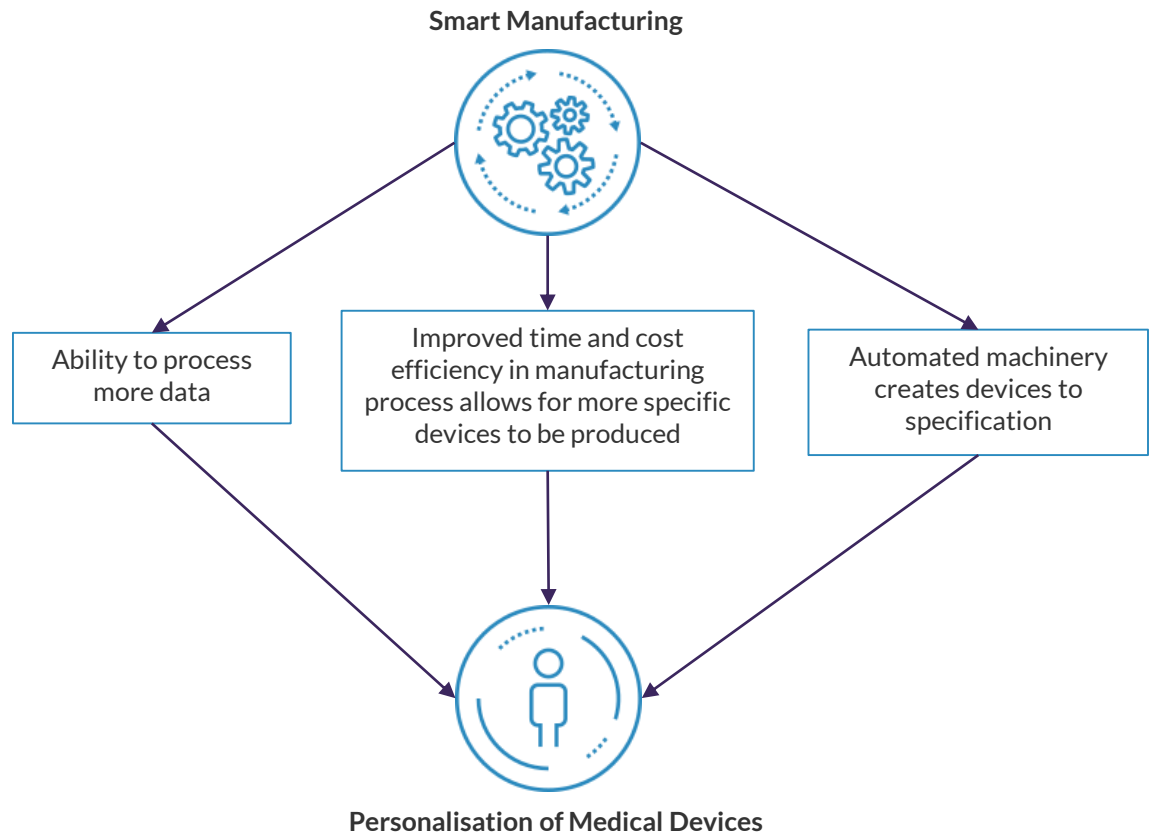
Smart Manufacturing Will Drive Medical Device Personalisation

A Third Of Companies To Use Smart Manufacturing By 2050
 Medical Devices & Healthcare Companies – Technology Strategies To 2050



Source: BMI Megatrend Survey 2023

Smart Manufacturing Will Drive Medical Device Personalisation
 Diagram Showing How Smart Manufacturing Can Enable Medical Device Personalisation



Source: BMI

Smart Manufacturing Requirements Will Disrupt Trade Patterns

Smart Manufacturing Requirements And Considerations Will Disrupt Medical Device Trade Patterns



Skilled, digitally literate manufacturing workforce



Robust technology infrastructure



Advanced cybersecurity regulation

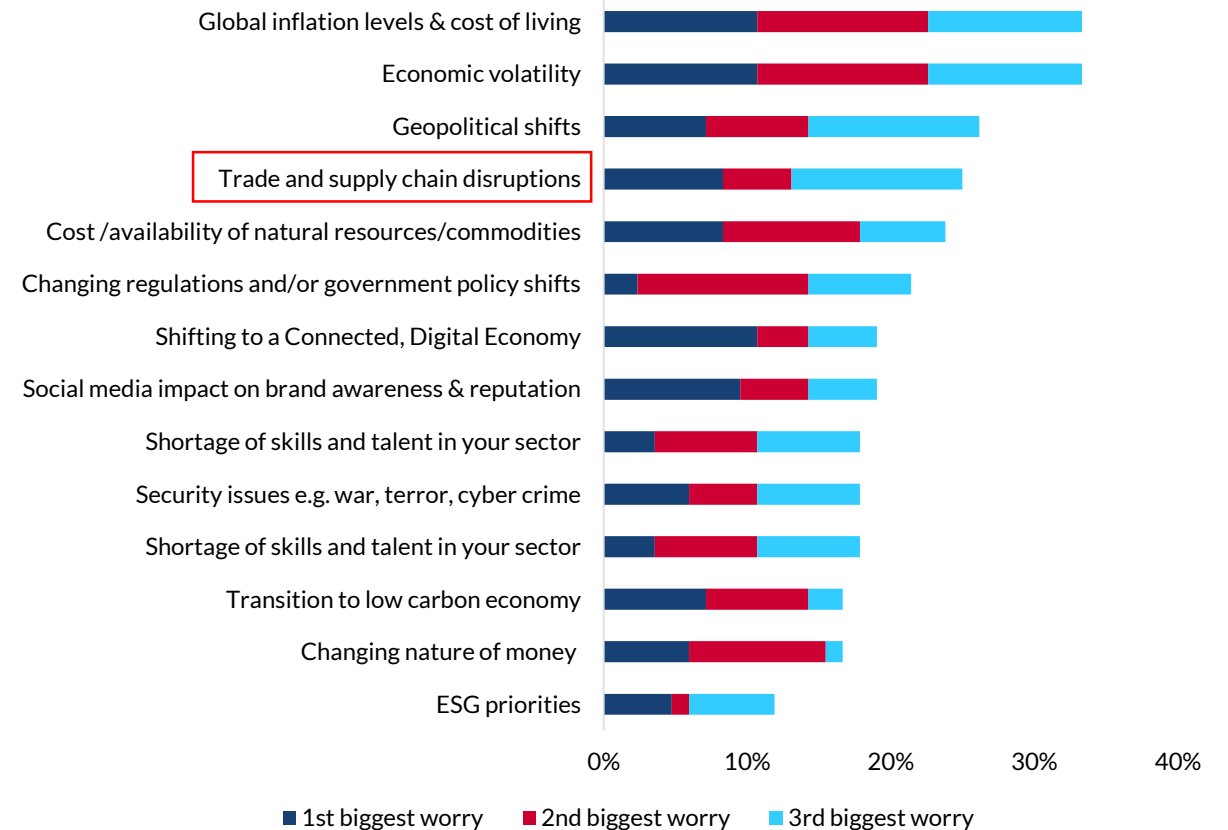


Data localisation laws and cyber agreements between economic allies

Source: BMI

Smart Manufacturing Will Disrupt Medical Device Trade And Supply Chain

Healthcare & Medical Device Companies - Which Of The Following Will Drive The Most Change For Your Company To 2050?

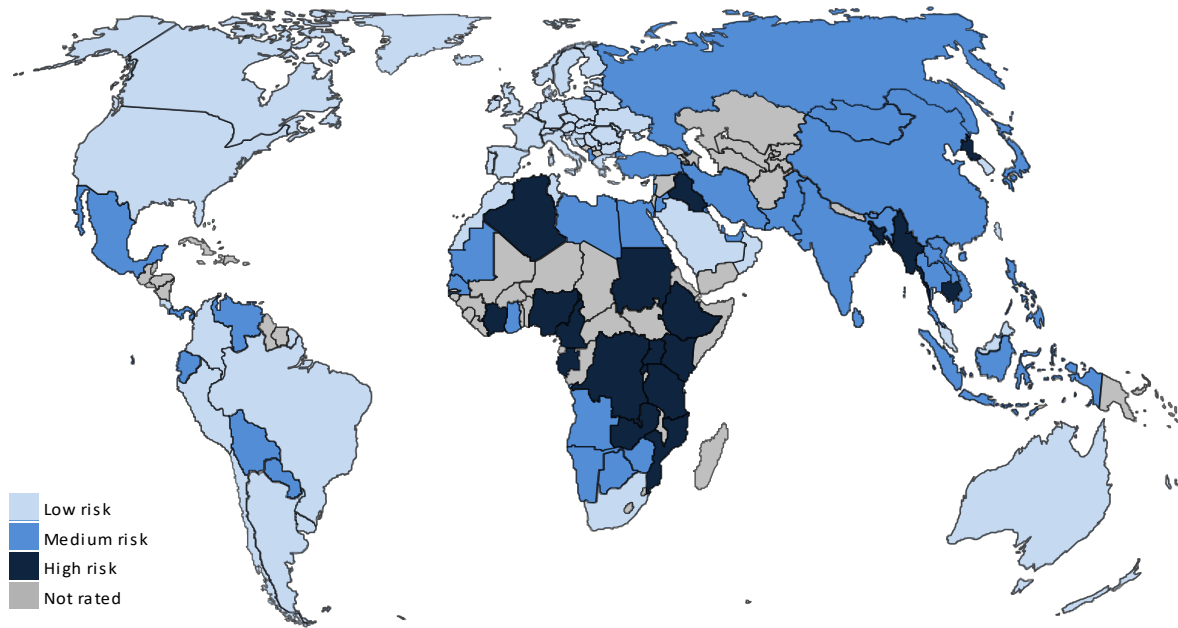


Source: BMI Megatrend Survey 2023

Smart Manufacturing Will Shift Operations To Developed Markets

The Need For Stringent Cybersecurity Regulation Will Disrupt Trade Patterns

BMI Financial And Cybercrime Risk Index, 2021

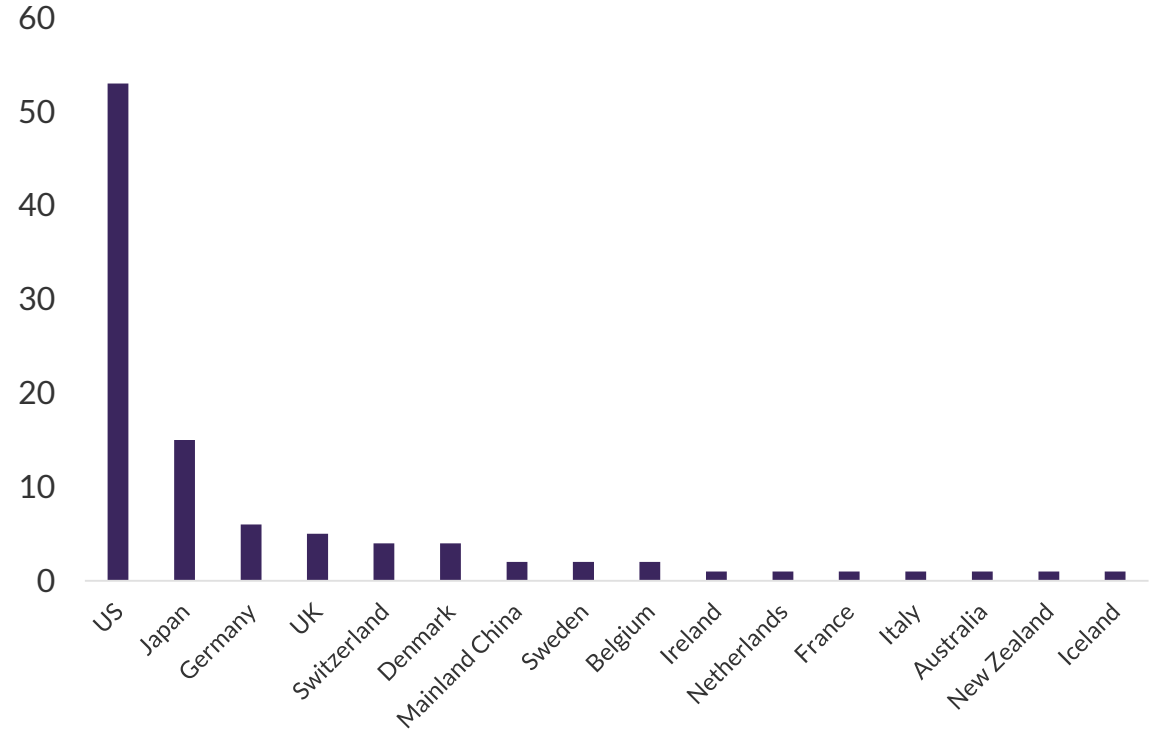


Source: BMI



Medical Device Companies Are Concentrated In Developed Markets

Count Of Headquarters In Each Market, Of Top 100 Largest Medical Device Companies By Revenue (2022)



Source: Medical Design & Outsourcing, BMI

Summary Of Pharma & Healthcare Megatrends To 2050

Pharmaceuticals	Environmental, Social, and Governance (ESG) priorities	Focus on social sustainability in the pharmaceutical sector to improve community engagement and drug maker reputation.
	Tech disrupters	Application of advanced IT techniques in manufacturing, supply chain and drug development will improve the pharmaceutical industry's efficiency.
	Ageing population	More elderly people will drive demand for medicines that treat age-related diseases, while changing demographics will alter employment practices in the pharmaceutical sector.
Healthcare	Data analytics and AI	Adoption of data analytics, artificial intelligence and robotics will continue to accelerate in healthcare, enabling health systems to become more predictive, patient-centered and cost-efficient.
	Value-based care	As health systems and budgets face pressure to cope with the increasing healthcare demands of ageing populations, value-based care will become standard in the delivery of care.
Medical Devices	Personalised preventative healthcare	Healthcare systems will increasingly adopt personalised, preventative models of care, driven by the use of consumer biowearables, supporting outpatient and remote care.
	Personalisation of medical devices	Smart manufacturing will drive personalisation of medical devices by 2050, which may cause companies to rethink trade partners.



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Q&A



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Towards 2050: Industry And Geopolitical Megatrends

08
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MEGATRENDS FOR FOOD & DRINK

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MEGATRENDS FOR TECHNOLOGY

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MEGATRENDS FOR GEOPOLITICAL RISK

06
SEPT

MEGATRENDS FOR PHARMA
& HEALTHCARE

15
AUG

MEGATRENDS FOR ENERGY



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