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ESG Investor Event

September 30, 2021





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ESG Investor Event: Speaker profiles



Vas Narasimhan
Chief Executive Officer



Klaus Moosmayer
Chief Ethics, Risk and
Compliance Officer



Karen Hale
Chief Legal Officer



Lutz Hegemann
Group Head of Corporate
Affairs & Global Health



Racey Muchilwa
Head Sub-Saharan Africa



Patrice Matchaba
Head of US Corporate Responsibility
& President, Novartis US Foundation



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Vas Narasimhan

Chief Executive Officer

Novartis strategy

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- 1** Novartis believes a **focus on material ESG factors** and an inspired, curious and unbossed **culture** will drive **better performance**.
- 2** **Patient health and safety, access, innovation, ethical business** are highest ranked in Novartis' latest Materiality Analyses. Human capital also scored highly.
- 3** Our **integrated, sustainable** business models and **Access Principles** help address access, the greatest unmet need in healthcare¹.
- 4** We are on track to **triple number of patients reach in LMICs** using our 'Strategic Innovative Therapies' and have delivered **1bn courses of antimalarial treatment** since 1999.
- 5** Our **Sub-Saharan Africa model** helps us reach underserved populations, is **sustainable** and provides **useful learnings** to address the root causes of health inequities in US.
- 6** We relentlessly track our progress against **challenging ESG-related targets, course correct as needed**. **Targets** are incorporated into executive management compensation.



1. <https://www.biocentury.com/article/289250/25th-back-to-school-issue-repair-the-social-contract>



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Our purpose is to reimagine medicine to improve and extend people's lives

We use **science-based innovation** to address some of society's most challenging healthcare issues

We discover and develop **breakthrough treatments** and find new ways to deliver them to **as many people as possible**



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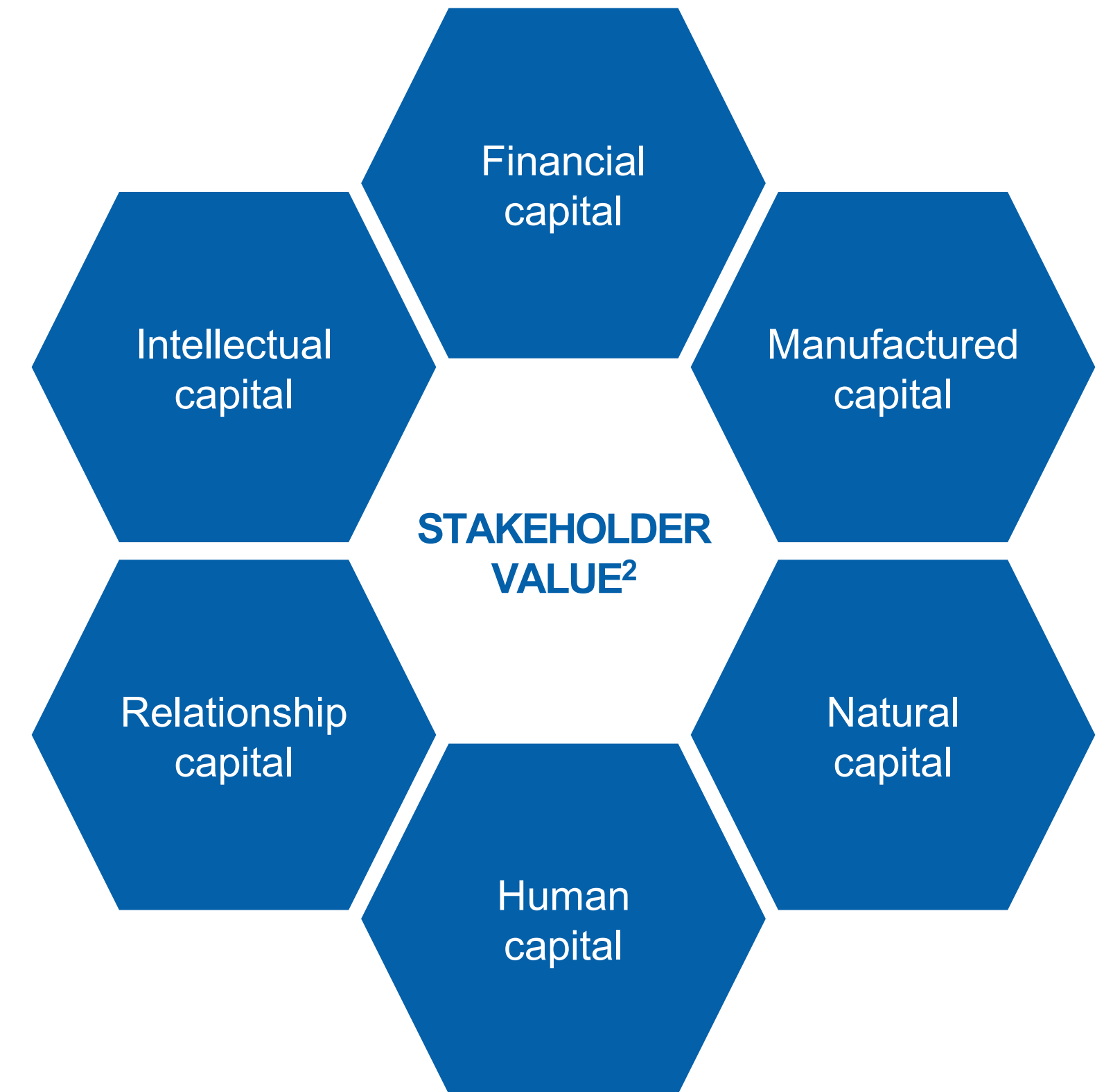
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ESG is integrated into the Novartis strategy and is critical to delivering on our purpose



Delivering on **stated purpose** whilst balancing and integrating different components of **capital**¹ to create **stakeholder value**



1. Colin Mayer, Nov 2018, Prosperity 1st edition 2. Source: International Integrated Reporting Council, Integrated Reporting Framework



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We are a focused medicines company powered by technology leadership in R&D, world-class commercialization, global access, data science

Where to play | our focus



Strengthen our 7 core therapeutic areas



Advance our 5 leading technology platforms



Accelerate our 4 priority geographies



Transform Sandoz

How to win | our five priorities



Embrace operational excellence every day



Unleash the power of our people



Deliver transformative innovation



Go big on data and digital



Build trust with society



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We believe that effective ESG management reduces risks, increases impact on society and provides superior financial returns...

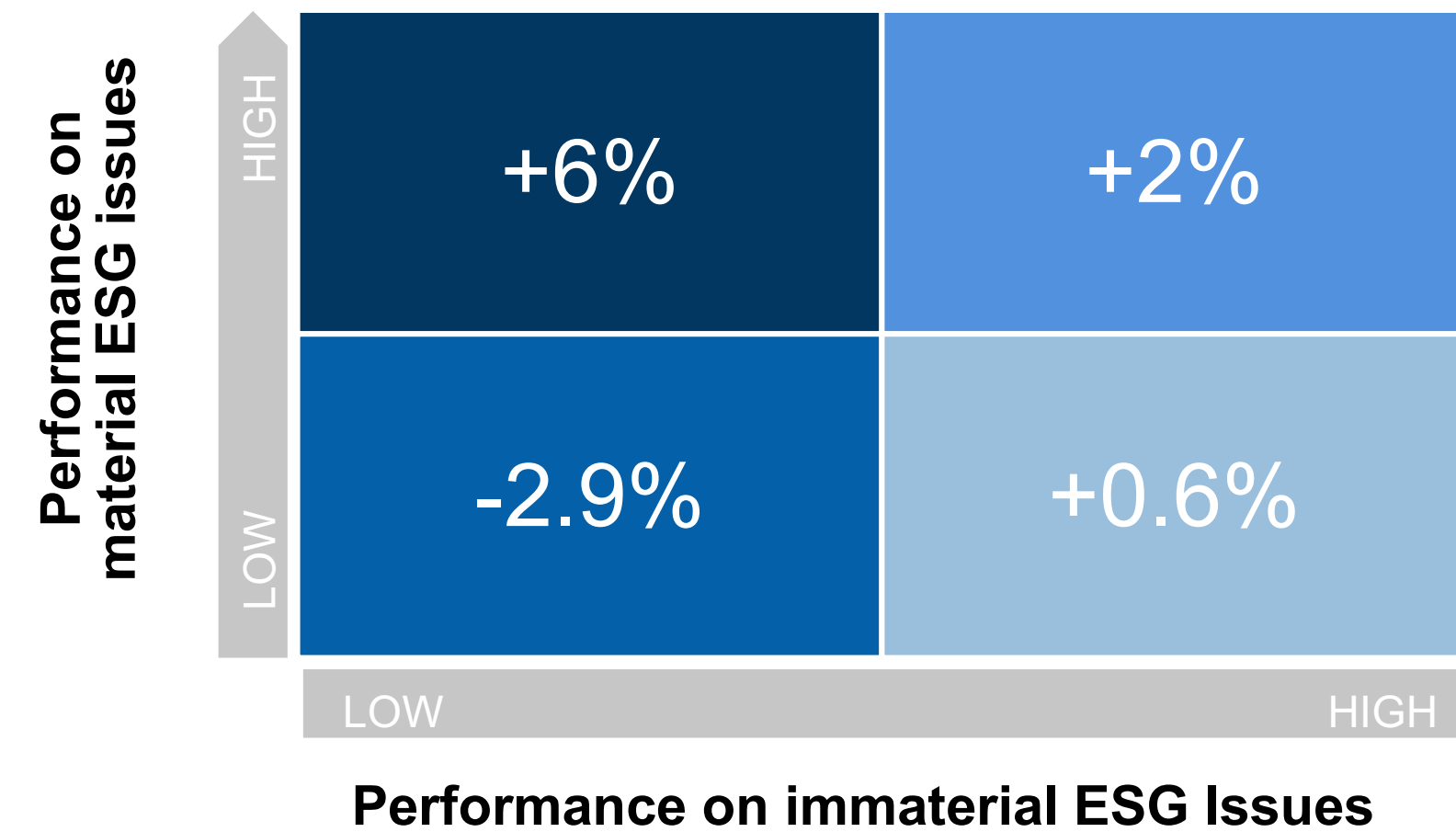
Effectively managing ESG

1 Reduces risk

2 Adds impact / value

3 Right thing to do

Companies with superior adherence to material ESG factors provide superior financial returns¹



Potentially reducing risks, inspiring employees, attracting talent and driving innovation

1. Serafeim, George et al. (2015): Corporate Sustainability: First evidence on materiality. HBS Working Paper 15-073.



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...ultimate aim of ESG is creating a lasting **IMPACT**

“ESG funds are measured against benchmarks for financial returns; they are not measured on the impact they deliver”



▶ **Impact** is change beyond what would have happened anyhow and needs to be intentional and measurable.

▶ Impact **measurement** is in its nascent phase, Novartis partnering with leading groups on subject (see appendix slide 48)

Sources: <https://www.institutionalinvestor.com/article/b1tkr826880fy2/The-Trillion-Dollar-Fantasy>, <https://csp-forimpact.medium.com/does-impact-need-to-be-measurable-to-count-as-impact-4538076985d5>, <https://journals.sagepub.com/doi/full/10.1177/1086026620919202>



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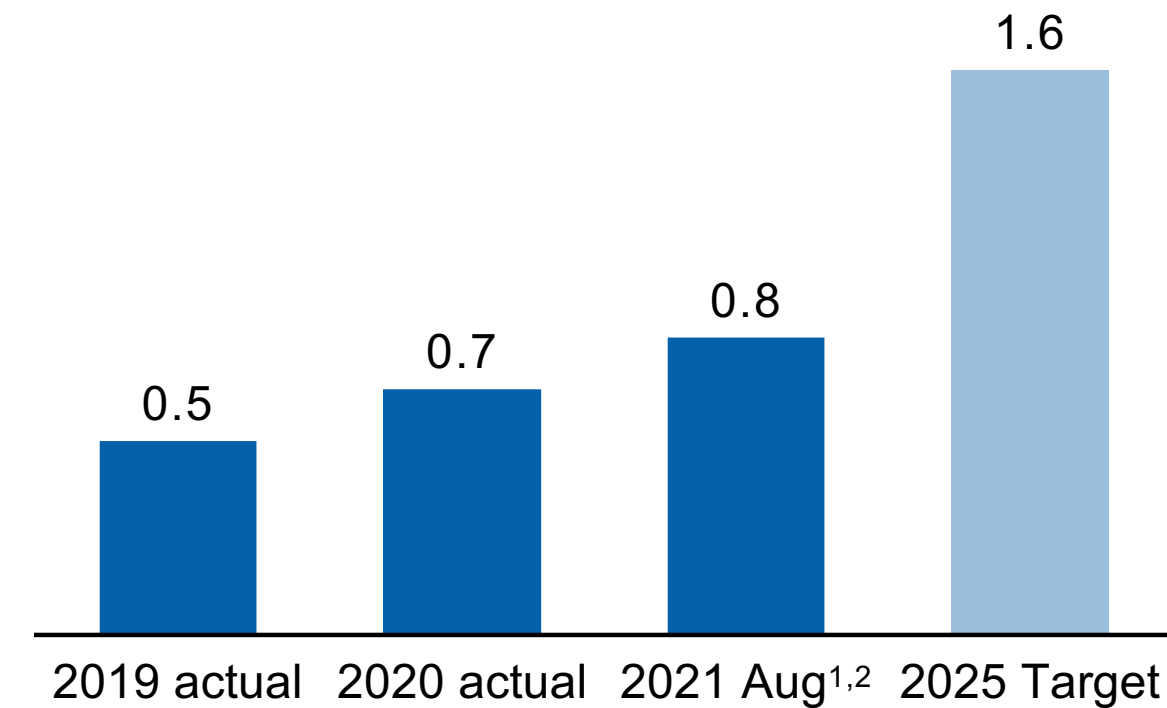
Novartis impact in practice: Sustainability-Linked Bond

Delivering change that is intentional and measurable

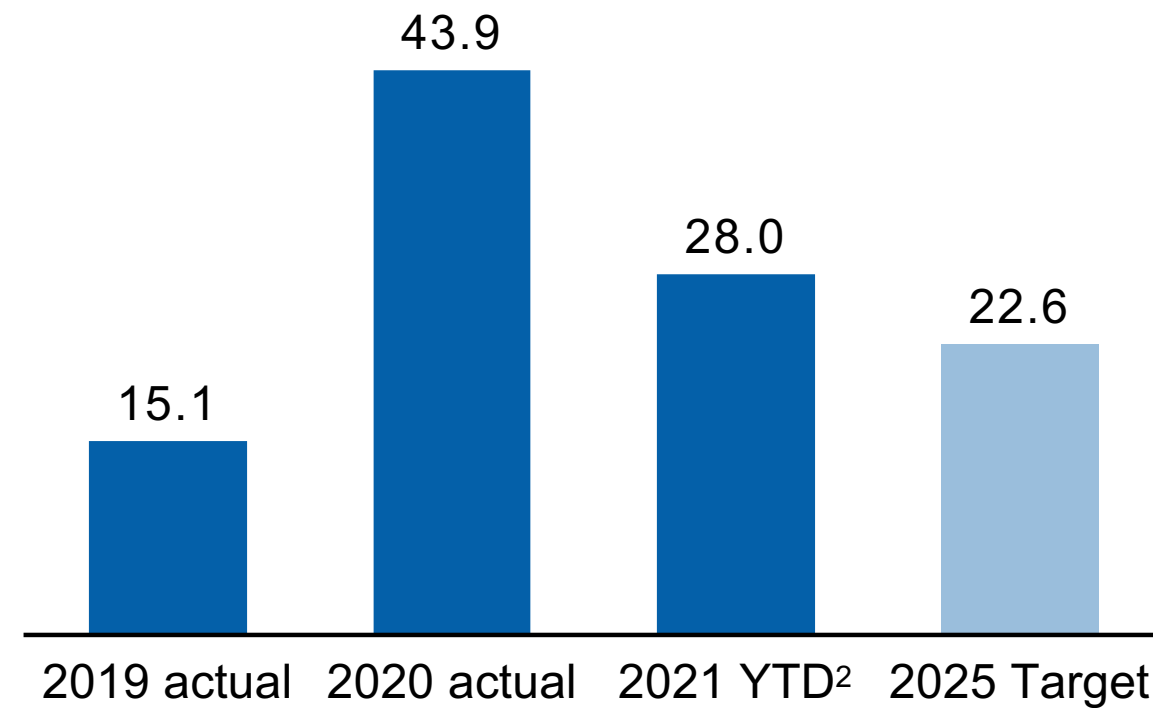
1st of its kind Sustainability-Linked Bond with 2025 targets...

Embedding access targets into the core of our business operations

Strategic innovative therapies:
+200% patients reach in LMICs



Global health flagship programs:
+50% patients reach in LMICs
Patients reached, m



... reinforces our commitment

- 1 Materiality Analyses
- 2 Alignment of ESG and financing
Bond investors supporting
Novartis ESG targets
(as previous slide)
- 3 Bondholders entitled to receive
higher interest if targets not met³
- 4 Transparency in reporting
in Novartis in Society Report

1. As of end Aug 2021 2. 12 months rolling patient reach numbers 3. The bond will feature a coupon step up of 25 basis points, which will be payable to investors commencing with the first interest payment date after 31 December 2025 in case Novartis fails to reach one or both of the Patient Access Targets



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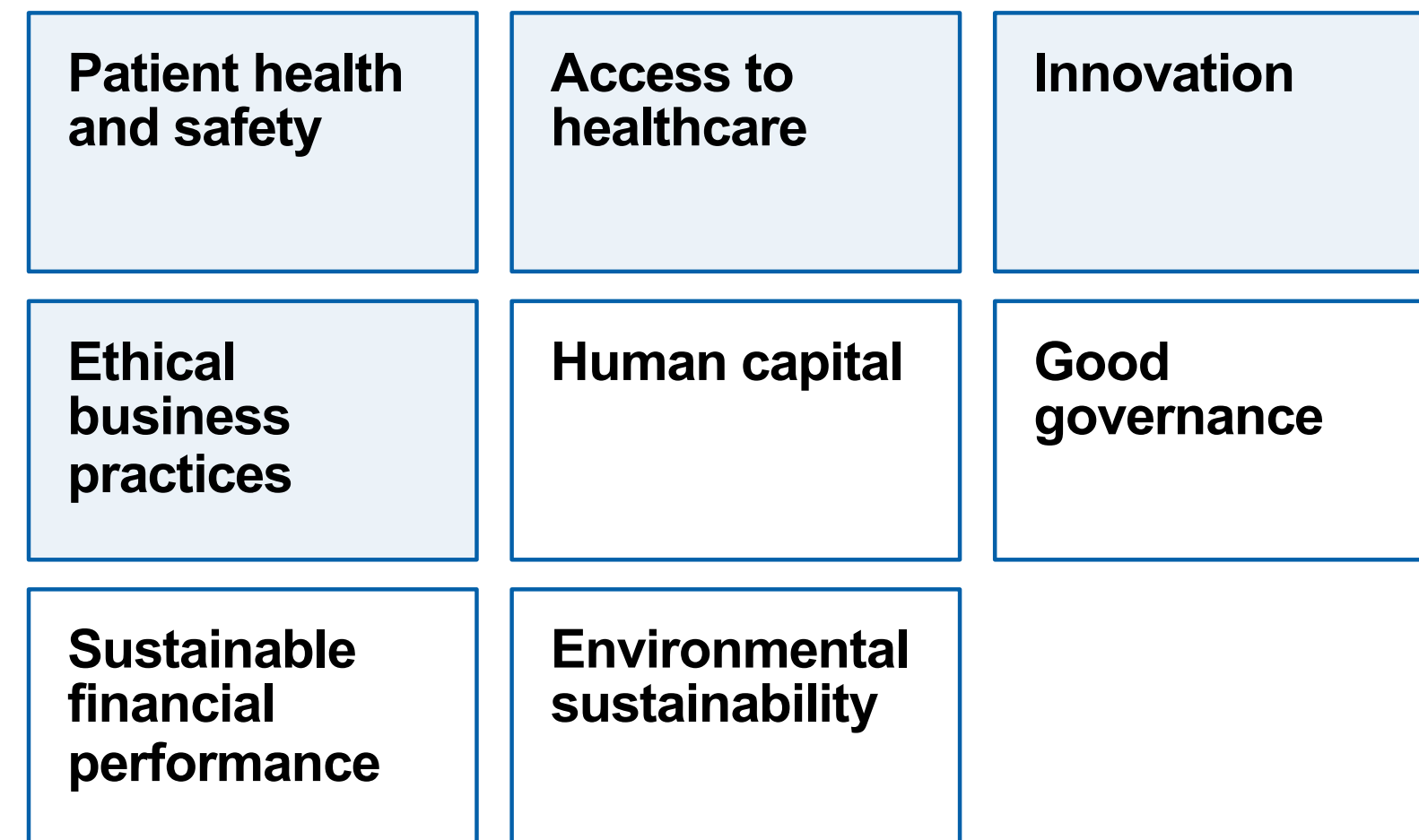
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We use stakeholder materiality analyses to determine our ESG focus and priorities

Where to play | our focus

Priorities ranked highest by external / internal stakeholders in **materiality analyses 2021**



How to win | our ESG targets (select)



100% of launches with global access strategy annually



Sustainability-linked bond
2025 patient access targets



Invest \$100m to advance R&D of next-generation anti-malarials by 2023



NEW
100% of Ph3 studies with US participation to have diversity & inclusion principles annually



Gender balance in management by 2023



NEW
Net zero by 2040 Carbon (across value chain), plastic and water neutrality by 2030



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2021 ESG progress

1bn

courses of antimalarial
treatment delivered
since 1999

Sustainably delivering access

across the income
pyramid in SSA

Pioneering access solutions

Leqvio® population health in UK

On track on our target:

+200%

patients reach

in LMICs with Strategic
Innovative Therapies by 2025

On track to achieve

100%

Renewable energy

on our operations
in Europe, US by 2025

Gender pay gap 3.3%

vs. 21% benchmark

Gender balance 45%

in management¹

New target for clinical trial diversity:
Embed diversity & inclusion principles in

100% of Ph3 studies

with US participation





#2 in 2021 Access to Medicines Index: Novartis the only company with equitable access strategies in LICs across its portfolio

LMICs – Low and low-middle income countries SSA – Sub-Saharan Africa 1. All management levels

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Sector leading performance

across various ESG ratings providers

Agency	Rating	Score		Industry rank ⁹
		Current	Previous	
 SUSTAINALYTICS ^{1,2}	Risk score	▲ 17	21	1 / 432 ¹⁰
	Controversy level	▶ 3	3	
ISS ESG ^{3,4}	ESG score	▲ B	B-	1 / 433
FTSE4Good ¹	ESG score	▼ 4	4.7	n/a
 ACCESS TO MEDICINE INDEX ⁵	Score	▲ 4.18	3.2	2 / 20
 CDP ³	Climate score	▶ A-	A-	Leader for climate ¹¹
	Water score	▶ A	A	Leader for water ¹¹
REFINITIV ⁶	D&I Index score	▼ 73.25	77.5	2 / 9
	ESG score	▲ 86	85	10 / 317
MSCI ^{1,2}	ESG score	▶ A	A	10 / 20 ¹²
	Controversy score ⁸	▶ 1	1	
 S&P Global ^{3,7}	ESG score	▲ 73	70	8 / 83

See appendix for footnotes



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Lutz Hegemann

Group Head of Corporate
Affairs & Global Health

Access to healthcare
Innovation



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Novartis tackling the highest unmet needs in healthcare: access and inequities

2 billion

Patients do not get medicines they need¹

High-income countries



Non-communicable disease (NCD)

Health inequity leads to **varying quality of care** based on ethnicity, socio-economic factors

CVD is the leading cause of death in US, **highest risk** among non-Hispanic Black populations and in areas with highest rates of poverty²

Communicable disease (CD)

In US, **40%** more black people have died from **COVID-19** vs. white people³

LMICs

Dual burden of NCDs (on the rise), CDs (unfinished agenda)



~300k infants are born annually with SCD, 8 out of 10 are born in sub-Saharan Africa⁴

>3/4 of CVD deaths take place in LMICs⁵

LMICs disproportionately affected by **COVID-19**

274k children die annually of malaria⁶

390m dengue virus infections / year⁷

CVD – Cardiovascular disease LMICs – Low/middle-income countries See reference section in appendix for sources



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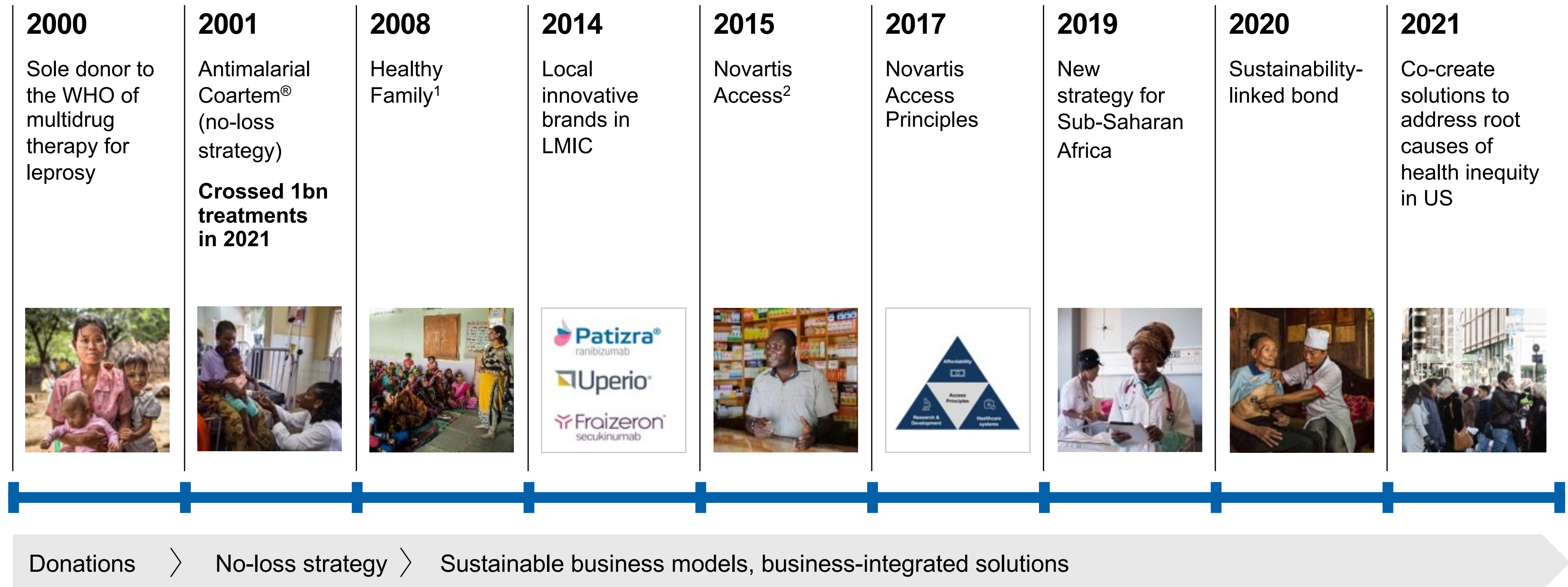
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Our approach to access evolved from donations to sustainable business models and business-integrated solutions



1. Education / medicines to patients at the bottom of the income pyramid. 2. 15 on-off patent medicines for NCDs.



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Novartis Access Principles: Guide our efforts to deliver innovative and quality medicines to as many people as possible

Our Access Commitment



Driving social impact

Systematically integrating access strategies in how we research, develop and deliver all our new medicines

100% of launches with global access strategy



Novartis Access Principles

Systematically assess portfolio against unmet needs

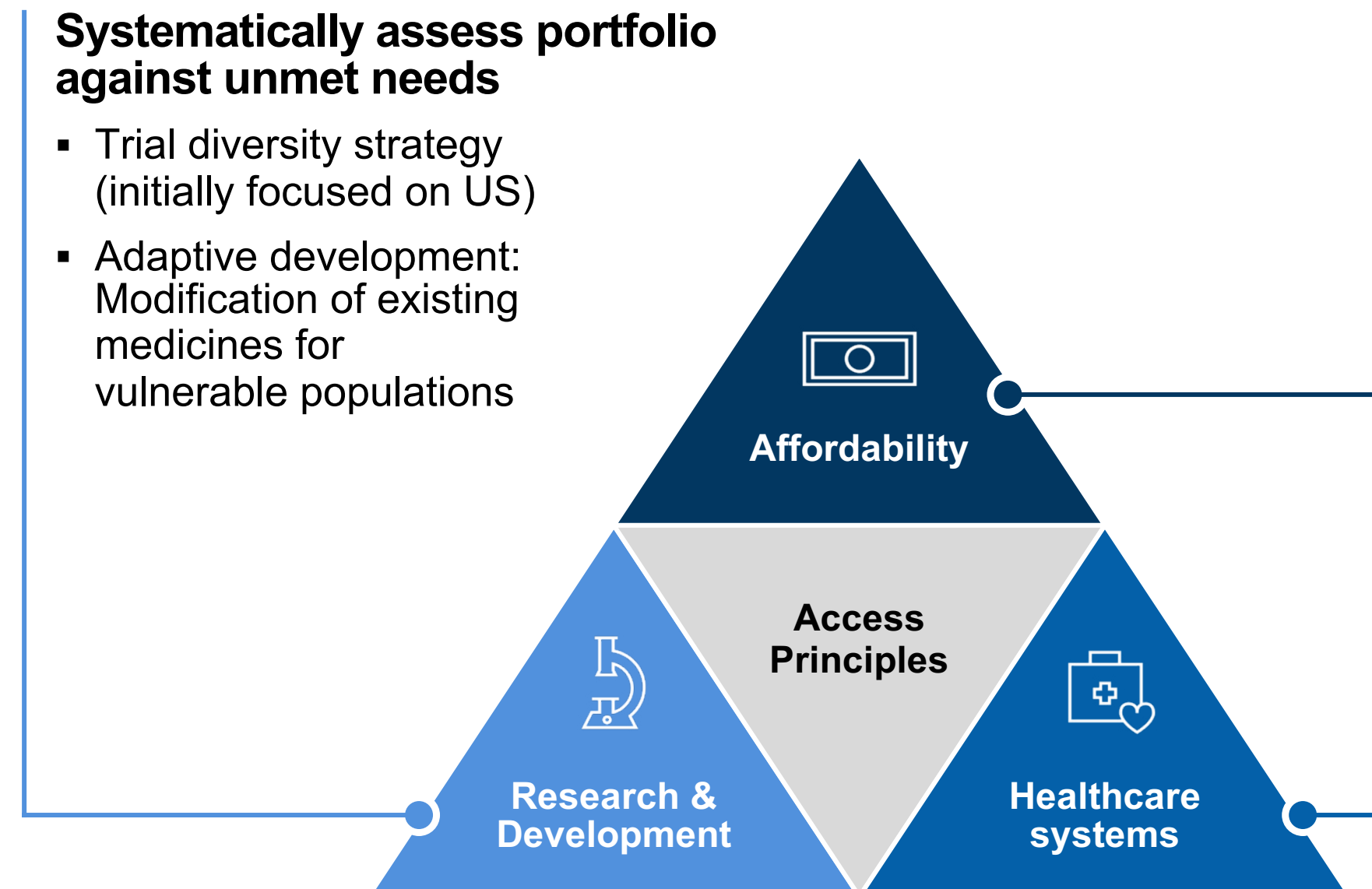
- Trial diversity strategy (initially focused on US)
- Adaptive development: Modification of existing medicines for vulnerable populations

Effective affordability strategies and innovative solutions

- Tiered pricing framework
- Sub-Saharan Africa strategy
- Emerging Market Brands

Lower local barriers to healthcare delivery

- One Novartis Health System Strengthening (HSS) framework
- Novartis US Foundation made disparities of care a priority





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Novartis Access Principles in practice: Leqvio[®] population health

Extending innovation to areas of high unmet need in line with our Access Principles

Significant unmet need



ASCVD a major contributor to CV death – **largest cause of mortality**

>3/4 of CVD deaths take place in LMICs

Highest numbers not in goal in low/middle as well as high-income populations

Novartis Access Principles

Extending innovation Driving efficiency

Leqvio[®] approval in Ghana granted in the same week as Switzerland

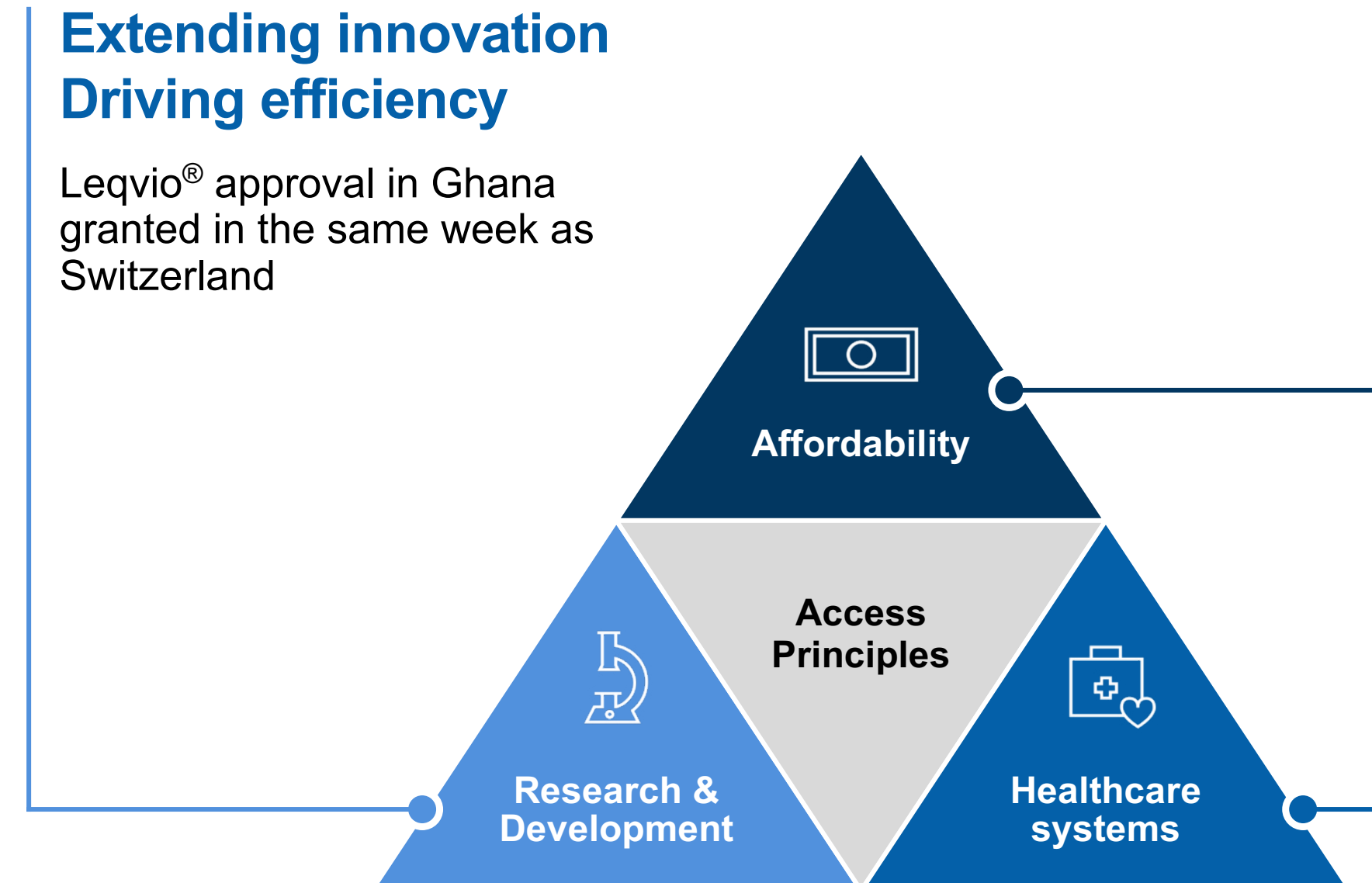
Pricing responsibly

Tiered pricing, EMBs: 14 launches in LMIC/UMIC¹ within 18 months of 1st EU launch, 39 registrations expected by 2023

Working in partnerships with healthcare systems

Example: Population health
1st of its kind population health management approach in UK proactively identifying individuals “at highest risk”

Other Healthcare systems initiatives being explored in >5 high and LMICs



LMIC – Low/middle-income countries ASCVD – Atherosclerotic cardiovascular disease 1. Including Argentina, Georgia, Belarus, Azerbaijan, Chile, Ukraine, Mongolia, Thailand, Mexico, Colombia, Philippines, Uzbekistan, Kazakhstan, Brazil



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Novartis Access Principles in practice: Emerging Market Brands

Emerging Market Brands (EMBs) improve speed to market for LMICs, patient reach and business model sustainability

Business sustainable

Tiered Pricing Framework

100% of launches have global access strategy (incl. developed countries & LMICs)

3-year CAGR 2017-20
Patient reach +52%
Sales USD +55.5%

EMB strategy for all our major brands



Launch time lag in LMICs <12mos

Brand	vs first launch in Europe
Entresto®	12 months
Cosentyx®	10 months
LEQVIO® (inclisiran)	7 months
Beovu® (bimatoprost-delta)	7 months
Aimovig®	6 months
KISQALI® (ribociclib)	5 months
ADAKVEO® (crizotinib-tartrate)	0 month
PIQRAY® (gilepsib) tablets	-1 month ¹

Previous time-lag
24-48 months between launch in developed economies vs. LMICs

Example: Entresto® addresses a major global health concern in LMICs

Globally: 26m people affected by heart failure

LMICs: Increasing burden driven by surge in prevalence of etiological factors (hypertension, diabetes, obesity, lifestyle changes, etc.)



#1 growth driver in LMICs through EMBs

2020 Entresto® in LMICs

- Entresto® EMBs in 42 countries, contributing to 57% of Entresto® patient reach in LMICs
- Patient reach: ~470k, +47% vs. PY
- Sales: +50% vs. PY

See appendix for definitions and references



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Novartis Access Principles in practice to address unresolved global health challenges



Malaria | 229m cases across 87 countries¹

Reached 1bn treatment courses of Coartem®
Ganaplacide / lumefantrine SDF met Ph2b primary study objective
Committed USD 100m in R&D until 2023 in novel anti-malarials



Sickle Cell | 250m carry the gene²

~10k patients being treated with hydroxyurea in Ghana and East Africa
Launched gene therapy R&D collaboration with BMGF



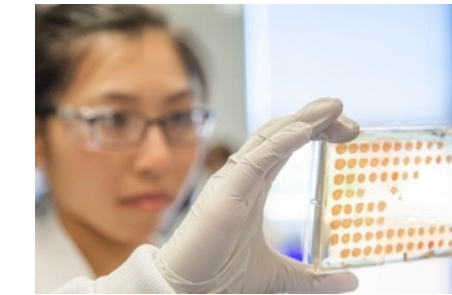
Chagas | Affects ~6m people worldwide³

1st of its kind clinical study in Latin America



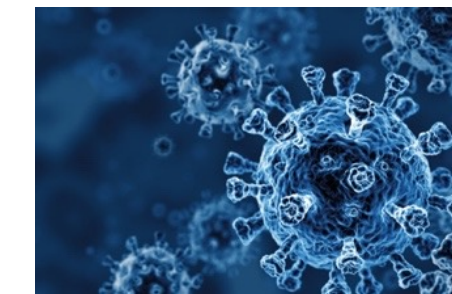
Leprosy | 200k new cases annually⁴

Reached >7m patients
Renewed commitment with WHO: extend Multi Drug therapy donation through end 2025



AMR

Balanced, cross-sectorial approach



COVID-19

Manufacturing agreements, investigating the DARPin platform



HP Enterprise collaboration to accelerate the use of digital technologies in Global Health

BMGF – Bill and Melina Gates Foundation SDF – Solid dispersion formulation See appendix for references



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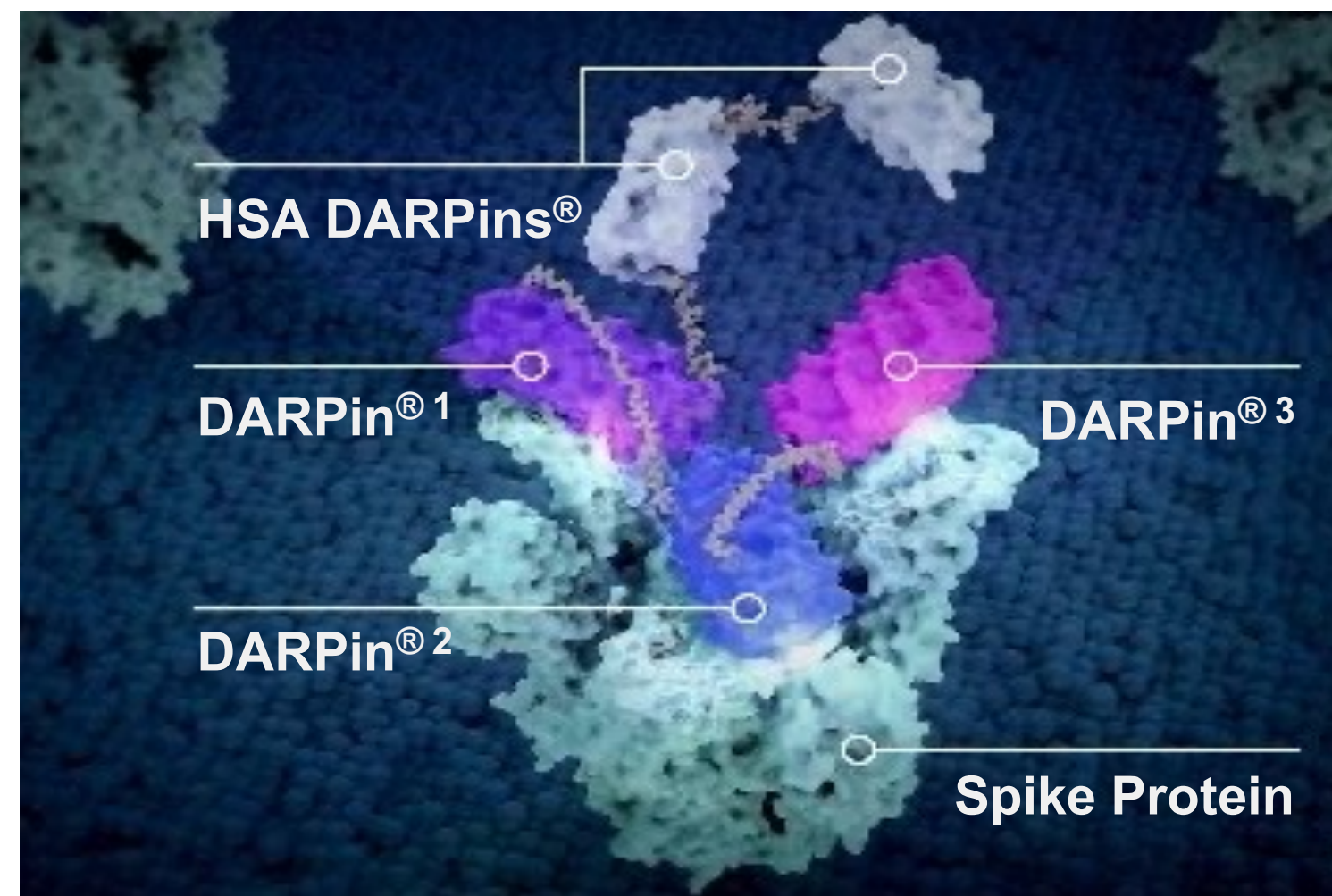
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Despite vaccinations, we will need therapeutics to prepare for future pandemics

Example: Investigating the DARPin platform, ensovibep

3-D model of ensovibep binding to spike protein



Characteristics suitable for the pandemic

Option deal with Molecular Partners for two DARPin®¹ candidates (anti-viral protein therapeutic)

Lead molecule ensovibep (MP0420) in Ph2²

3 DARPin® molecules binding to the same viral spike protein:

- **High potency**
- **Protection against viral drift**

Multi-domain binding can maintain affinity to current / **potential new variants**³

Enhanced half-life (two human serum binding sites)

Small size for potential **lower/more convenient dosing**

Novartis does not yet have the rights to Ensovibep and will obtain such rights only after exercising an option under the terms of the agreement with Molecular Partners, subject to customary closing conditions See reference in appendix



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Advancing our program to combat AMR, an unprecedented challenge to global health

10m

estimated deaths/year by 2050



4.2m Africa

4.7m Asia

0.4m Latin America

Taking a balanced, cross-sectorial approach to AMR via

Novartis Global health: access, community-based healthcare capabilities in LMICs
Sandoz: #1 global supplier of quality generic antibiotics (by volume)

1 Responsible manufacturing

Integral to our environmental targets: minimization of antibiotic residues especially into water bodies, reducing waste

Manufacturing site in Austria is hub of last vertically integrated antibiotics production chain in Europe



2 Responsible use: advocacy, surveillance

Technological solutions for advocacy, surveillance, education

HCP / patient education, user-friendly packs, awareness campaigns, safe drug disposal

Social & Access program expansion (WASH)

New diagnostic tools collaboration with ARES Genetics on Molecular Diagnostics & Surveillance

3 Access to quality antibiotics

Strengthening high quality, affordable antibiotics portfolio (e.g. cefuroxime, ceftazidime acquisition to complement our leading position as Penicillin's manufacturer)

Adaptable portfolio for tailored AMR response

Pediatric-specific formulations

Stable formulations for LMIC

4 Innovation & adaptive development

Focusing on areas where we can really make a difference.

AMR Action Fund

Selected partners:





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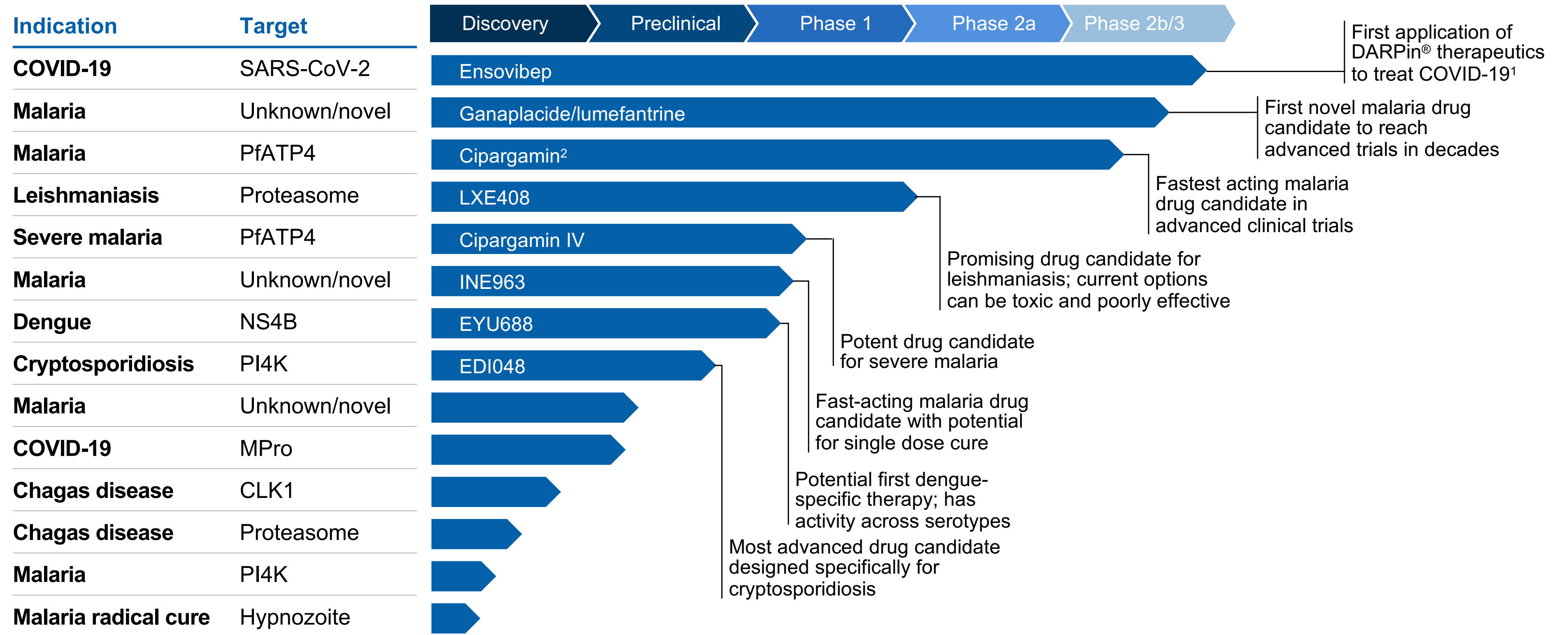
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Our R&D pipeline is comprised of novel compounds to address needs in underserved populations



CLK1 - Cdc2-like kinase 1 MPro - Main protease NS4B - Non-structural protein 4B PI4K - Phosphatidylinositol-4-OH kinase PfATP4 - Plasmodium falciparum P-type Na+ ATPase 1. Collaboration with Molecular Partners.
 2. Ongoing work to determine optimal combination drug



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Racey Muchilwa

Head Sub-Saharan Africa

Patrice Matchaba

Head of US Corporate Responsibility and President, Novartis US Foundation

Select ESG efforts in Sub-Saharan Africa and United States



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Our Sub-Saharan Africa model is delivering a sustainable and profitable model to reach underserved populations

Pivot from margin to **patient reach** to drive access

Sustainably delivering access across the full income pyramid; operating **at scale** through a single Novartis organization

Select highlights

High-impact partnerships

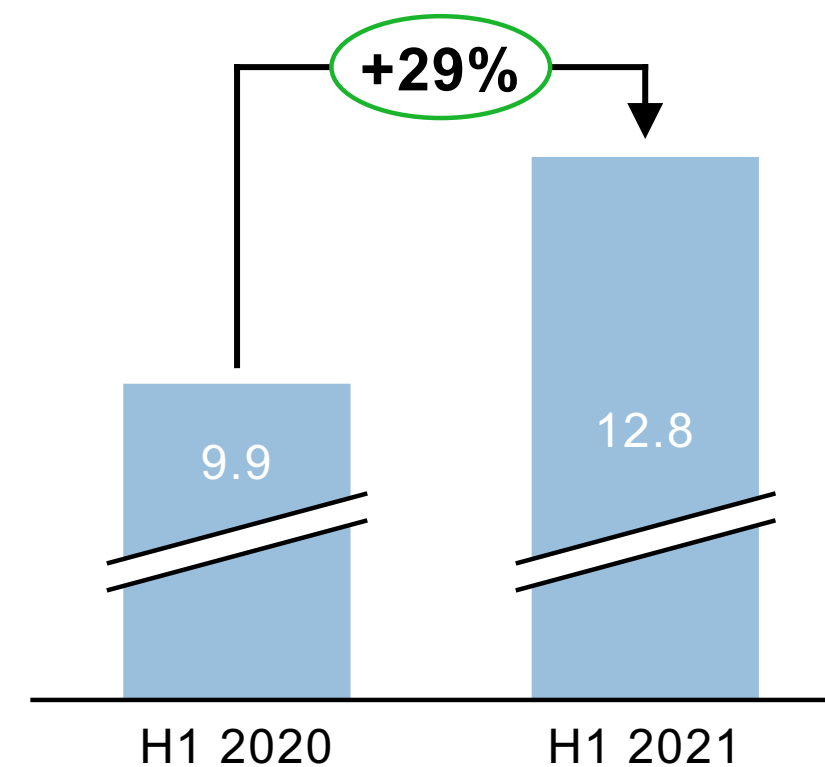
with key public and private sector stakeholders to accelerate access to medicines

FOR EXAMPLE:

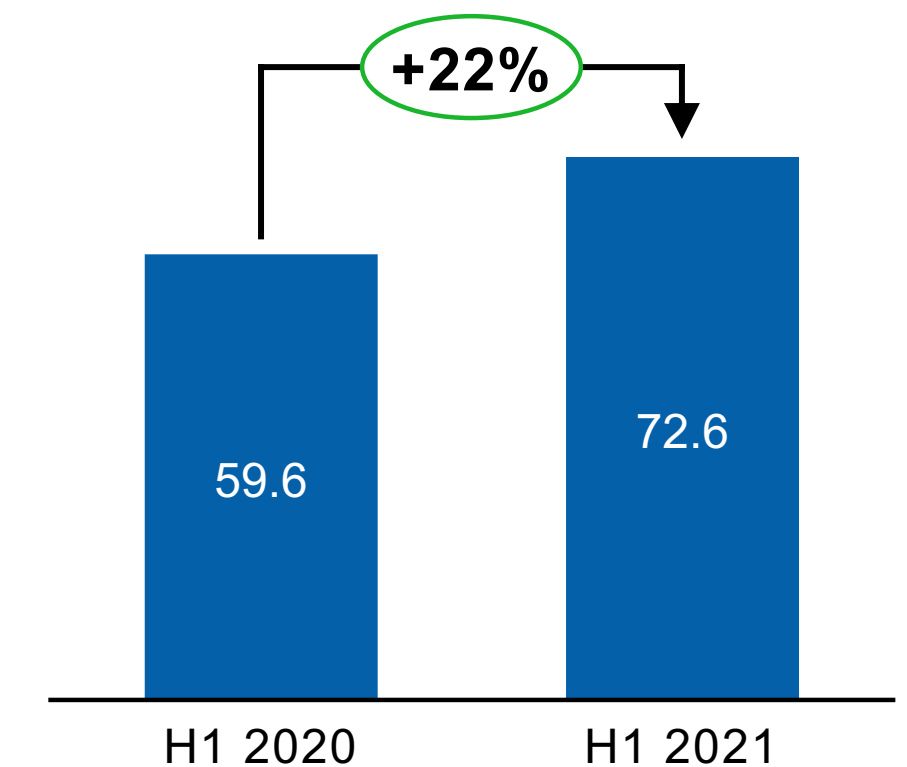
- Clinton Health Access Initiative: expand access to Oncology patients
- Kenya Medtronic partnership (Afya Dumu): screening / **diagnostics** of diabetes, hypertension
- **Academia** to build capacity and capabilities¹
- Ghana SCD **partnership**: hydroxyurea now prioritized under healthcare policy

Strong H1 results

Patient reach, m



Net sales USD, m



1. Ratio of doctors to patients in Sub-Saharan Africa ~1:10k vs. 1:1k recommendation by the WHO. Collaboration with University of Barcelona on Interlife Program Cardiff University, University of Nairobi on Echo for Life



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Addressing root causes of health inequities in the US: Increasing diversity among trial investigators, patients and talent

Health disparities in the US

~USD 93bn in excess medical care costs, USD 42bn in lost productivity / year¹

In US, 40% more black people have died from COVID-19 vs. white people²



Clinical trial diversity

Planned 10-year commitment with 27 HBCUs and other partners³

USD 20m to empower 1,200 African American students

USD 13.7mn to establish research centers

New target

Embedding diversity & inclusion principles in 100% of Ph3 studies with US participation

- 1 **Partnership Expansion**
e.g. LatinX, Native American communities
- 2 **Clinical Trial Centers of Excellence**
contribute to improved health outcomes for people of color
- 3 **Research Center on Data Standards**
Inform diagnosis, clinical trial endpoints, and policy
- 4 **Center for the Impact of Environment & Climate on Health**
- 5 **Faculty Research Grants and Scholarships, Internships, & Mentorships**
Equitable access to high quality education and professional development
- 6 **Develop digital database**
Collect, analyze live data, facilitating progress tracking, transparency

HBCU – Historically Black Colleges & Universities National Medical Association 1. American Public Health Association. 2. COVID Tracking Project and the Boston University Center for Antiracist Research 3. 26 HBCUs, Coursera, Thurgood Marshall College Fund,



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Klaus Moosmayer

Chief Ethics, Risk and
Compliance Officer

Ethical business practices



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Our program has three distinct pillars, covering nine focus areas, which are anchored in science



Ethics

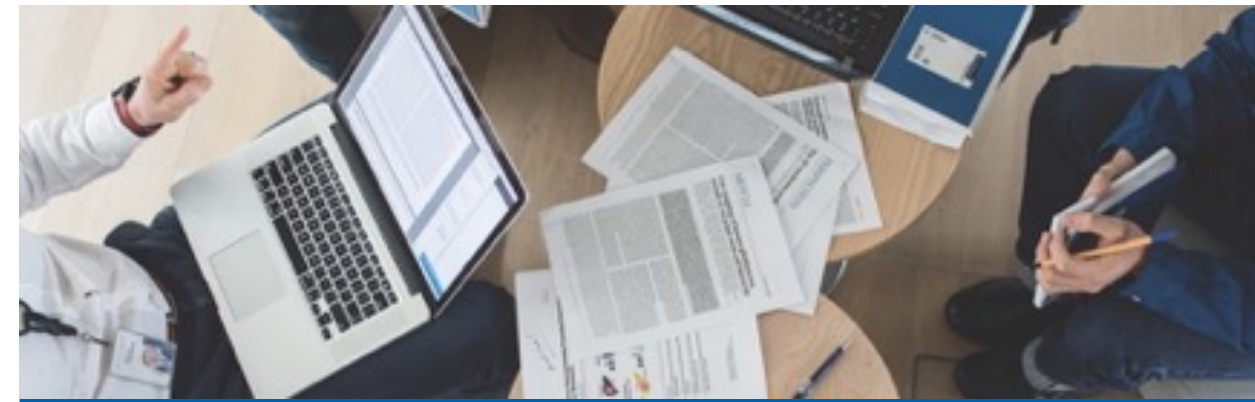
1

Build a sustainable foundation

- 1 Ethics

- 2 Human Rights

- 3 Culture & Impact



Risk

2

Develop enterprise assurance standards

- 4 Enterprise Risk & Crisis Management

- 5 Enterprise Policy & Control Management

- 6 Third Party Risk Management



Compliance

3

Manage our compliance risks

- 7 Compliance Management System

- 8 SpeakUp Office

- 9 Centralized Monitoring & Remediation Team

Anchored in behavioral, data, and decision science



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Our Code of Ethics was co-created by our associates and signals our commitment to ‘doing what’s right’

Novartis Code of Ethics¹

Anchored in behavioral science,
co-created by our associates for our associates

99% trained², **122k** visits to our Code of Ethics platform³

177k visits³ to our “Decision Explorer” tool, **81%** found the tool helpful in applying our ethical principles

Ethics Conversation Toolkit helps our leaders have open discussions on ethical dilemmas

Continues to evolve: New commitment on Patient Engagement added, effective as of Nov 2021

“Excellent foundation for revealing and avoiding biases and a roadmap for making difficult ethical decisions”



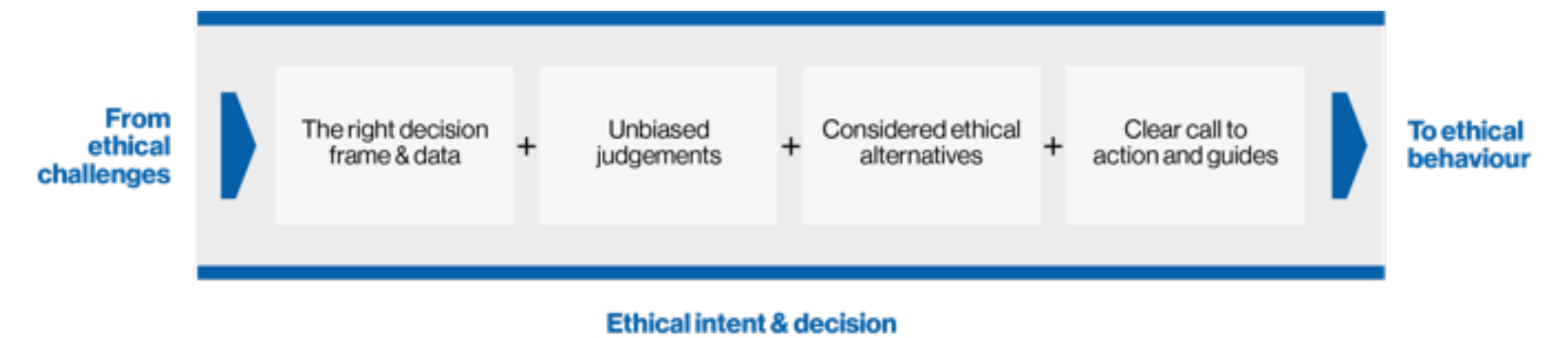
Based on 2 key elements

1 Ethical principles
define what “doing what’s right” means in the context of Novartis

2 Clear statements on our commitment
to doing what’s right across key areas nominated by our associates

Supported by

Decision Explorer and a suite of resources



1. Effective as of Sep 2020. 2. Full cycle training in 2020. New cycle started Jul 2021 with 87% trained (as of end Sep 2021) open until year end. 3. Since the launch in June 2020, Status: Sep 28 2021.



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We have strengthened enterprise risk management by aligning our policies and controls with our risks

Risks

Common methodology for Enterprise Risk Management

Functions responsible to identify business risks, mitigation actions

Covered in Global Policies, Guidelines & Standards



Global Policies, Guidelines & Standards

Streamlined principles, rules, processes and internal controls

Global Policies & Standards applicable to all associates

Global Guidelines applicable to specific Division, Function, Unit or roles



Internal Controls

Ensures risks are mitigated to the extent reasonable

Embedded in business processes

Creation of a harmonized control framework



Clear accountabilities and responsibilities create transparency and simplicity for risk and control owners

Improved governance and oversight of the assurance landscape across the whole organization

Harmonized methodology enables the business to manage risks more efficiently



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We developed a risk-based framework for our Third-Party Risk Management (TPRM)

Our five principles guide our process and decision-making

Principles



TPRM

Includes Health Care Organizations
Health Care Professionals are included if they provide a service

Third Party Risk Areas covered on buy side¹:
Anti-Bribery, IT Security (3PAS), Labor Rights², Animal Welfare, Health, Safety & Environment, Data Privacy, Trade Sanctions

Human Rights aspects

Integrated into TPRM framework

100% of new suppliers

Have undergone risk assessment



1. Suppliers, M&A targets, in-licensing targets 2. Human Rights embedded in Labor Rights



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Karen Hale

Chief Legal Officer

Good governance



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We will continue to innovate on governance and transparency, in response to feedback from our stakeholders

Governance structures...

Board level governance of ESG

Board committees

Governance, Nomination & Corporate Responsibility (structures evolving)
Audit & Compliance
Risk

Leadership oversight

Trust & Reputation Committee – subcommittee of the Executive Committee

... further strengthened

Evolving in 2020/2021

ESG Management Office

Driving strategy, metrics, targets

ESG Council

Cross-functional: ensuring integration of ESG¹

Chief (Environment) Sustainability Officer

Increasing transparency, preparing for convergence of financial and non-financial reporting

Integrated Reporting (2022 report or later) in line with external disclosure standards²

ESG integration into finance (2021)

Set up non-financial reporting system and governance for robust auditable ESG data



1. One senior representative by unit and function; 2. Incl. Carbon Disclosure Project (CDP), Climate Disclosure Standards Board (CDSB), Global Reporting Initiative (GRI), International Integrated Reporting Council (IIRC), Sustainability Accounting Standards Board (SASB)



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Vas Narasimhan

Chief Executive Officer

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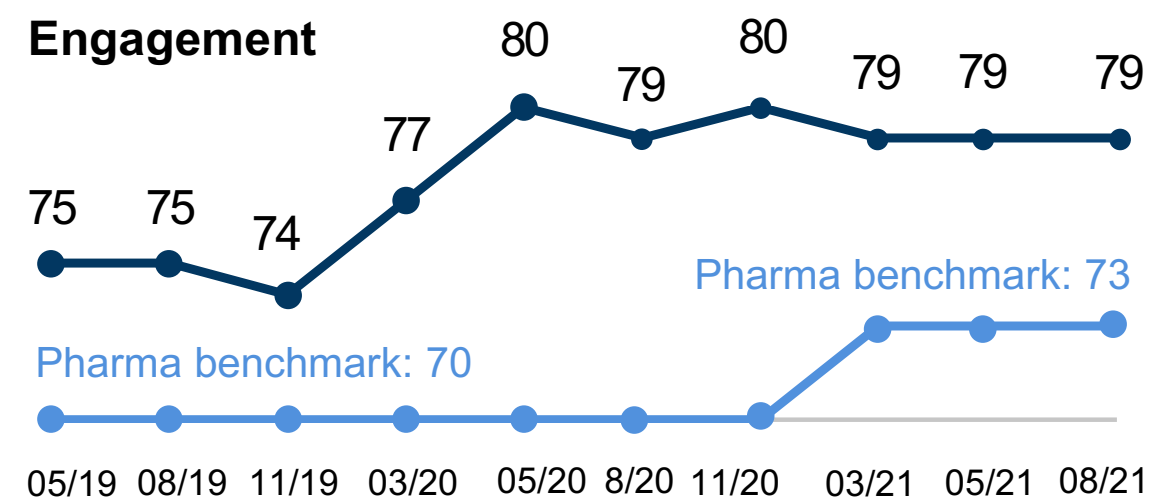
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Transitioning to an inspired, curious, unbossed organization to develop individuals, teams and drive superior company performance

Engagement

Inspired¹

Engagement



Purpose is highest rated item at 80

▲ 1 vs. External Pharma benchmark

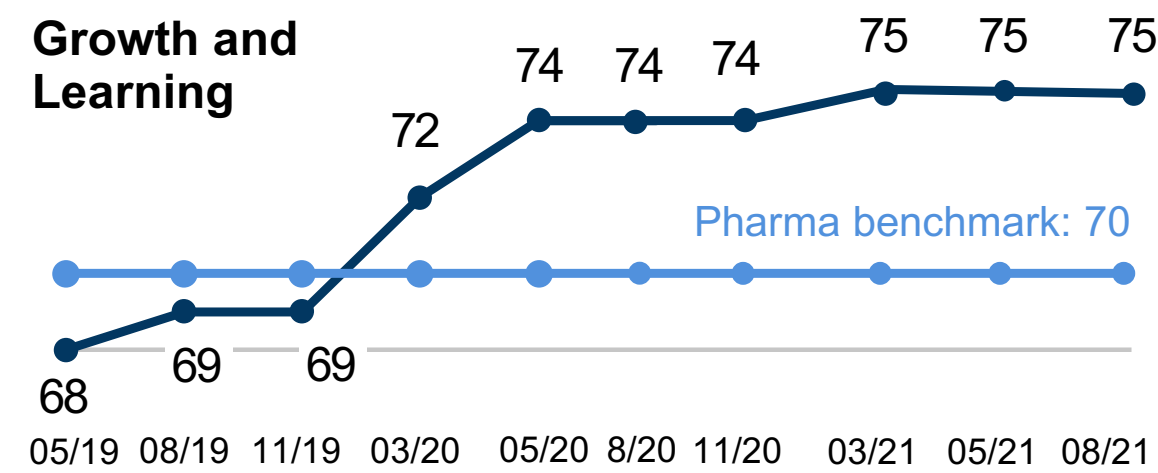
Improved as a place to work rated at 67

▲ 9 vs. start in May 2019

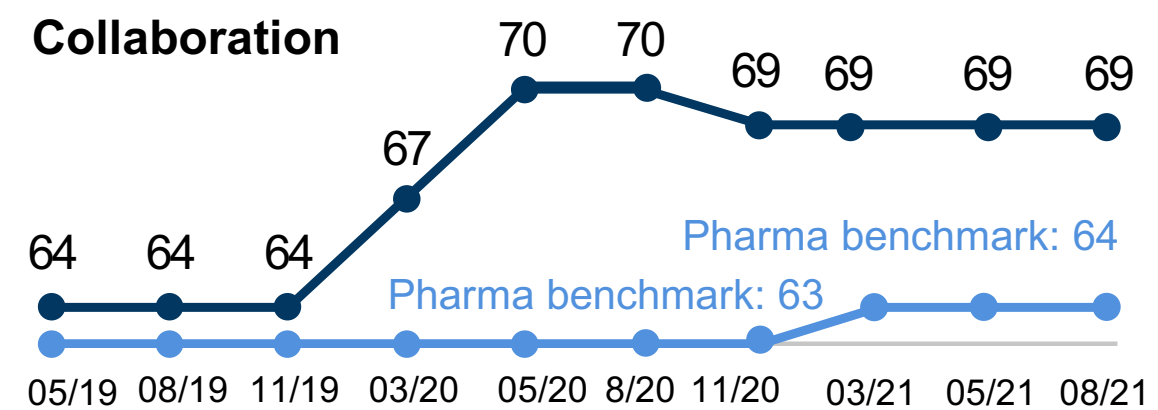
Growth / learning

Curious¹

Growth and Learning



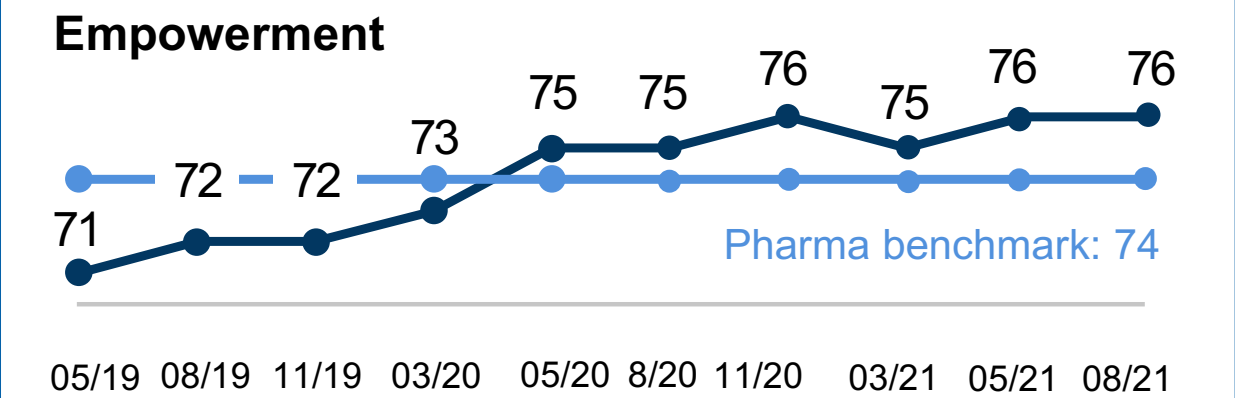
Collaboration



Leadership / manager effectiveness

Unbossed¹

Empowerment



Manager Recommendation

84 Manager recommendation score²
 ▲ 2 vs. Mar 2020
 ▲ 7 vs. benchmark

“If leaders grow, teams grow, and the company grows” | Vas Narasimhan, CEO

1. Source: Quarterly Glint Engagement Survey Scores 2. Source: Team Perspectives, May 2021, 64k participants



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Making strong progress on additional key human capital parameters, including our supply chain

Commitment	Progress / aspiration	Select initiatives
Gender pay gap close by 2023	+3.3% Mean (vs. 3.6% in 2020, +21% benchmark) ¹	Removing bias, increasing pay transparency (16 countries), monitoring pay equity
	-2.3% Median (vs. -3.1% in 2020, +19% benchmark) ¹	
Gender balance in management by 2023	46% in middle management ³ (vs 45% in 2020, 36% benchmark ⁵)	Included again in Bloomberg Gender-Equality Index Diverse candidate panels and slates Gender neutral paid parental leave
	39% in senior management ³ (vs 38% in 2020, 28% benchmark ⁵)	
	35% in exec management ^{3,4} (vs 32% in 2020, 21% benchmark ⁵)	
Supply chain D&I principles upheld in all TPRM ⁶ by 2023	In 2021 Strengthen US Supplier Diversity programs especially for small and diverse suppliers ⁵	3-year strategy to strengthen supplier diversity across further markets
Racial equity ²	90%+ candidate slates now gender diverse in US	97% completion rate of 1st company-wide D&I e-training Annual “Day of Reflection” with 6k+ participants New US hiring guidelines
	80%+ are diverse in racial/ethnic representation in US	

[Download Link](#)



D&I – Diversity and inclusion TPRM – Third Party Risk Management 1. Global data, as of Dec 31, 2020 2. <https://www.novartis.com/news/standing-racial-equity-and-justice-one-novartis> 3. As of June 30, 2021 4. Novartis Top Leaders population ~300 incl. the Executive Committee 5. Bloomberg Gender-Equality Index 6. <https://www.novartis.us/sites/www.novartis.us/files/nvs-eeo-di-report-2021.pdf> 6. Third Party Risk Management



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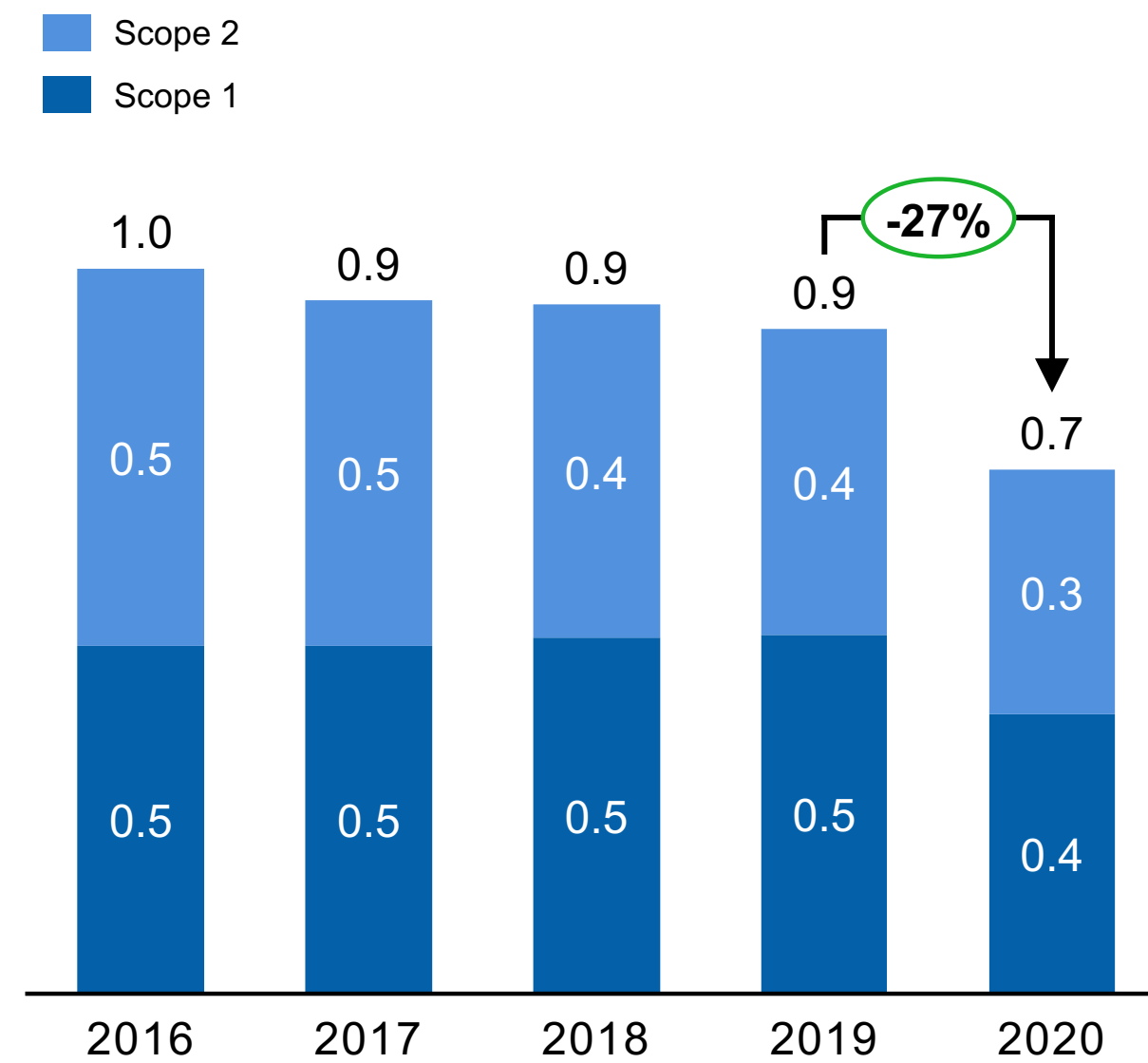
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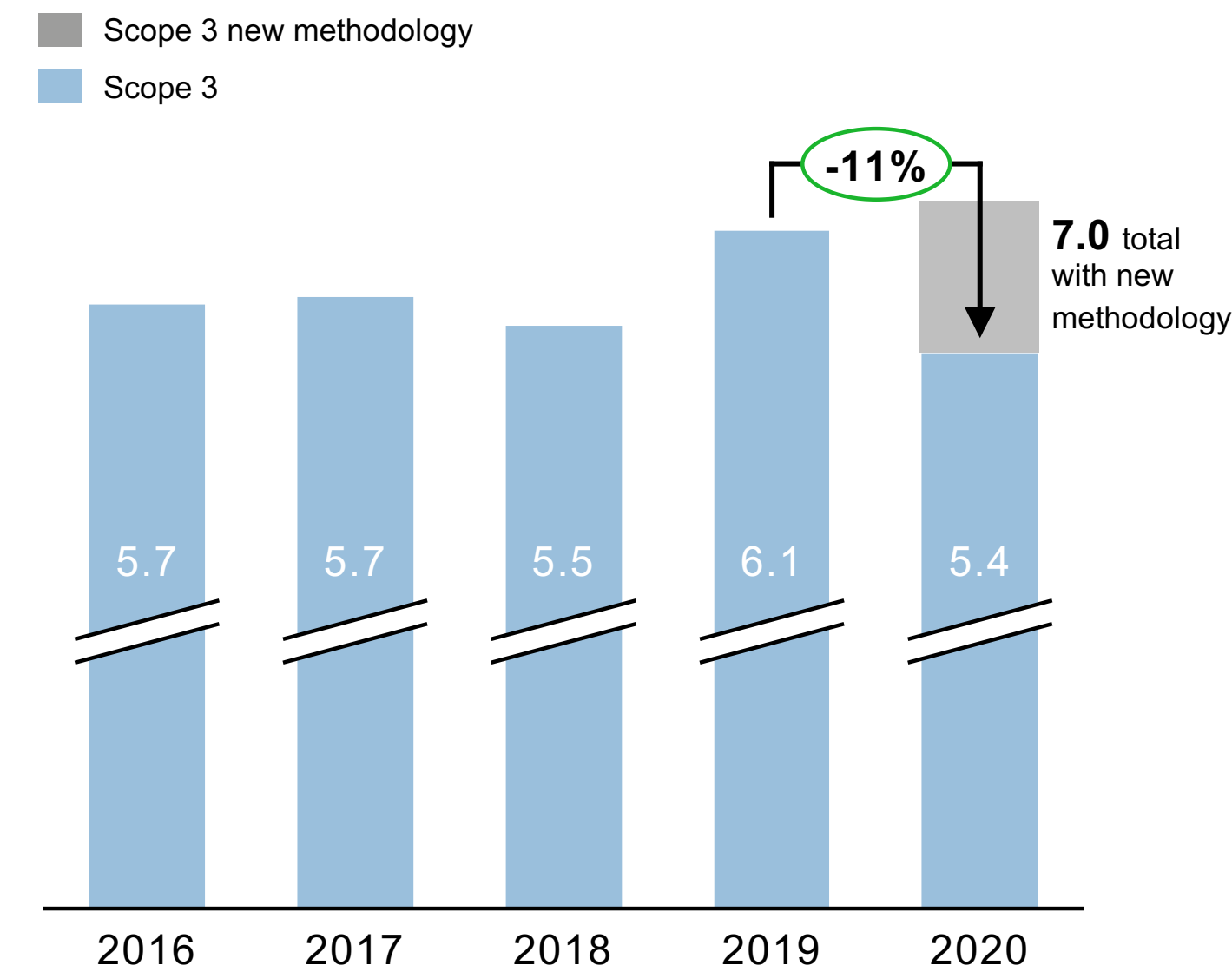
Committed to achieving net zero: with clear plans, milestones and metrics

Scope 1, 2 27% reduction vs. PY (in mtCO₂)



Carbon neutral in our own operations by 2025

Scope 3 challenge 11% reduction vs. PY¹ (in mtCO₂)



Carbon neutral across our value chain by 2030
Net-zero across our value chain by 2040

Select initiatives across scope 1,2,3

Drive efficiency in supply chain
e.g. electrification of thermal energy loads

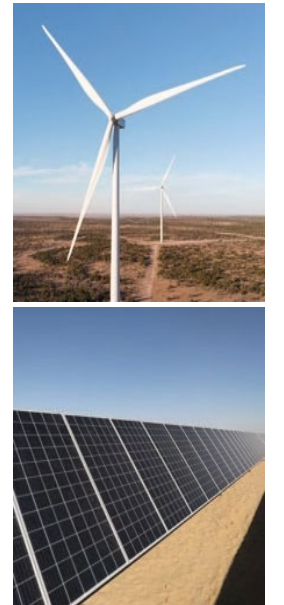
Optimize vehicle efficiency; warehouse consolidation and logistics

Consolidate our supply chain to preferred suppliers, reviewing top 1000 by 2025

100% renewable energy on track in EU, US

6 VPPAs
Virtual Power Purchase Agreement

7 Solar & wind
projects in Spain and Texas



1. Methodology used to calculate Scope 3 emissions in 2016 was aligned with Science Based Targets validation criteria which required targets to cover at least 2/3 of total mandatory scope 3 emissions as defined in Tae 5.4 of the GHG Protocol Scope 3 standard. In 2020, Novartis decided to further improve completeness, transparency and accuracy to cover more than 90% of overall scope 3 emissions.



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Climate change will increasingly challenge healthcare systems and patient needs

Greatest threat to public health

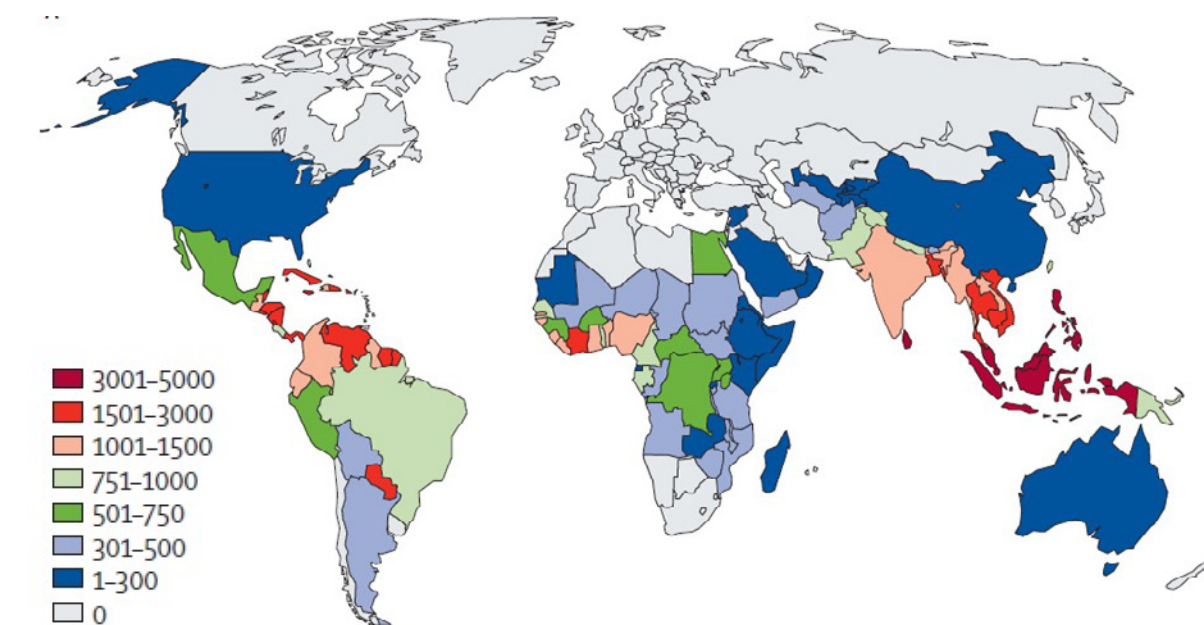
Science is unequivocal: increase of 1.5° C above pre-industrial average and continued loss of biodiversity risk catastrophic harm to health that will be impossible to reverse

Equity

Consequences of environmental crisis fall disproportionately on communities that have contributed least to the problem and are least able to mitigate the harms

For example: Dengue

Incidents per 100,000 population¹



- + 488% in Brazil
- + 500% in Singapore
- + 1200% in Cambodia
- + 297% in Vietnam

Our efforts

Changing epidemiology of neglected tropical diseases
Dengue (ME-78-OH90), malaria (KAF156), Chagas (Entresto®)

Medicine portfolio responding to emerging changes
e.g. respiratory, cardiovascular, renal

Collaborating to build health system resilience
With universities (e.g MIT, Morehouse), identify solutions to climate issues that disproportionately affect the health of communities of color

Biodiversity
Forestry programs across 3 continents

Evaluating business-integrated solutions to both mitigate and adapt to a more variable climate while enabling health system resilience

Source: NEJM Editorial: Call for Emergency Action to Limit Global Temperature Increases, Restore Biodiversity, and Protect Health. 1. Developed from Bhatt Nature 2013, Shepard Lancet 2016, Murray Lancet 2017, ECDC 2019.



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On track to meet our ESG aspirations, with efforts aligned to our materiality analysis



LMIC – Low and low-middle-income countries D&I – Diversity & inclusion SSA – Sub-Saharan Africa HF – Heart failure SCD – Sickle cell disease
 1. KAF156, KAE609, COA566 2. PARACHUTE-HF trial 3. vs. 2019 baseline; target linked to newly issued sustainability-linked bond 4. Flagship programs: Malaria, Leprosy, Chagas, Africa Sickle Cell



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Companies that focus on material ESG factors have better financial performance

Source: Serafeim, George et al. (2015): Corporate Sustainability: First evidence on materiality. HBS Working Paper 15-073.



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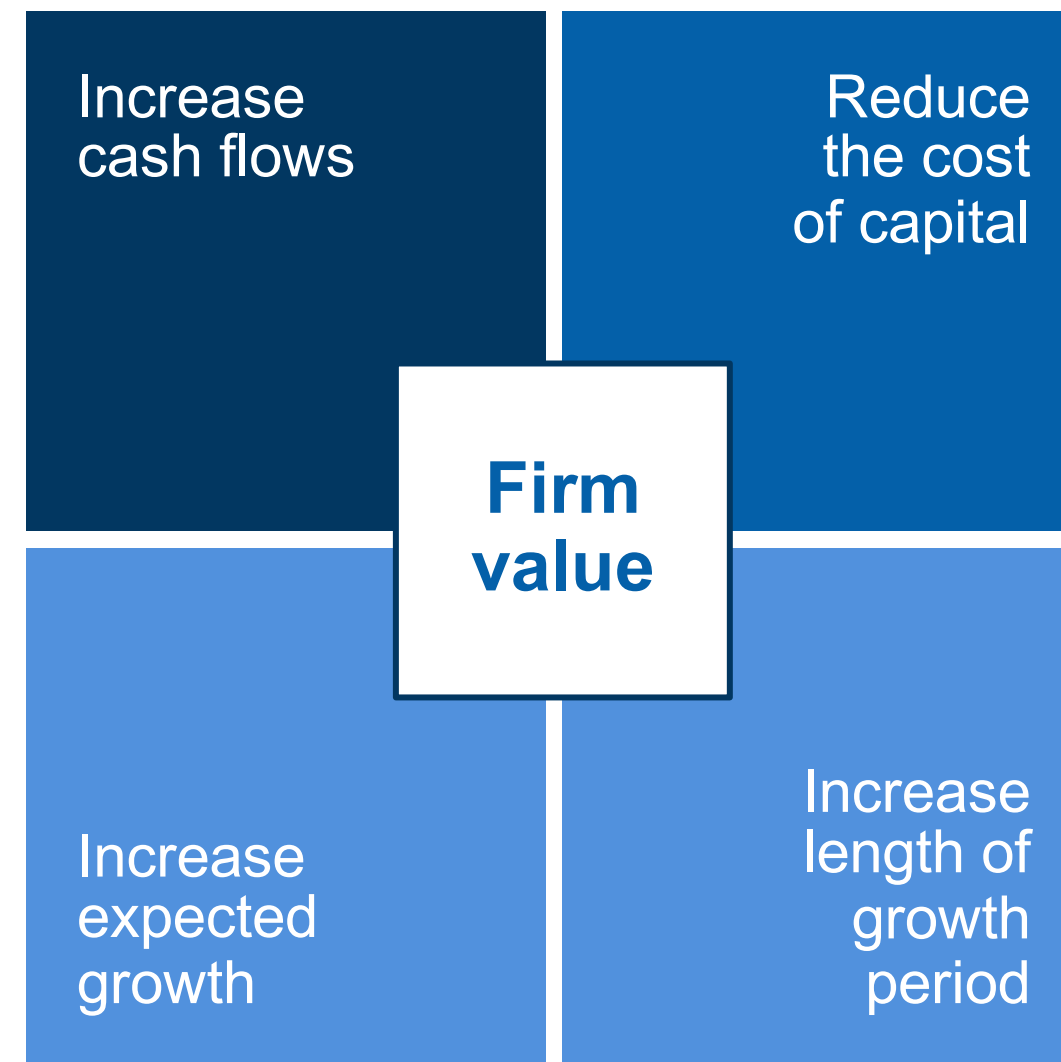
Sustainable design in our products

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We believe ESG creates long-term value for our shareholders



1

Driving top line - excellence in launches

2

Driving bottom line - operational excellence

3

Pipeline - delivering on innovation

4

ESG

Source: Aswath Damodaran: Value Enhancements: Back to Basics, Vontobel Equity Research



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Our ESG priorities are integrated into business operations

Innovation, patient health and safety

New products to meet sustainability design principles
Diversity in clinical trials
Adaptive projects that meet unmet healthcare needs
Addressing counterfeit medicines

Access to healthcare, ethical business practices

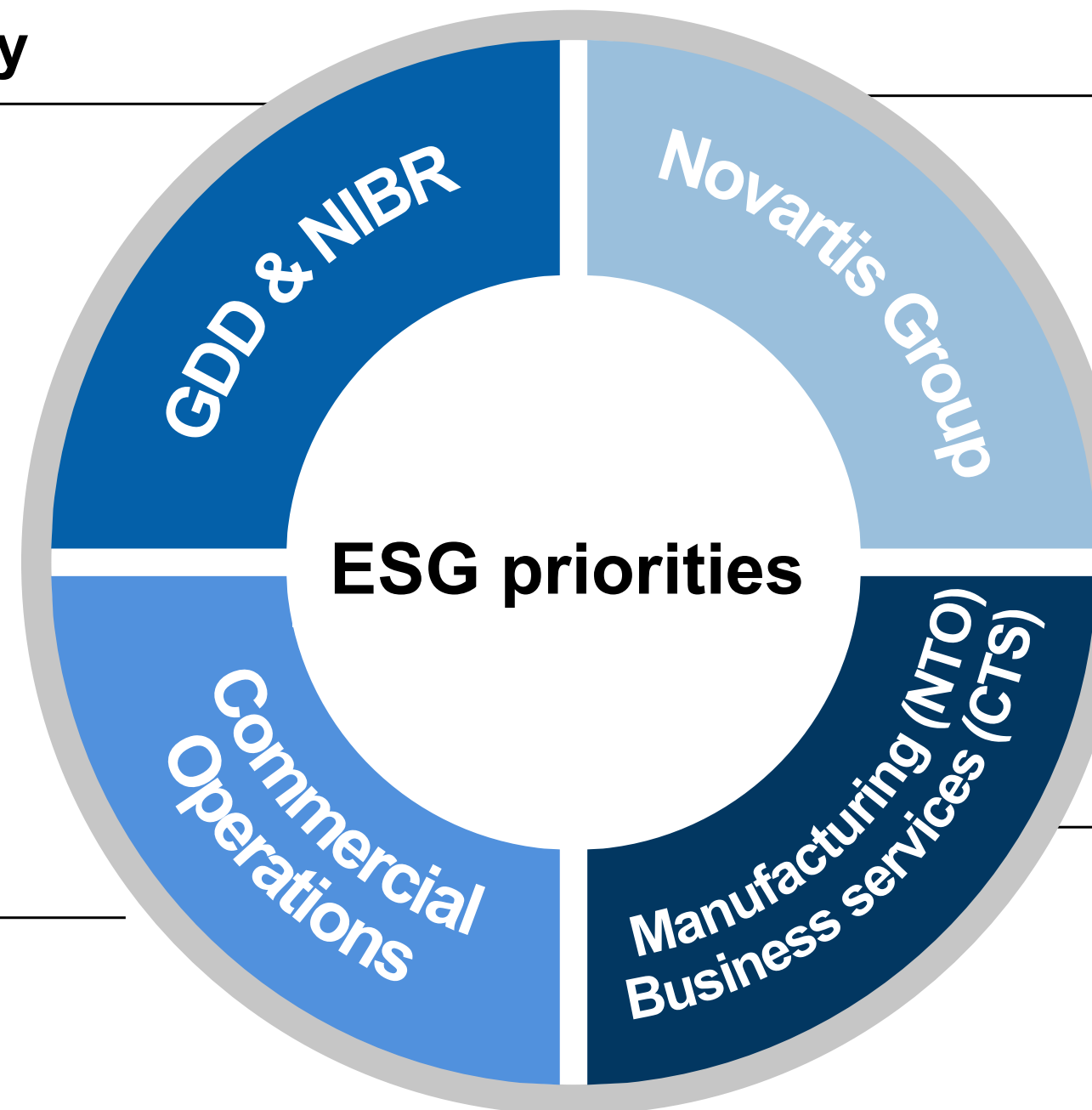
Focus on Access Principles
100% of launches with global access strategy
Global Health Flagship programs

Good governance, human capital

ESG targets for ECN and strategic priority at Board level
Diversity & Inclusion initiatives
Sustainability-Linked Bond
Code of Ethics

Environmental sustainability

Third Party Risk Management
Supply Chain and Human Rights



CTS – Customer & Technology Solutions NTO – Novartis Technical Operations GDD – Global Drug Development NIBR – Novartis Institutes for BioMedical Research



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Multi-year approach to enhance our reporting



¹ <https://www.novartis.com/investors/environmental-social-and-governance/esg-index>
disclosure expected 2023 (reporting year 2022)

² <https://www.novartis.com/sites/www.novartis.com/files/novartis-sustainability-accounting-standards-board-sasb-index.pdf>

³ TCFD quantitative



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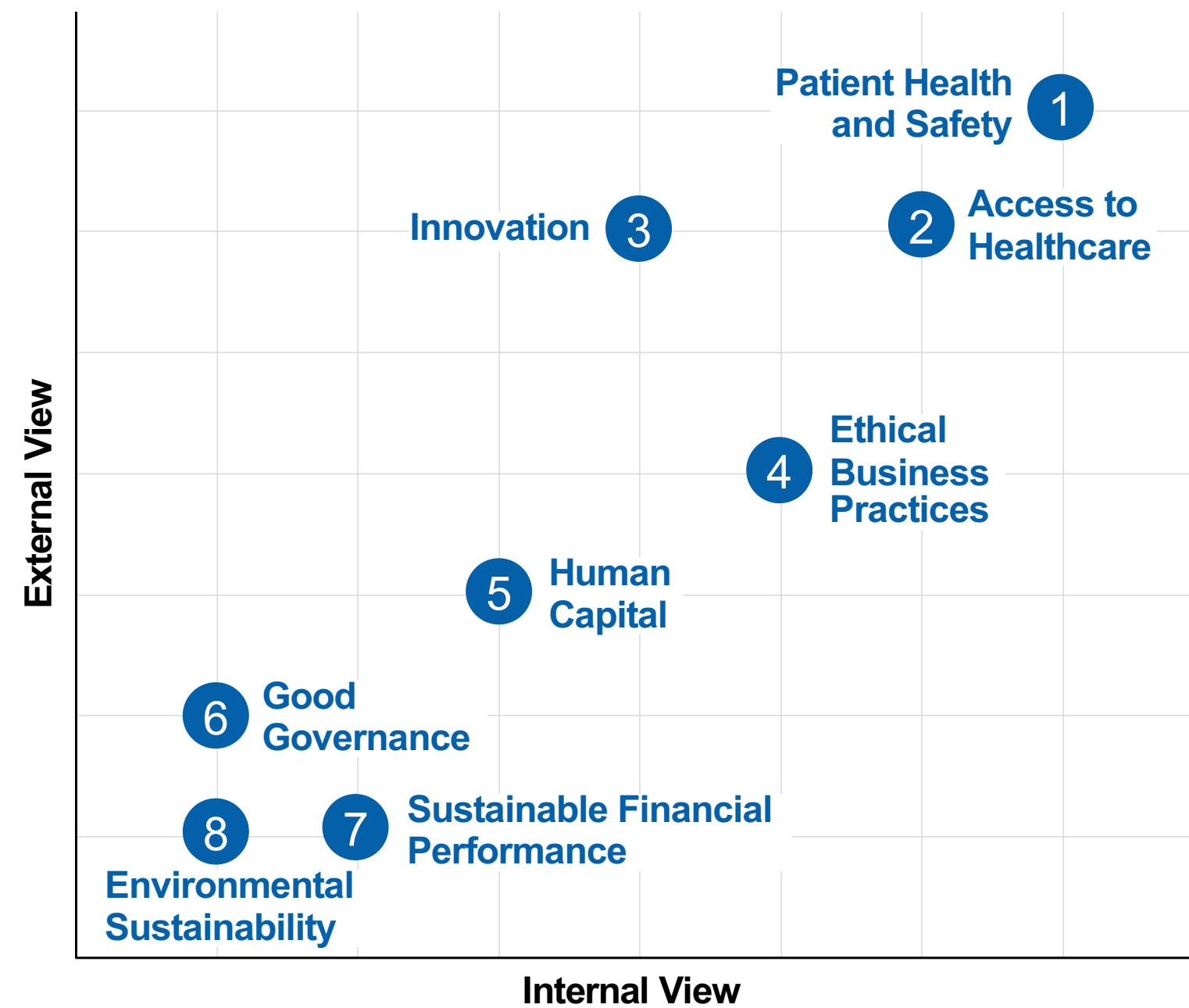
Combating Falsified Medicines program

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2021 Materiality Analysis confirms Patient health, access, innovation, ethics, human capital most important priorities

External and internal perspective



- 1 Health education & prevention; Pharmacovigilance; safety profile & quality of drugs; Prevention of counterfeits
- 2 Affordability & pricing; Availability of medicines; Health system strengthening; Intellectual property; Patient assistance programs
- 3 Advanced technologies for improved health outcomes; Transformative treatments for unmet medical needs
- 4 Ethical & compliant behavior; Responsible use of data & artificial intelligence; Responsible use of new bio-technologies
- 5 Diversity & inclusion; Fair working conditions; Employee attraction & retention; Employee training & upskilling
- 6 Corporate governance; Data privacy and security; Supply chain management
- 7 Business model innovation; Profit margin & dividends; Impact-based operational decisions; Sustainable allocation of capital
- 8 Emission, waste & effluents; Pharmaceuticals in the environment; Resource consumption

Results inform:

Annual Strategy Review

Enterprise Risk Management

Country strategy via local materiality analyses (incl. US)

Long-term strategy via scenario analyses



Methodology

NOTE: Ranking based on quantitative analysis (incl. internal + external stakeholders, weighted 50/50%); participants include associates (12k+ responses), investors, providers/HCPs/patient organizations, government/regulatory stakeholders, partners (incl. suppliers & customers), NGOs/NPOs/charitable organizations (500+ responses); survey period February 2021 – June 2021; Ambition level derived from qualitative insights (i.e. ~70 interviews & free-text answers from survey)



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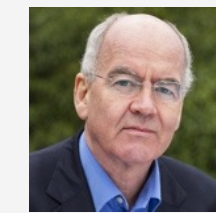
References

Novartis brings together thought-leaders from academia, business, investors, institutions to make progress on impact measurement

Date	ESG Materiality Webinar Series	Participants
April 2020	Reimagine Access	526
May 2020	Sickle cell disease	270
Jun 2020	Embracing double materiality: responding to COVID	225
July 2020	Wealth and Health	301
Oct 2020	Measuring, evaluating social outcomes of access	326
Dec 2020	<i>Co-Creating Impact Summit</i>	1,107
Feb 2021	Dialogue matters – spur positive impact	593
Jun 2021	Materiality, impact valuation: enablers of purpose	452

Novartis 4th Co-creating Impact Summit

December 2, 2021, registration [link](#)



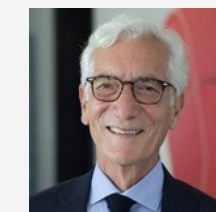
John Elkington

Chief Pollinator
at Volans



Prof. Colin Mayer

Peter Moores Professor of
Management Studies, Saïd Business
School, University of Oxford



Sir Ronald Cohen

Chairman, Global Steering
Group for Impact Investment



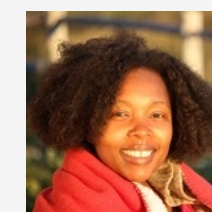
Right Hon Nick Hurd

Chair of G7 Impact Taskforce



Naina Batra

CEO and Chairperson AVPN



Dr. Eliane Ubalijoro

Executive Director of Sustainability in
the Digital Age and the Future Earth
Montreal Hub



Amra Balic

EMEA Head of BlackRock
Investment Stewardship



Gabriela Ramos

Assistant Director-General for Social
and Human Sciences, UNESCO



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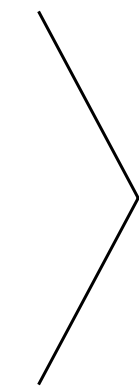
Combating Falsified Medicines program

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Delivered 1bn courses of antimalarial treatment by 2021 and we continue to expand our efforts

Patient reach for in-market portfolio is increased by



1
Tender excellence
program

2
Strengthen and expand presence in **SSA**

3
New channel focusing on **non-profit** and **faith-based** organizations

4
Capability building through Pharmacy Academy

Pipeline co-funded via MMV, Wellcome and European & Developing Countries Clinical Trials Partnership

Address threat of resistance (novel mechanisms)

Ganaplacide/Lumefantrine; Ganaplacide/INE963

Optimization of existing treatment

New ratio of Artemether / Lumefantrine for infants < 5kg (currently no approved treatment exists)

Novel IV treatment for severe malaria

Cipargamin IV



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Tackling Sickle Cell Disease: Innovating and building ecosystems to save lives

Working with local partners and the government to develop/strengthen:

Treatment guidelines	Central lab testing
Newborn screening	Access to basic medications (e.g., hydroxyurea, penicillin, NSAIDs)
Health center network	
Research environment	

Expanding public-private partnerships across Sub-Saharan Africa, aiming 10 countries by 2022.

MOUs signed:



Ghana

Hydroxyurea treatment costs would be covered by National Health Insurance System

A dispersible and **child-friendly formulation approved**

Crizanlizumab application filed with Ghana FDA, anticipated launch in Q2 2022

Patient enrollment completed for **STAND clinical trial** in Ghana

23 SCD treatment centers have been trained and enrolled in the program

>30k babies registered on newborn screening app



Other countries

Commenced SCD program in **Uganda**

MOUs signed with **Kenya** and **Tanzania** in 2020

Submitted MOUs to the MOH of **Senegal, Zambia** and **Angola** for partnership



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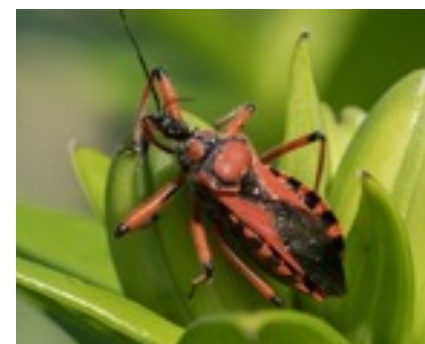
References

Targeted R&D and data & digital technologies are part of our solution to make healthcare more accessible

R&D for underserved population



5-year commitment: Invest USD 100m into R&D for **Malaria**



1st multinational, prospective, randomized study (Entresto®) in **Chagas**



Lucentis® EU approval for preterm infants with **retinopathy of prematurity**, 1st and only licensed pharmacological treatment for this indication¹

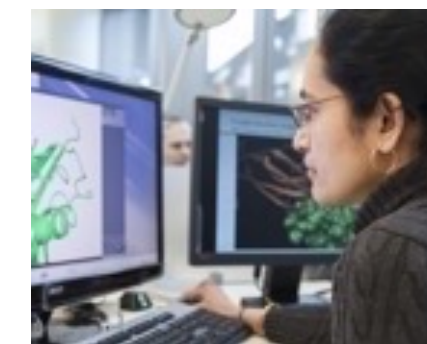
1. Lucentis® (0.2 mg) is indicated in preterm infants for the treatment of ROP with zone I (stage 1+, 2+, 3 or 3+), zone II (stage 3+) or AP-ROP (aggressive posterior ROP) disease Adaptive development: Modification of existing medicine to improve therapeutic efficacy, safety, access – focusing on vulnerable populations

Leveraging of data, digital & AI

Innovative approaches to enable access for our patients



HP Enterprise collaboration to **accelerate the use of digital technologies in Global Health** (1st use case: disease surveillance solution for dengue)



Founding of **Novartis AI innovation lab** with Microsoft as strategic partner: starting with personalized therapies for macular degeneration, cell & gene therapy, drug design



Novartis Foundation, Microsoft and partners launching AI4BetterHearts, 1st global collaboration for **improving CV population health using AI, advanced analytics**



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Managed Access Programs at Novartis (MAPs)¹

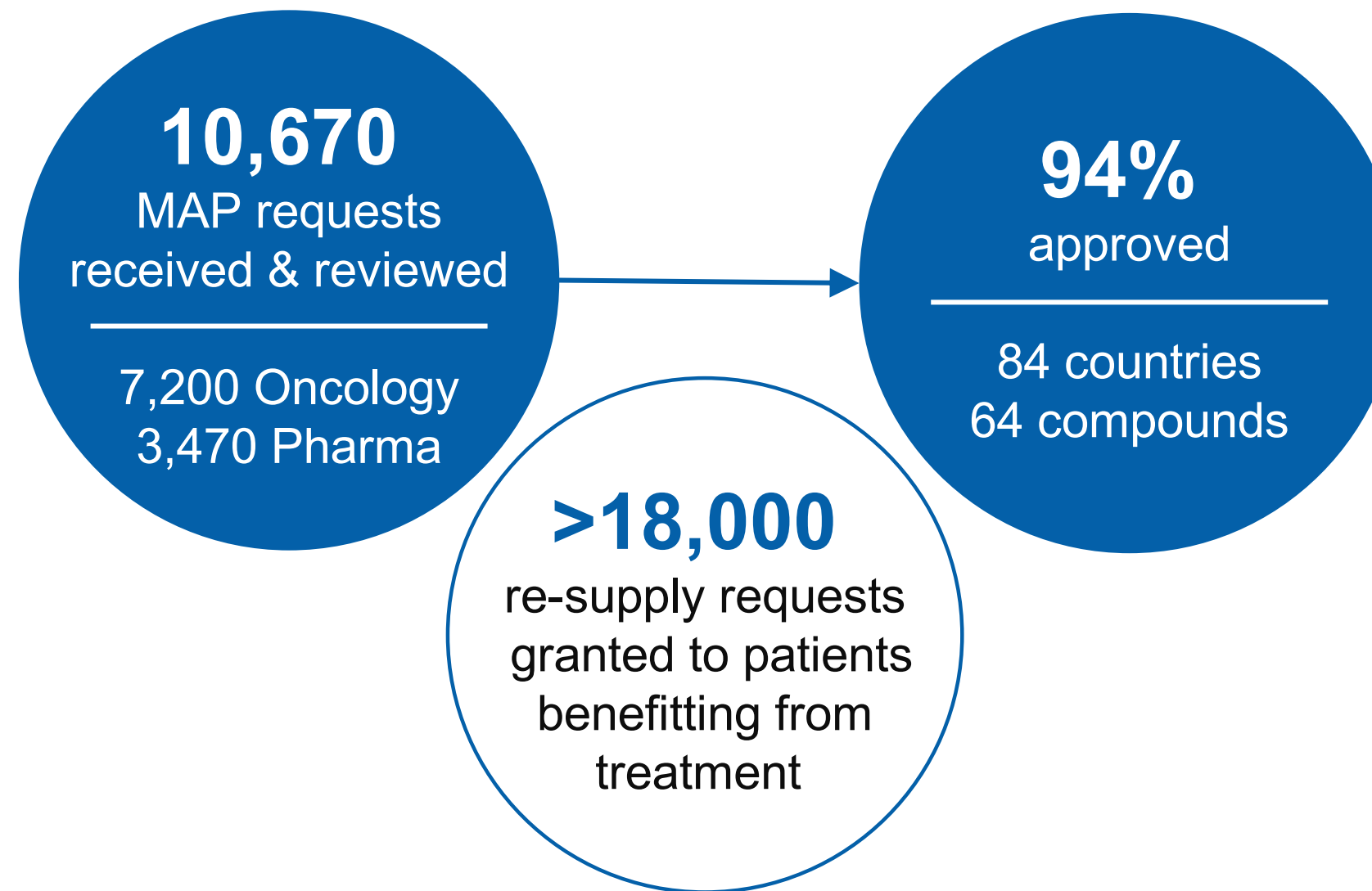
Addressing unmet needs by providing access to locally unapproved innovative treatments for patients who have serious or life-threatening diseases or conditions, for which there are no alternative treatment options available and where enrolment into a clinical trial is not feasible

Reimagining MAPs at Novartis

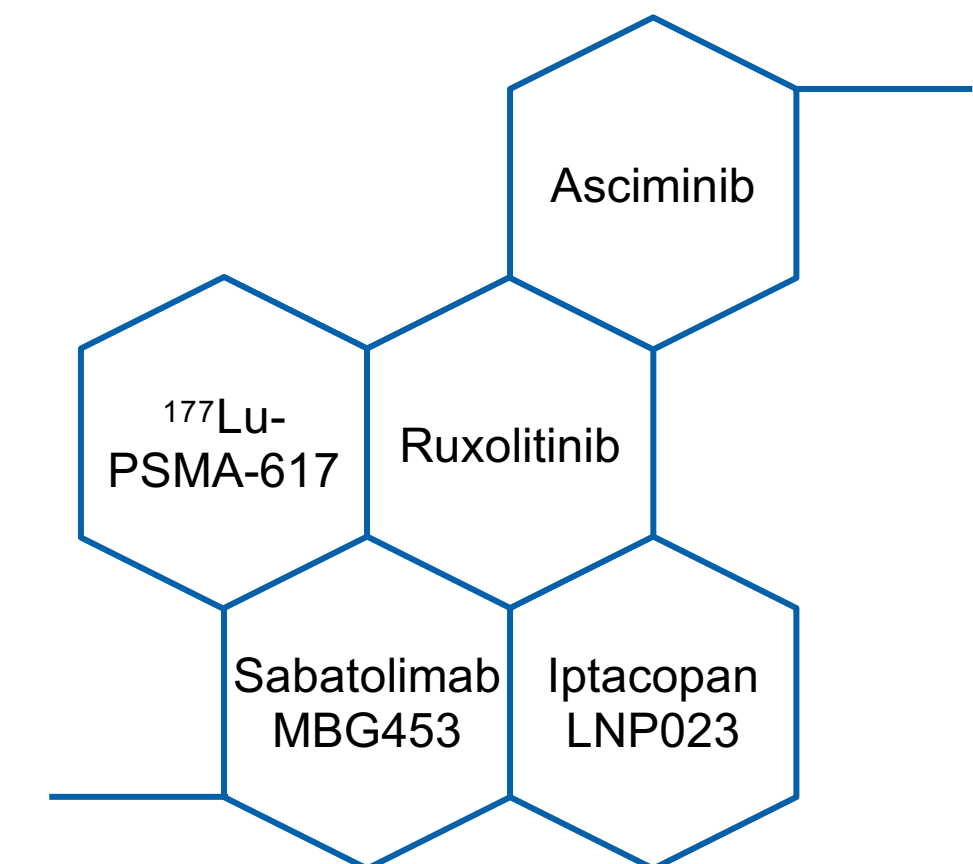
MAPs granted to **>30,000 patients** globally since January 2018

Collaborating with the **IBAC²** on selected ethical challenges in MAPs since 2017

A snapshot of MAPs In 2020³



Looking forward, ongoing MAPs include:



Asciminib in CML, 177Lu-PSMA-617 in Metastatic Castration-Resistant Prostate Cancer, Ruxolitinib in acute and chronic GvHD, Sabatolimab in myelodysplastic syndrome (MDS), Iptacopan in C3 glomerulopathy (C3G)

1. Local terminologies such as Compassionate Use Programs (CUPs), Early/Expanded Access Programs (EAPs), Named Patient Supply (NPS), etc. are collectively described under the umbrella term MAPs at Novartis. 2. The Independent Bioethics Advisory Committee (IBAC) comprises bioethicists, clinicians, healthcare practitioners, patient advocates and other domain knowledge experts appropriate to the problem at hand. 3. Based on Novartis data analyzed as at 12th January 2021. See our page on [Novartis.com](https://www.novartis.com) for more details.



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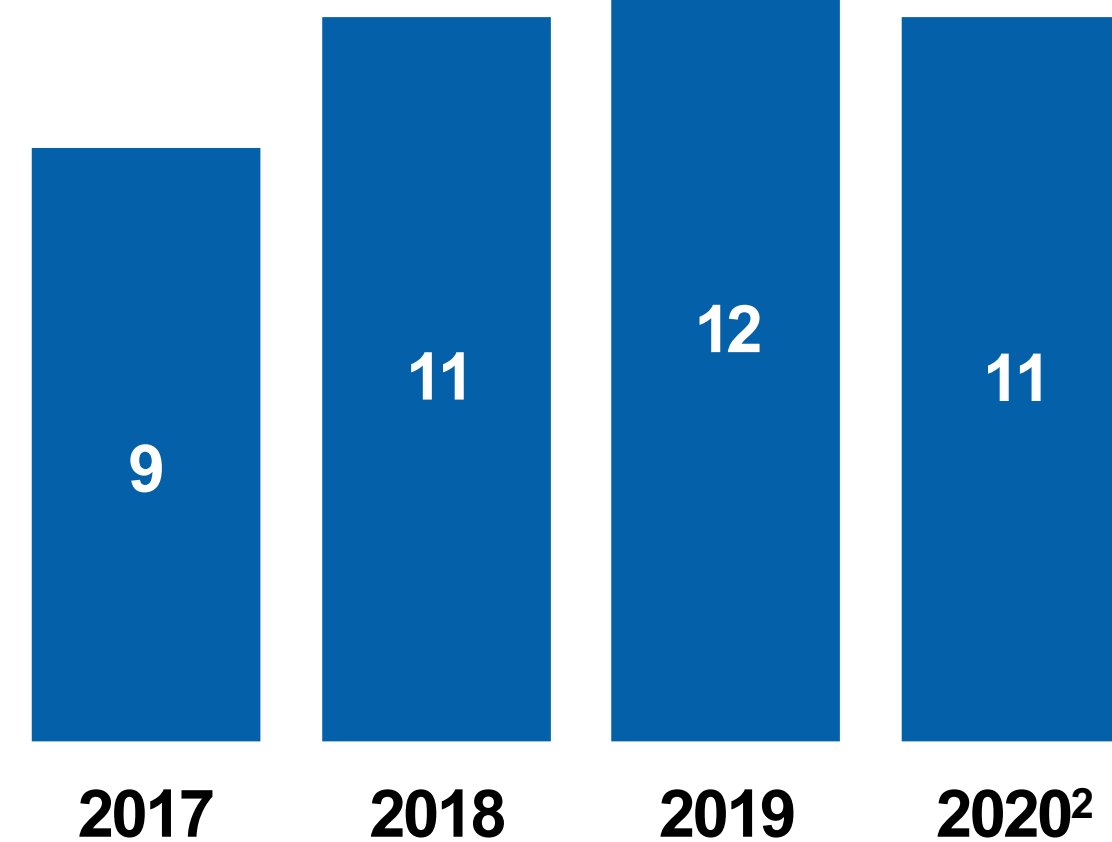
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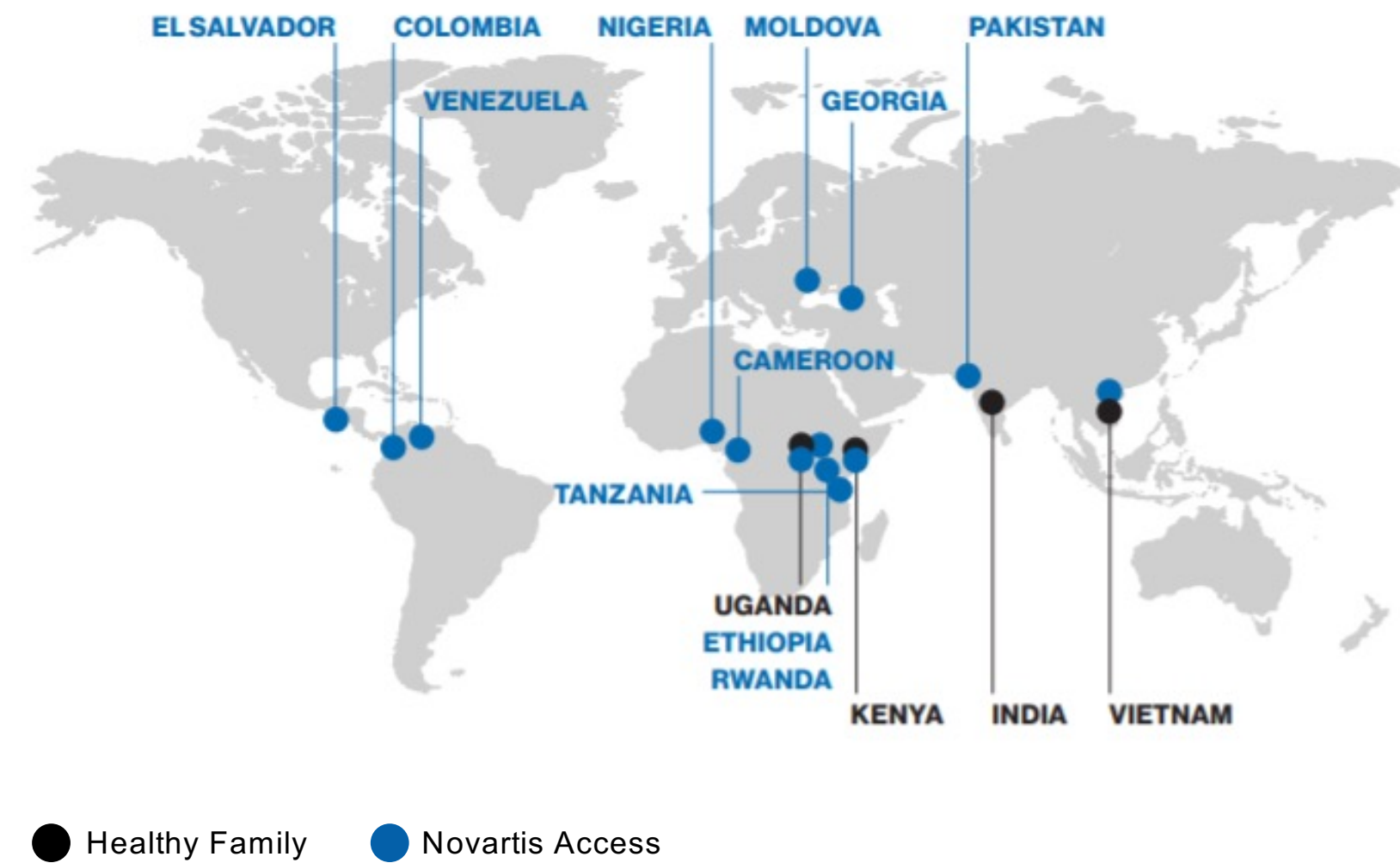
Our Novartis Access and Healthy Family programs reached ~11m people in 2020

No. of people reached¹ (incl. patients)

Millions



Working across multiple countries



Novel sustainable business models – generated net sales of **USD 44m** over 4 years to 2020



1. People reached for Healthy Family and Novartis Access 2. Reduction in social activities due to COVID-19, leading to reduced people reach



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Health systems strengthening through our Novartis Foundation (NF)

Influencing Population Health Policies and Actions to deliver on high-impact initiatives

Catalyzing population health policies and actions

Building partnerships to move the needle on population health issues



Convening and engaging

Co-create a population health approach for CVD & breast cancer with select cities

Influence AI in Health Policy through Broadband Commission Working Group & AI4HealthyCities Dialogue

Basel STELLA partnership for DHIS2

Accelerating Health and Care Innovation



Catalyzing innovations

Global data collaborative on cardiovascular population health (AI4BetterHearts)

Support HealthTech solutions that can transform health systems to become more proactive, predictive and preventative

Underpinned by the power of data, digital and AI to reimagine health and care for low-income populations and transform health systems from being reactive to proactive, predictive and preventative



Application of the NF urban population health approach, **CARDIO, to increase health equity across the globe**

[Urban Population Health Toolkit | Novartis Foundation](#)

Support countries to self-assess and advance in their maturity to deploy AI solutions in health

<https://AI.novartisfoundation.org/>



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Health systems strengthening solutions address barriers that prevent patients from accessing healthcare needs

Addressing local needs, focusing on barriers along the patient journey where we have expertise and can have the greatest impact

Access to and effective use of data and digital solutions

Example:

Partnership with MedShr platform providing interactive case-based learning and discussion groups via app

Heart Failure Education in SSA

Educational cases

6



Discussion Group for peer-to-peer learning



HCPs reached ~120,000



COVID-19 Education Across Africa and Middle East

Educational cases

98



Community building 90,000 in group



HCPs reached >366,000





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Our progress on culture transformation is monitored through data driven insights

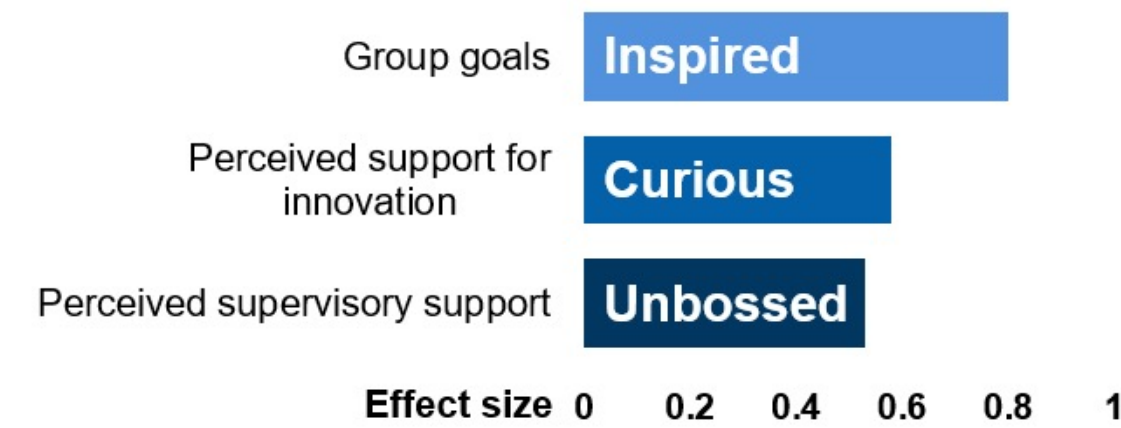
Evidence insights



CEBMA

Helping people in organizations
make better decisions

Key factors predicting performance among knowledge workers



Study commissioned to CEBM¹ showed that knowledge workers' performance is correlated with inspired, curious and empowering behaviors

External data



Innovation (percentile)

NOVARTIS Novartis	95
Company A	93
Company B	93
Company C	92
Company D	89

Performance (percentile)

Company A	97
Company B	96
NOVARTIS Novartis	84
Company C	62
Company D	62

External analysis of Culture² with 2m+ data points ran by MIT: **#1 on Innovation** and **#3 on Performance** (within Pharma)

Internal data

Culture measures



OurVoice Scores
Team Perspectives
Learning Hours
Spark Recognitions

Culture Adoption Index

Standardized metric to measure culture adoption in the enterprise



Performance KPIs



Net Sales
Market Share
Operating Income
Voluntary Turnover

Culture Performance Tracker

Depicts statistical relationship between culture and a set of performance indicators/

Indicator	P-value *	P-value_cat
Inspire(Belonging)	0.0012	High
Unbossed (RemovesObstacles)	0.0495	Medium
Unbossed(Empowerment)	0.0748	Low
Inspire(Purpose)	0.1508	NoImpact

Data enables us to bring focus on specific culture levers to drive superior business performance

1. Source: Center for Evidence-Based Management Reports commissioned by Novartis 2019, 2020. 2. Source: [How Do Companies Rank on Culture? | Culture 500 \(mit.edu\)](#); Based on Glassdoor employee reviews Jan 2015 - Sep 2020.



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We disclose on our pay gap and pay equity efforts

Pay gap¹

Company's proportion of women...

...in the top 10% compensated employees **43%**

...in the top pay quartile **48%**

...in the upper-middle pay quartile **54%**

...in the lower-middle pay quartile **53%**

...in the lower pay quartile **46%**

1. Global data, as of Dec 31, 2020

Pay equity

- Pay equity is a fundamental principle of our employment policies and is reflected in our commitment to treating all employees fairly and respectfully, as outlined in our Code of Ethics
- Equal pay audits form part of our EPIC pledge commitments and have already been undertaken in multiple countries (including US and Switzerland), covering **75% of the population expected by end 2021**
- Pay equity assessments to be undertaken in **all markets by 2023**



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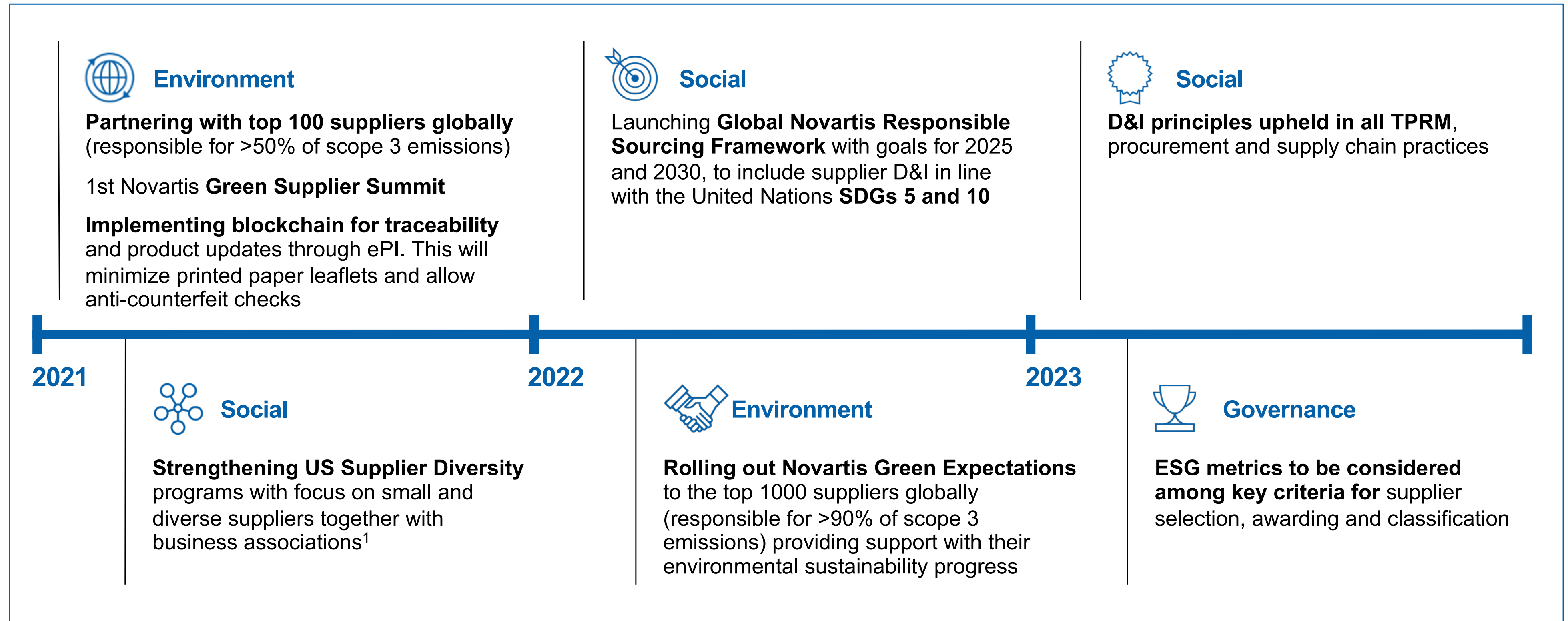
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We remain committed to developing responsible and sustainable global supply chains



Environment

Partnering with top 100 suppliers globally (responsible for >50% of scope 3 emissions)

1st Novartis **Green Supplier Summit**

Implementing blockchain for traceability and product updates through ePI. This will minimize printed paper leaflets and allow anti-counterfeit checks



Social

Launching **Global Novartis Responsible Sourcing Framework** with goals for 2025 and 2030, to include supplier D&I in line with the United Nations **SDGs 5 and 10**



Social

D&I principles upheld in all TPRM, procurement and supply chain practices

2021



Social

Strengthening US Supplier Diversity programs with focus on small and diverse suppliers together with business associations¹

2022



Environment

Rolling out Novartis Green Expectations to the top 1000 suppliers globally (responsible for >90% of scope 3 emissions) providing support with their environmental sustainability progress

2023



Governance

ESG metrics to be considered among key criteria for supplier selection, awarding and classification

ePI – Electronic product information D&I – Diversity & inclusion TPRM – Third Party Risk Management SDG – Sustainable Development Goals 1. <https://www.novartis.us/sites/www.novartis.us/files/nvs-eeo-di-report-2021.pdf>



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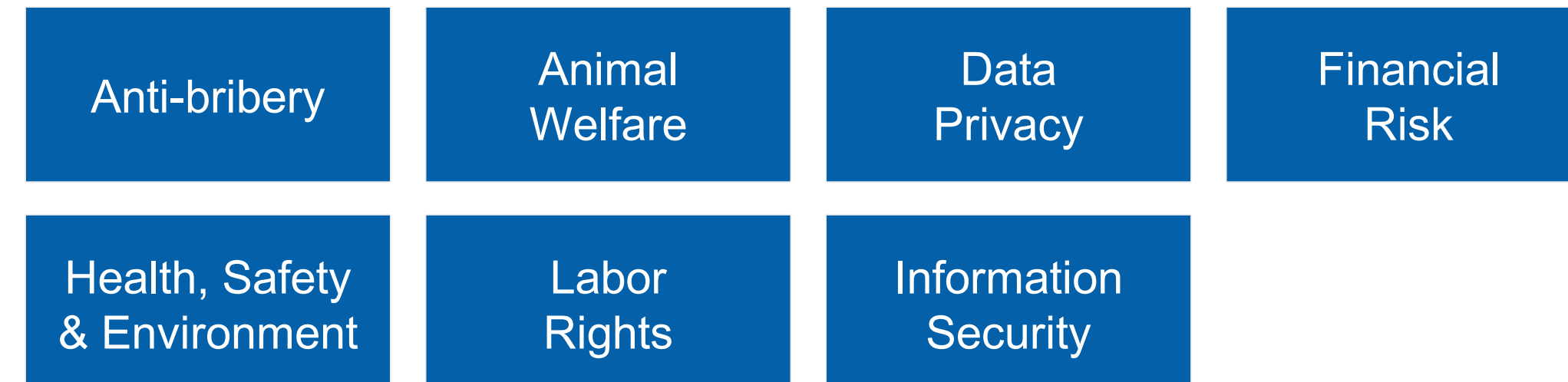
To manage risks in our supply chain, we have developed a robust Third Party Risk Management Framework

No engagement before completed risk assessment

One of our key risk areas is our interactions with third parties

Novartis works with third parties who conduct business in a manner that is consistent with our values and standards, as defined in the Novartis Third Party Code

Risk areas in scope





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We are fully committed to implementing UN Guiding Principles on Business and Human Rights (UNGPs)

Our aim | Effectively manage human rights across Novartis and inspire others to do the same

Governance

Human Rights moved to **Ethics, Risk and Compliance** function in 2021, expanding the scope beyond TPRM and including other areas such as clinical trials, access to medicine

Updated strategy to sharpen our focus on 3 pillars: **Due diligence, empowerment, and external Engagement**

Tracking progress

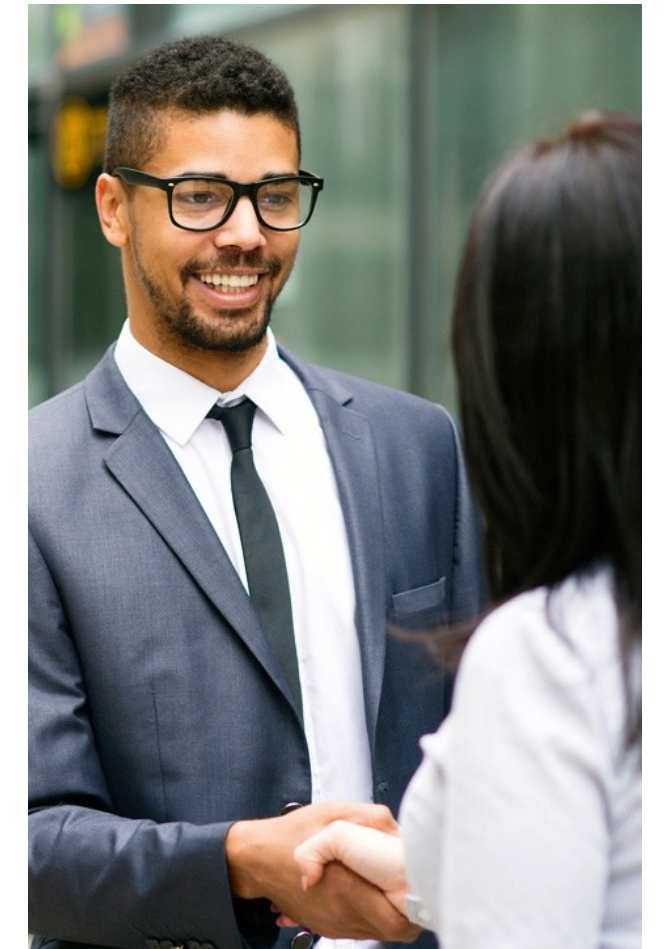
Tracking performance metrics across our **3 pillars**: e.g. no. of due diligence projects completed, remediation actions, internal trainings, external engagements, collective action projects

We defined our **12 “salient” human rights issues**, based on 3 years of due diligence, country visits, and external engagement

Third Parties

Human Rights now **fully integrated into TPRM**, support has shifted to highest-risk remediation engagements

2 pilot projects underway: guidance to high risk third parties on integrating human rights into management systems and tracking progress



EXAMPLE

Successfully engaged producers of carnauba wax through **collective action project with PSCI**; established internal working group to continue assessing high-risk materials and updating our procurement standards with human rights

TPRM – Third Party Risk Management Framework PSCI – Pharmaceutical Supply Chain Initiative



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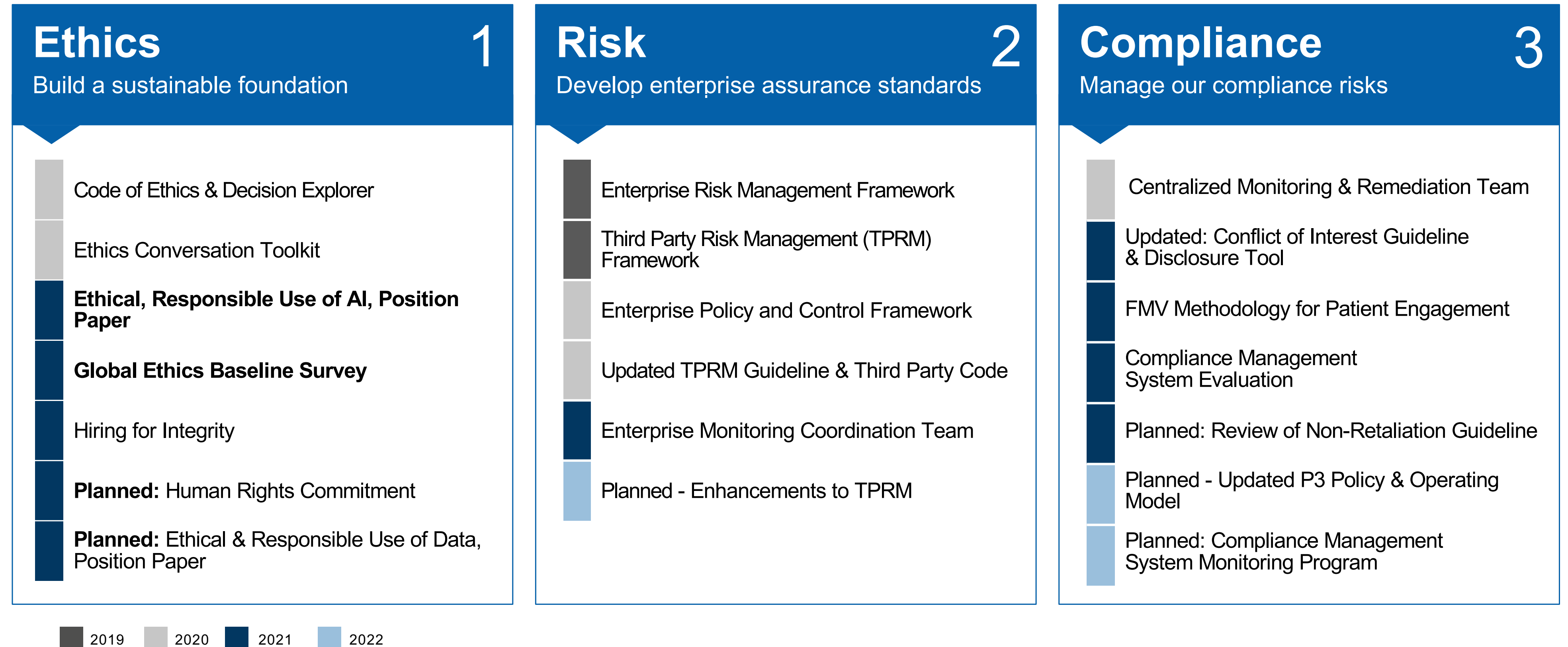
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Our program continuously evolves to meet the organization's needs and risk profile





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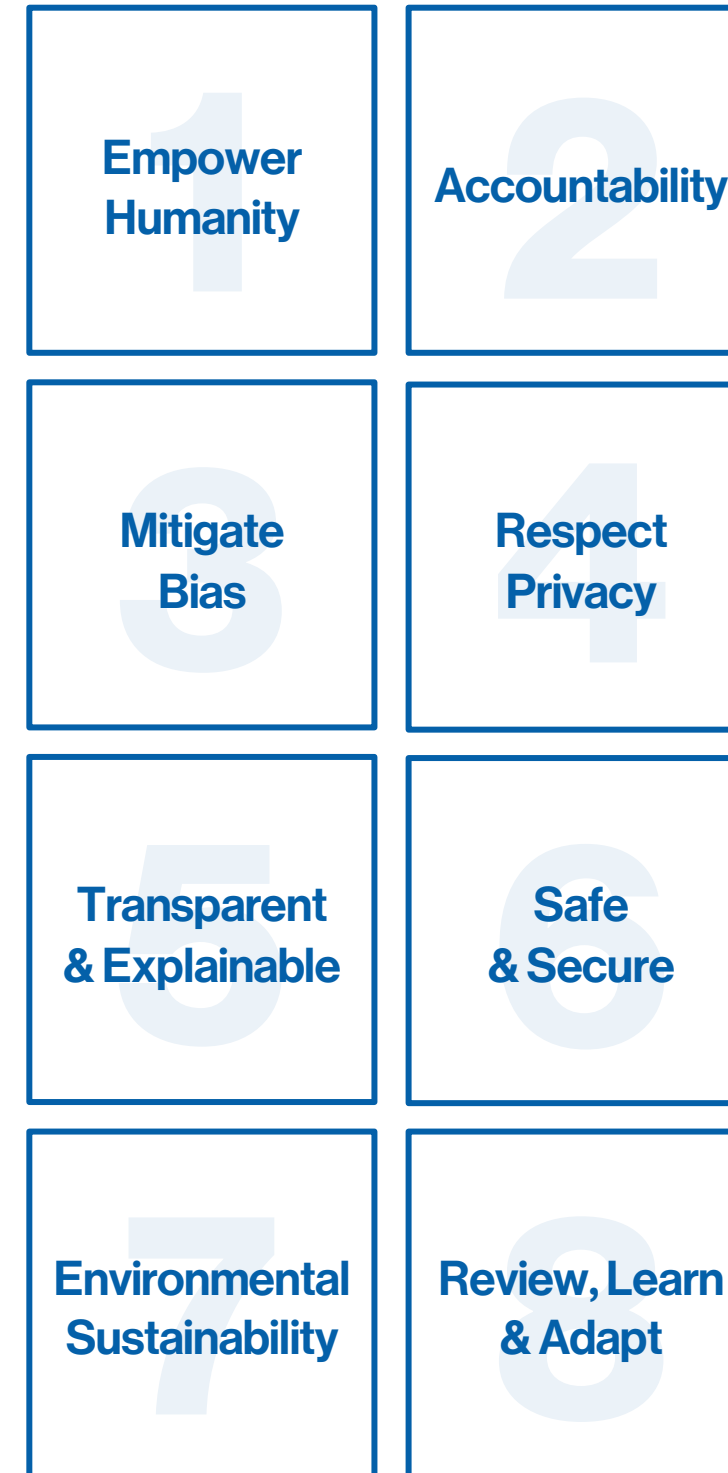
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We launched a first-in-class position paper on ‘Ethical and Responsible use of Artificial Intelligence’



8 principles, guiding ethical and responsible use of AI

Ensures a human-centered approach in using AI to reimagine medicine.

Living up to our commitments in the Code of Ethics, our ethical and responsible use of Artificial Intelligence position papers was developed collaboratively across Novartis and reviewed by external industry advisors

It practically sets guardrails and principles on what we should and shouldn't do when it comes to the use of Artificial Intelligence

One of the 1st companies to make such a bold commitment, recognized internally and externally

[Position Paper on use of AI](#)



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To establish an ethical baseline, we launched our annual Global Ethics Survey

Survey design

11 recognised psychological constructs, 4 outcome variables measured through 51 questions

Considered decades of research: 10 existing / past surveys, 30 constructs from 100+ research articles, academia insights

Global & inclusive: in 15 languages representing ~97% of Novartis population, all associates could participate

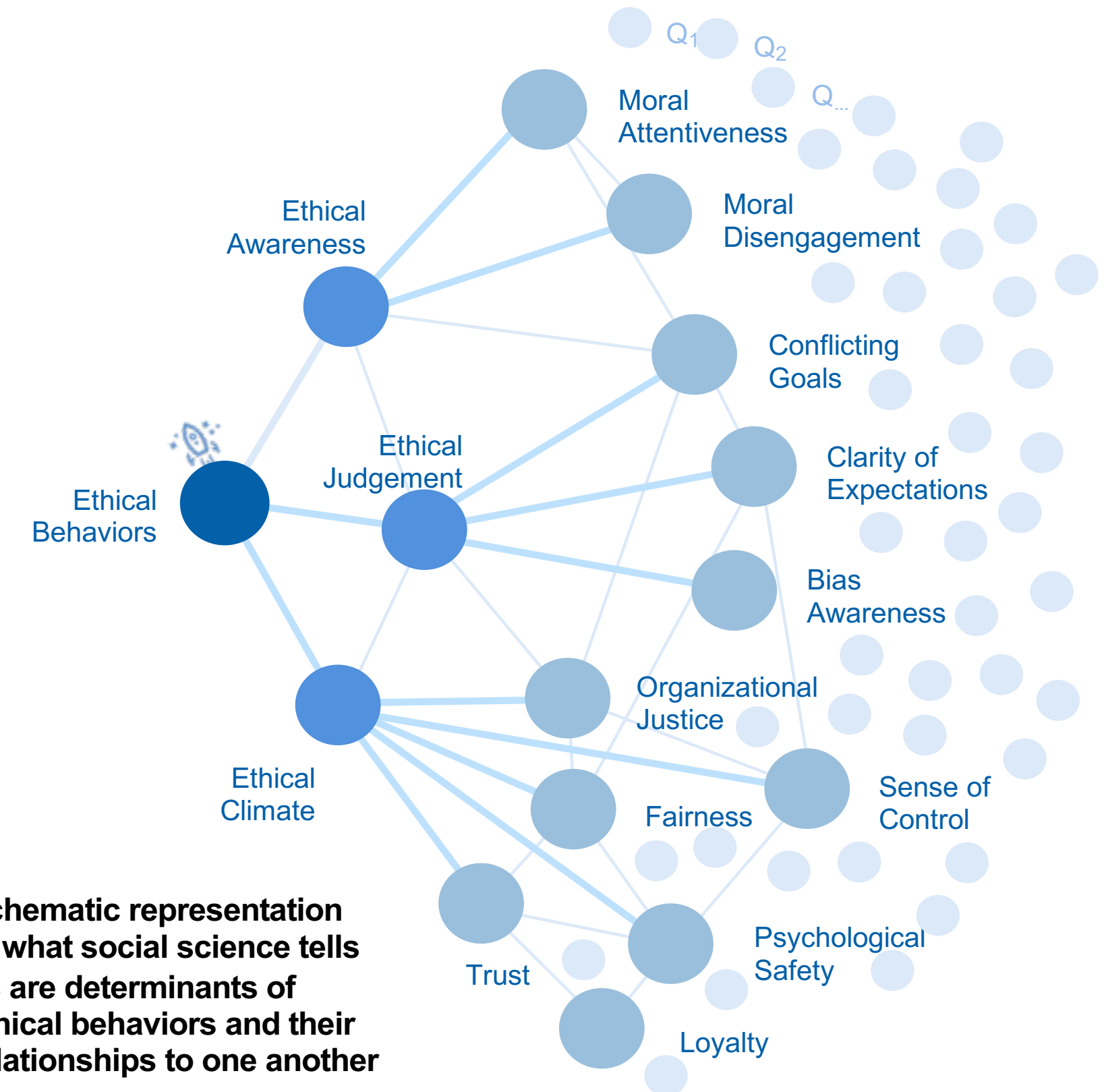
38,437 complete responses, plus 19,494 partial responses

Insights from initial results

Our associates think they are clear on what's expected of them

Associates' ability to recognize ethical dimensions is highly varied

Strongest aspect of our ethical environment: sense of control



Schematic representation of what social science tells us are determinants of ethical behaviors and their relationships to one another



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To develop an ethics-based culture, we introduced an approach that focuses on supporting our associates in decision-making

Approach

Be ethical when thinking about it
'changing the mind'

Be intuitively ethical
'changing the environment'



Objectives

- 1 Reinforce clarity of expectation of what it means to conduct oneself in Novartis
- 2 Put moral and ethical implications at the center of daily decision making
- 3 Send a strong ethical signal & create a lasting momentum
- 4 Attract and retain associates with uncompromising integrity
- 5 Turn every associates into 'ethical leaders' in their own rights
- 6 Drive ethical and sustainable performance

Means

- Our **Code of Ethics**, Ethical Principles, and **Compliance Policies**
- Our ethical decision-making framework **Decision Explorer**
- Ethics Week**, global **eTraining**, and associated events
- Hiring for Integrity** strategy and pilot, ethical talent development
- Ethical Conversation Toolkit**, to increase speaking-up
- Reimagining Performance Management**, resulting in EVOLVE



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Ethics is embedded within our People, Processes and Performance Incentives

Recruitment processes

‘Hiring for Integrity’ puts integrity at the core of our recruitment process so that we hire people with uncompromising integrity, and shape candidates’ perception of what Novartis stand for.

“I never want Novartis to achieve our financial performance or objectives because we compromised on our ethical standards or our values.”

Vas Narasimhan, CEO

Performance incentives

CEO, executive and associate incentives

All Novartis associates are subject to a performance management process based on quantitative and qualitative criteria, including our Values & Behaviors

Field Force incentives

Since 2016, variable incentives of the field force has been reduced to a maximum of **35%** of total compensation

For our sales force, **20%** of target variable pay is based on demonstration of our Values & Behaviors



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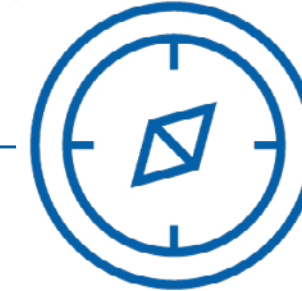
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Our Enterprise Risk Management cycle runs until September, resulting in the Novartis Risk Compass

The methodology covers **21 risk areas** and is initiated by a series of Risk Workshops covering all Operational Units, Corporate Functions, and selected Countries. Each risk identified is assigned a risk owner, risk treatment, and remediation plan. This is captured in our Enterprise Risk Management Tool and monitored throughout the year. Each September, all the respective units come together to discuss key risks and align on the key risks that form the Novartis Risk Compass. These key risks, shape the risk agenda of the Executive Committee and Risk Committee of the Board.



Strategic Risks

Risks that are most consequential to Novartis ability to execute its strategy or achieve its business objectives.

1. Key products and commercial priorities
2. Pricing, reimbursement and access
3. Research and development

Emerging Risks

Identified risks that require close monitoring, which may evolve to a significant Operational or Strategic Risk.

1. Geopolitical and socio-economic threats
2. New ways of working
3. Global ERP implementation

Operational Risks

Risks resulting from inadequate or failed internal processes and / or systems, employee errors or from external events.

1. Cybersecurity and IT systems
2. Third party management
3. Manufacturing and product quality

Awareness Topics

Trending topics that are not accounted by Novartis risk management yet but have the potential to become a new risk.

1. Climate change
2. Changes in disease patterns, antimicrobial resistance and pandemics
3. Deterioration of Human Rights protection



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We have a well-designed Compliance Management System that detects and prevents systemic misconduct



Ethics and Integrity are at the heart of our organization

Our updated framework helps covers all elements of an effective corporate compliance program and is fully aligned with recognized international standards and best practices.

Our program continuously improves over time and provides us with the right level of oversight across each of the core elements.

Risk areas in scope





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Our 'SpeakUp Office' provides a safe place for associates to raise concerns

REPORT



Report concern using one of the **SpeakUp** platforms

REVIEW



Concern reviewed to decide next steps

INVESTIGATE



Local or global function investigates

DECISION



Business decides on appropriate action

UPDATE



Employee will be updated on the case

ACTION



If required, actions will be put into practice

CLOSE



SpeakUp case closed



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Committed to carbon neutrality based on scope 1 – 3 targets, with clear plans, milestones and metrics

Building momentum with urgency to act

2025 milestones

- 100% renewable energy across operations
- Switch at least 40% of vehicle fleet to electric power
- 100% of supplier contracts to include environmental sustainability criteria

Catalyzing change

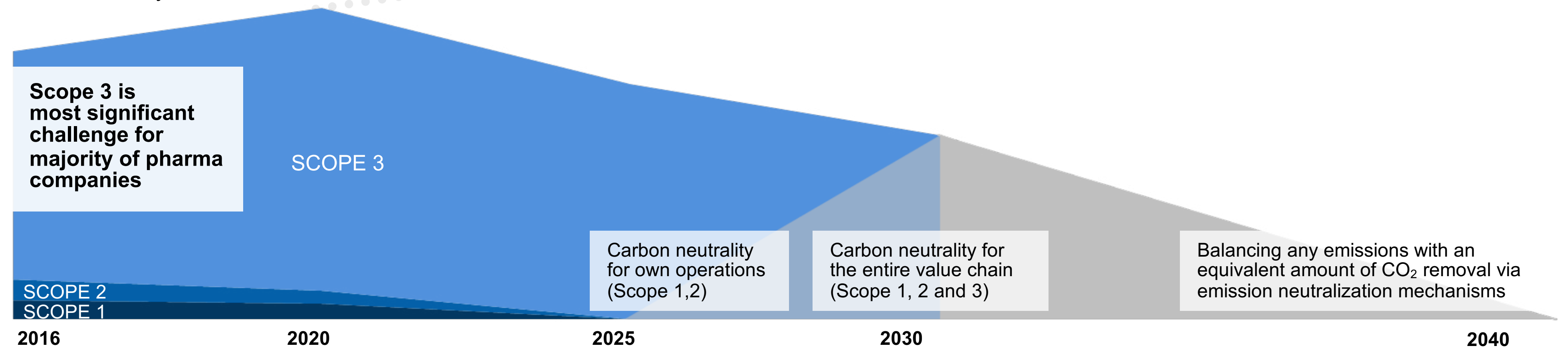
2030 goals

- Carbon neutrality in scope 1, 2, 3
- Commitment to SBTi target
- By 2030, we will reduce scope 1, 2, 3 emissions by at least 35% without the use of carbon removal offsets

Delivering net zero

2040 vision

- By 2040, we will reduce scope 1, 2, 3 by at least 90% and balance any remaining emissions with credible carbon removal offsets
- Advanced technology





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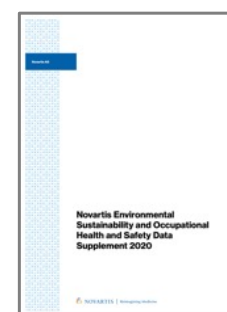
Our journey to reduce emissions is underway, with global initiatives across our operations

How we address Scope 1 and 2

2020 million tCO₂e



Novartis Environmental Sustainability Strategy

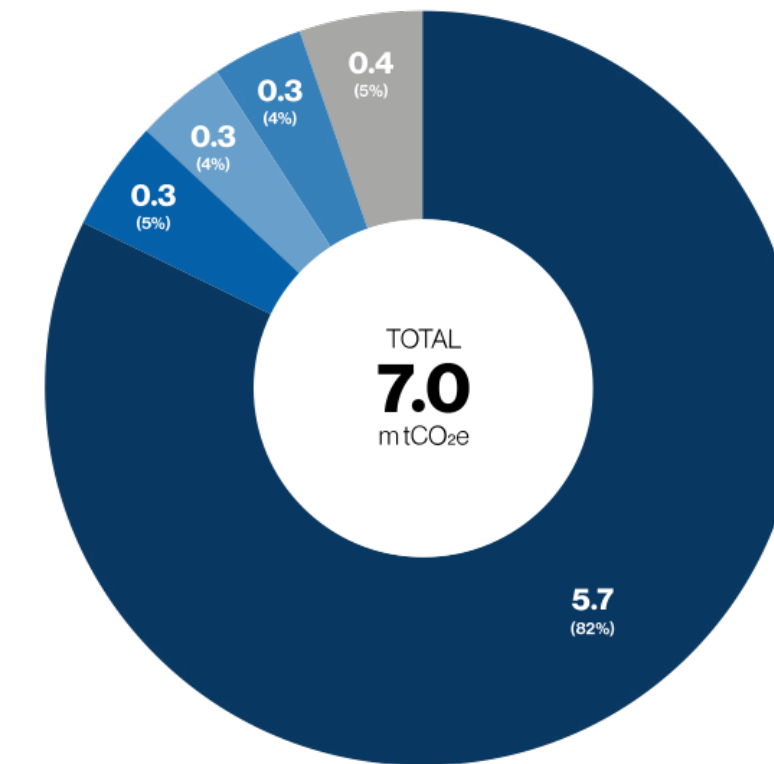


Novartis Environmental Sustainability and Occupational Health & Safety Data Supplement 2020

Scope 3 GHG emissions 2020

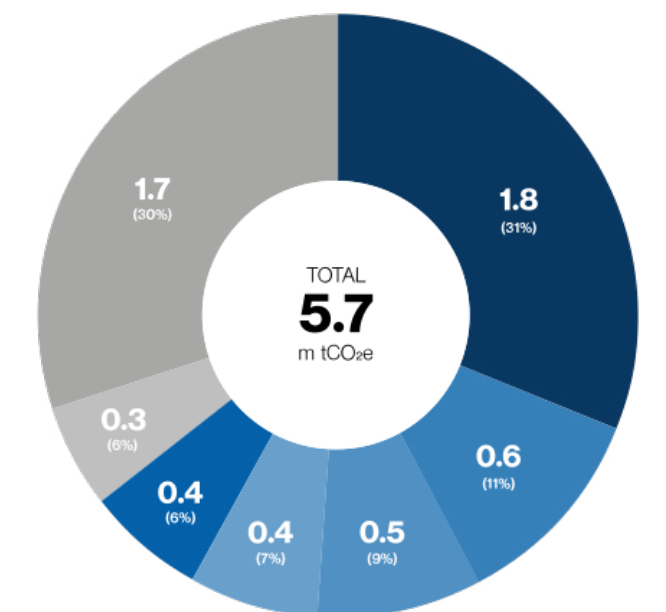
Our methodology for calculating scope 3 emissions has been adjusted since 2016, with **greater visibility and transparency** in our baseline*

Scope 3 categories



- Purchased Goods and Services
- Capital Goods
- Fuel and energy related activities
- Upstream transportation & distribution
- Others¹

Scope 3: purchased goods and services



- Chemicals
- Marketing
- Contract Manufacturing
- Packaging
- Business Development
- Scientific Services
- Others²

1. Others include in Thousand tCO₂e, 22 for Business Travel, 99 for Employee Commute, 170 for Use of Sold Products, 28 for Waste Generated in Operations and 30 for Downstream Transportation and Distribution. 2. Others, in Thousand tCO₂e, include categories such as Clinical services, Meetings and Events, IT & Digital, Laboratory Equipment, Contingent Labor, Facilities Management, among others. *Methodology used to calculate Scope 3 emissions in 2016 was aligned with Science Based Targets validation criteria which required targets to cover at least 2/3 of total mandatory scope 3 emissions as defined in Tae 5.4 of the GHG Protocol Scope 3 standard. In 2020, Novartis decided to further improve completeness, transparency and accuracy to cover more than 90% of overall scope 3 emissions.



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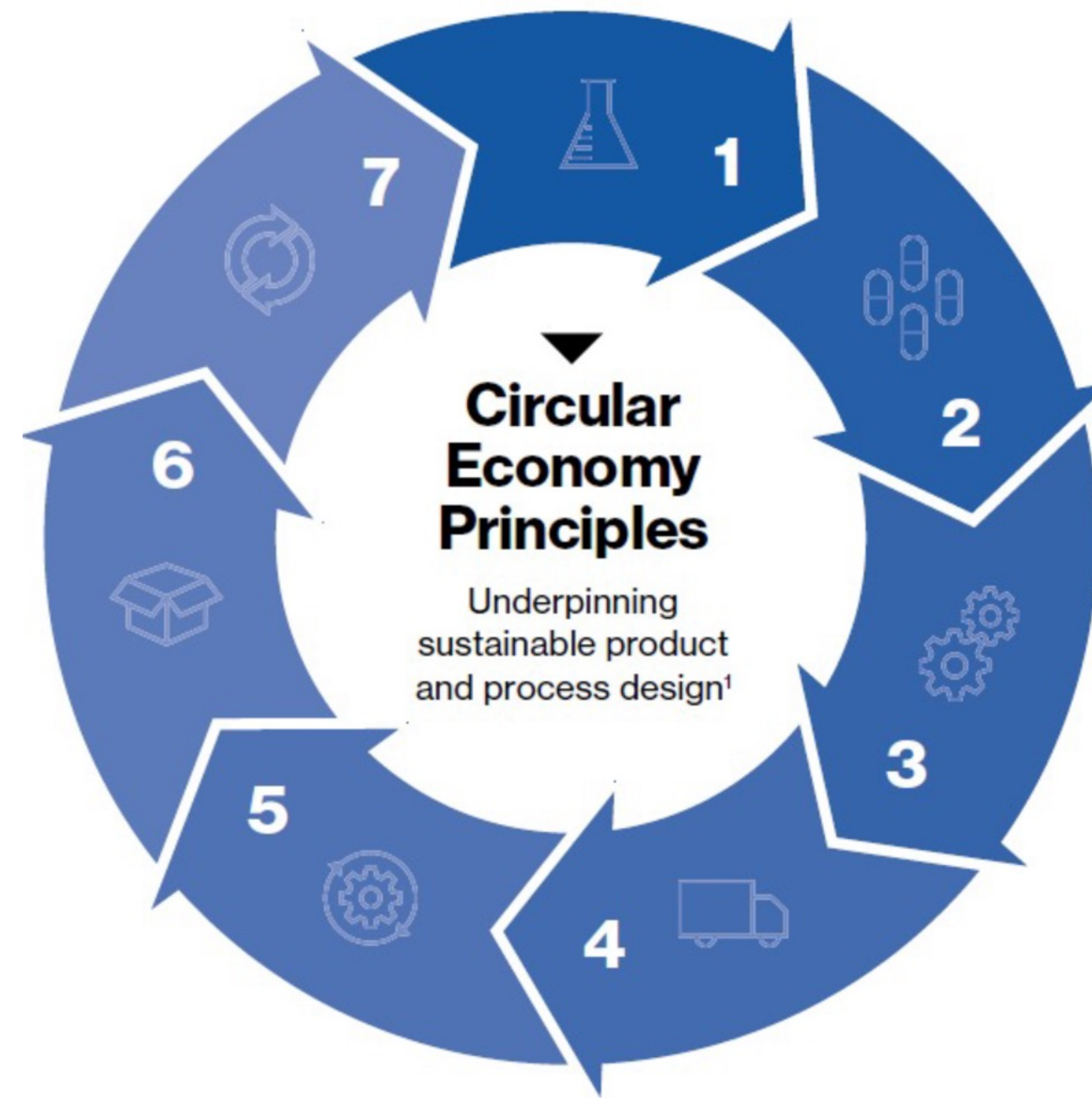
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As part of our sustainability journey, we are implementing ‘circularity’ in design of our products



Circular Economy Principles	Examples of environmental sustainability optimization potentials
1 Raw Material	Use non-hazardous / more sustainable material alternatives
2 Product Design	Green Chemistry principles. Packaging & device optimization. Build Life Cycle Assessments into the design process.
3 Production	Reduce PMI (Process Mass Intensity), lean production process
4 Distribution	Reduce number of shipments and distance. Green Logistics.
5 Use & Re-use	Recovery & recycling of solvents and precious metal catalysts
6 Collection	Dry Powder Inhaler device take-back scheme: Pilot started in April 2021 in CH.
7 Recycling	Consider recycability of devices & packaging at design phase itself



Embed “Sustainability by Design” thinking across Drug Substance, Drug Product, Device, and Packaging development

Scale-up current pilot projects/compounds over the coming years to more systematically integrate environmental sustainability aspects into our existing R&D & manufacturing processes



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Electronic product information (ePI) implementation reduces waste

Process innovation to reduce waste

Implementation of blockchain for traceability and product updates

Novartis is part of the PharmaLedger initiative – a consortium of 29 health industry partners pioneering a leading solution for secured digital product information update and validation. Implementation of ePI is the first step, which will allow access to the up-to-date product safety & regulatory information & specific product status (batch number, expiry, recall etc.) through a QR code, and eliminate/minimize printed leaflets. Further, this initiative will also allow anti-counterfeit check, adverse event reporting, finished goods traceability, etc.

E-leaflets and labeling in production at Sasayama and Singapore

The physical paper leaflets for Novartis products manufactured at our Sasayama plant have been replaced with approved product information on the local Novartis websites. This will save 120 tons of paper per year with elimination of 20 million leaflets, in turn saving USD 3m in printing costs.

Implementation of e-labeling for Novartis products available in Singapore has saved efforts of 700 hours/year for QA, supply chain and regulatory teams and, 12 tons CO₂e in 2021 from printing elimination.

18,500+

Football fields can be covered by printed leaflets

45 kt CO₂e

Potential reduction in carbon footprint

USD 64m

Saved cost of printed leaflets

Estimated environmental impact based on overall paper leaflets produced by NTO site in 2020.

Shortcomings of paper-based labelling and leaflets

- Expensive & time-consuming process – to update/ correct product safety and regulatory information for existing inventory
- Not reader friendly – printed font size cannot be adjusted for each reader





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We have reduced plastic usage by optimizing blister size for multiple products

Improve material efficiency

Blister size reduction using Global Packaging Catalog

After transferring packaging for the GalvusMet (Euacreas) product family (packaged in PVC blisters) to NTO Solids Lendava, the team explored the possibility of reducing the use of plastics in blisters and proposed smaller blisters. On the basis of Global Packaging Catalog, they chose the most suitable standard blister size of 60x98 mm versus 64x104 mm previously used.

GalvusMet blister size reduction

NTO Solids Lendava has reduced the blister size by 12% and the plastic usage by 0.6g per blister, without compromising on the quality of the products that the patients receive in a reliable way.



Sustainability in packaging

12%

Size (area) reduction with the blister optimization

0.6g

Blister grammage reduction, upon optimization

27

Pallets of plastic avoided per year (full truckload)

Blister dimension optimization has economic benefits

- Reduction of material used for blister production – plastic usage footprint and waste reduction
- Reduction in grammage i.e. unit product weight reduction – logistics footprint reduction





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We have successfully prototyped fully plastic-free packaging

Switch to eco-friendly materials

Promising plastic-free packaging prototype

NTO has worked on a secondary packaging solution for a pre-filled syringe (PFS), that consists entirely of cardboard – instead of PVC or biodegradable plastic. The drug device is fitted into a meticulously folded carton, which allows the product to be safely transported. This in turn reduces the tertiary packaging and the weight of the package itself – thus 2x packages can now be accommodated on shipping pallet.

Carton box prototype for PFS

NTO Packaging team's prototype has reduced the package weight by 28% and the PET usage by 17g per package.

Carton prototype



Carton inlay in the folding box



U-Shape for leaflet placement

Sustainability in packaging

3

Suppliers that can be eliminated from original

2x

Number of packs can be transported on pallet

50%+

Carbon footprint reduction per year

Estimate assuming the prototype were implemented, carbon footprint reduction compared to the original PFS packaging.

Need for using eco-friendly materials alternatives

- Current PVC does not biodegrade easily and can take up to thousand years to decompose
- PVC and other high carbon footprint materials need to be substituted with eco-friendly alternatives ideally plastic free





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Advancing our Combating Falsified Medicines program

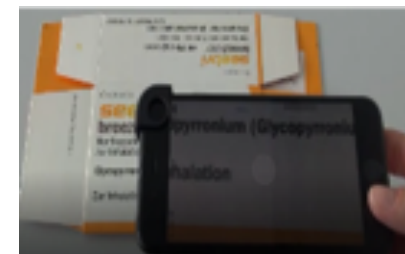
1 Strengthen Supply Chain Security

Launched a global supply chain security risk assessment: Core focus on high risk countries¹ (in the pandemic context and its pressure on the pharma supply chain)

2 Advance Digital Empowerment

Fast & mobile enabled solutions: packaging verification (MOVE), product authentication (Authentifield by Novartis²)

Leading the IMI³ Blockchain use-case: Supply chain security and patients' empowerment



MOVE



Authentifield by Novartis

3 Leverage Collective Action

Timely reporting of confirmed falsified medicines incidents to the WHO within the prescribed 10 days. Reporting all confirmed incidents using WHO's new online portal⁴

Company effort recognized as one of 8 Novartis best practices by the 2021 ATMI⁵

Strong governance

Falsified medicines listed as a Strategic Risks⁶ in the Novartis Risk Compass (≥ 90% of falsified medicines forensically tested showed a level 3 patient safety impact (i.e. serious harm / death)

Enterprise Risk Management Controls related to detection & reporting

Cross functional collaboration with 7 regional working groups

Progress discussed at Executive Committee (Trust & Reputation Committee)

1. Risk assessment: facilities & warehouse distribution, country risk assessment (top 26), illegal diversion, primary & secondary transporters, and access deep dive 2. Endorsed by the ECN TRC, FGC, IT DRC 3. [Innovative Medicines Initiative](#) 4. As of Q3 2021, World Health Organization incident reporting portal 5. Access to Medicines Index indicator PQ2: Reporting of falsified and substandard medicines 6. July 2021 <https://www.novartis.com/sites/www.novartis.com/files/novartis-enterprise-risk-management.pdf>



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Strategic partnerships are important to our efforts to lead on ESG issues and develop innovative solutions

Access & Global Health

Member of Global Chagas Disease Coalition

Member of Swiss Alliance against Neglected Tropical Diseases

Co-founding partner of Global Partnership for Zero Leprosy (GPZL)

Member of Business Refugee Action Network

Signatory to Guiding Principles on Access to Healthcare (GPAH)



Diversity & Inclusion

Signatory to UNGC¹

Member of UN Equal Pay International Coalition (EPIC)

Signatory to Women's Empowerment Principles

Signatory to WBC for Sustainable Development's CEO guide to Human Rights

Support for UN's workplace standards for LGBT



Environmental Sustainability

Supporter of TCFD

Joined SBTi initiative – Business Ambition for 1.5C

Signatory to UN Global Compact CEO Water Mandate

Member of RE100 (100% renewable energy)

Member of EV100 (electric vehicles by 2030)

Member of Ellen MacArthur Foundation (circular economy)

Member of Sustainability 30 (S30)



Impact Valuation

Member of Impact Valuation Roundtable

Founding Member of Value Balancing Alliance



Anti-microbial Resistance

Signatory to Davos Declaration on combating AMR

Member of AMR Industry Alliance

Member of the Responsible Antibiotics Manufacturing Platform

Member of AMR Action Fund



Ethics

Signatory to the CEO Letter on the UN Convention Against Corruption

Signatory to the Partnering Against Corruption Initiative (PACI), a World Economic Forum initiative



1. As a UNGC signatory, Novartis supports the Universal Declaration of Human Rights, the ILO Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, the UN Convention Against Corruption, the OECD guidelines for Multinational Enterprises, the OECD Convention on Combating Bribery of Foreign Public Officials and the UN Guiding Principles on Business and Human Rights.



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Sector leading performance across various ESG ratings

1	2021/ 2020 scores
2	Updated April 2021
3	2020/ 2019 scores
4	Published every 2nd year. Updated September 25, 2020
5	Published every 2nd year. Result shown shows 2020/2018 scores
6	As Sep 22, 2021. D&I based on Top 100 Most Diverse and Inclusive Companies published
7	2020 Score, Novartis has been a member of the DJSI World and DJSI Europe since 2002
8	0-10 scale, 0 being most severe controversy
9	Leadership as defined by rating agencies
10	Pharmaceuticals subindustry group: traditional Pharma, excl. Biotech
11	CDP considers companies with A and A- in Leadership position. Companies across industries in A list: 277 for Climate and 106 for Water
12	Based on Industry adjusted score of MSCI >25bn Pharmaceuticals group

Highest unmet needs in healthcare

1	Access to Medicine Foundation
2	https://www.cdc.gov/healthequity/lcod/men/2017/nonhispanic-black/index.htm
3	COVID Tracking Project and the Boston University Center for Antiracist Research. https://covidtracking.com/race
4	Global epidemiology of sickle haemoglobin in neonates: a contemporary geostatistical model-based map and population estimates. Piel FB, Patil AP, Howes RE, Nyangiri OA, Gething PW, Dewi M, Temperley WH, Williams TN, Weatherall DJ, Hay SI. Lancet. 2013 Jan 12; 381(9861):142-51.
5	https://www.who.int/en/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds)
6	https://www.who.int/news-room/fact-sheets/detail/malaria
7	https://www.who.int/news-room/fact-sheets/detail/dengue-and-severe-dengue



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Access Principles in practice: Emerging Market Brands

LMICs represents 152 countries defined as low-income economies and lower-middle-income economies as per the World Bank definition as well as selected high income and upper middle-income economies with high income disparity Strategic Innovative Therapies (SITs) refers to a selection of key innovative medicines made available by our Innovative Medicines division that are approved as SITs by a competent member of the Executive Committee, based on factors such as patient impact, commercial viability, innovative standing and other factors. EMBs reflect a commercial access strategy used to drive affordability, expand patient reach in LMICs. SITs may be marketed under different EMBs in LMICs

- 1 Launched in India, 1 month ahead of first European country launch

Address unresolved global health challenges

- 1 <https://www.who.int/news-room/fact-sheets/detail/malaria>
- 2 <http://www.scdfc.org/who-is-affected.html>
- 3 [https://www.who.int/news-room/fact-sheets/detail/chagas-disease-\(american-trypanosomiasis\)](https://www.who.int/news-room/fact-sheets/detail/chagas-disease-(american-trypanosomiasis))
- 4 <https://www.who.int/news-room/fact-sheets/detail/leprosy>

Therapeutics to prepare for future pandemics

- 1 Designed Ankyrin Repeat Protein
- 2 EMPATHY trial: Outpatient treatment (high risk/care homes); ACTIV-3 trial: Hospitalized patients (mild/moderate)
- 3 Preclinical data shows capable of binding to all known variants of concern, neutralization potencies against the circulating variants B.1.1.7 (UK variant), B.1.351 (South African variant), P.1 (Brazilian variant), B.1.459 (South Californian variant), and B.1.526 (New York variant). Strong evidence that ensovibep also potently neutralizes the two Indian variants B.1.617 and B.1.618.