BOSTON CONSULTING GROUP

Healthcare after Covid-19: perspectives and developments

Brief Perspective

AMCHAM WALK THE TALK, APRIL 29TH 2020

AMERICAN CHAMBER OF COMMERCE IN ITALY
ORGANIZED 1915

The perfect storm: Several trends were (and are) impacting the Healthcare sector

Demographic trends

- Growth of old-aged population
- Growth in chronic and lifestyle diseases
- Growth in oncology
- Rise of emerging markets
- Global pandemic risks

Technology trends

- Digital as disruptor
- Personalized medicine
- Increased regulatory & quality hurdles
- Increase of sterile liquids forms

Economic trends

- Valuation drivers changing
- Industry consolidation
- Commoditization of mature technologies
- Focus on patient outcomes
- Different role of incremental innovation
- Accelerating pace of change

Consumer Trends

- Rise in health awareness & prevention
- Rise in cash pay HC spending (OOP/ OTC)
- Rising value of brands
- New go-to-market models

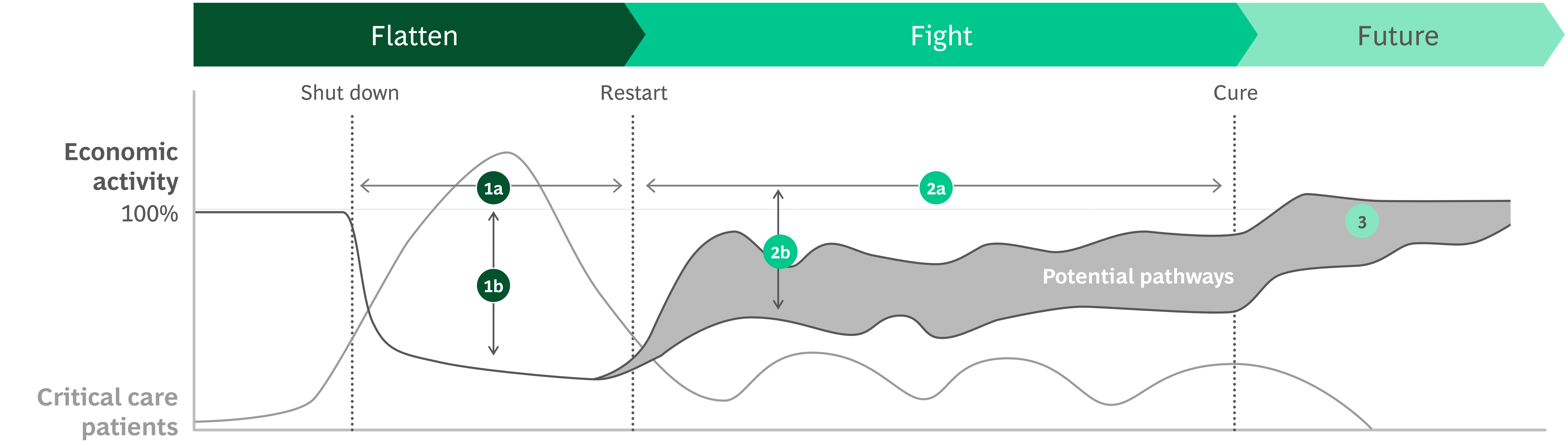
Policy & social trends

- Healthcare cost containment
- Rise in inequality & two-class medicine
- Challenge of pharma prices and profits
- Focus on sustainability
- Push for access to medicines/CSR

COVID-19 impact: Scenarios and potential outcomes driven by five key questions

As of 24 April 2020

Illustrative



Five questions will shape the economic outcomes

1a **What will be the LENGTH of "Flatten"?** What are the preconditions to transition? When will we achieve them?	**2a** **What will be the LENGTH of "Fight"?** What are the preconditions to transition? When will we achieve them?
1b **To what DEPTH does the economy drop in "Flatten"?**	**2b** **What LEVEL of recovery does the economy achieve in "Fight"?**

3 **Where does the economy return to relative to the pre-COVID era in "Future"?**

Source: BCG

COVID-19 impact: 'Flatten': Economic impact depends on LENGTH of suppression and DEPTH of economic drop

As of 24 April 2020

US (**Preliminary figures**)

Annualized economic impact[1] (in % of USD/year)
Scenario and impact outcome differs based on geography and industry

1b **Depth of economic drop in 'Flatten'** (weekly economic loss as a % of USD/week)

1a **Length of 'Flatten'** (in weeks)

	W2 May[2] *(7 weeks)*	**W1 June**[2] *(10 weeks)*	**W4 June**[2] *(13 weeks)*
15-20% loss	2-3%	3-4%	3-5%
20-25% loss	2-4%	3-5%	5-7%
25-30% loss	3-4%	4-6%	6-8%

1. % in matrix indicate the annualized economic loss (as a % of USD/year) that occurs for a combination of the weekly economic loss (as a % of USD/week) and the length of the suppression period (in weeks). Lower end of ranges rounded down and upper end of ranges rounded up to reflect uncertainty. 2. Lockdown duration scenarios based on empirically observed 4-8 weeks from peak infection. Does not reflect impact from peak infection rate, local healthcare capacity, local testing/monitoring capability or local government policies.

COVID-19 impact: The healthcare sector is considered to be more resilient versus the other sectors

As of 22 April 2020

Order of sectors reflects economic scenario and consumer sentiment

	TSR performance[1]	Americas		Europe		Asia	
		21 Feb '20 - 20 Mar '20	21 Feb '20 - 22 Apr '20	21 Feb '20 - 20 Mar '20	21 Feb '20 - 22 Apr '20	21 Feb '20 - 20 Mar '20	21 Feb '20 - 22 Apr '20
Healthier sectors	Food/staples Retail	-10%	-3%	-15%	-12%	-8%	-10%
	Pharma	-19%	1%	-20%	-5%	-22%	-1%
	Household Products	-19%	-6%	-16%	-8%	-5%	5%
	Telecom	-17%	-11%	-20%	-19%	-14%	-6%
	Semiconductors	-30%	-10%	-43%	-24%	-27%	-17%
Pressured sectors	Food & Beverage	-26%	-14%	-24%	-17%	-12%	-3%
	Utilities	-33%	-17%	-30%	-28%	-6%	7%
	Health Equipment	-33%	-14%	-31%	-15%	-11%	-4%
	Software	-30%	-14%	-32%	-22%	-28%	-16%
	Tech Hardware	-29%	-17%	-25%	-11%	-23%	-18%
	Prof. Services	-30%	-21%	-29%	-21%	-31%	-23%
	Materials	-34%	-20%	-31%	-19%	-30%	-23%
	Retailing	-42%	-28%	-36%	-29%	-24%	-8%
	Capital Goods	-38%	-24%	-35%	-27%	-29%	-23%
	Financials	-36%	-22%	-35%	-25%	-19%	-12%
Vulnerable sectors	Transport	-37%	-25%	-38%	-33%	-13%	-14%
	Media	-36%	-24%	-47%	-42%	-14%	0%
	Insurance	-42%	-34%	-40%	-32%	-27%	-19%
	Hospitality	-44%	-30%	-47%	-37%	-23%	-17%
	Banks	-41%	-37%	-44%	-47%	-26%	-23%
	Real Estate	-42%	-33%	-26%	-22%	-22%	-11%
	Auto	-47%	-38%	-45%	-35%	-32%	-25%
	Durable Goods	-49%	-38%	-32%	-23%	-21%	-14%
	Energy	-57%	-43%	-45%	-30%	-41%	-31%

Observations

Non-discretionary/essential service less hit but still had recovery

Broad set of industries experiencing pressure, with some regions particularly affected for certain sectors

Utilities and health equipment generally better off in Asia

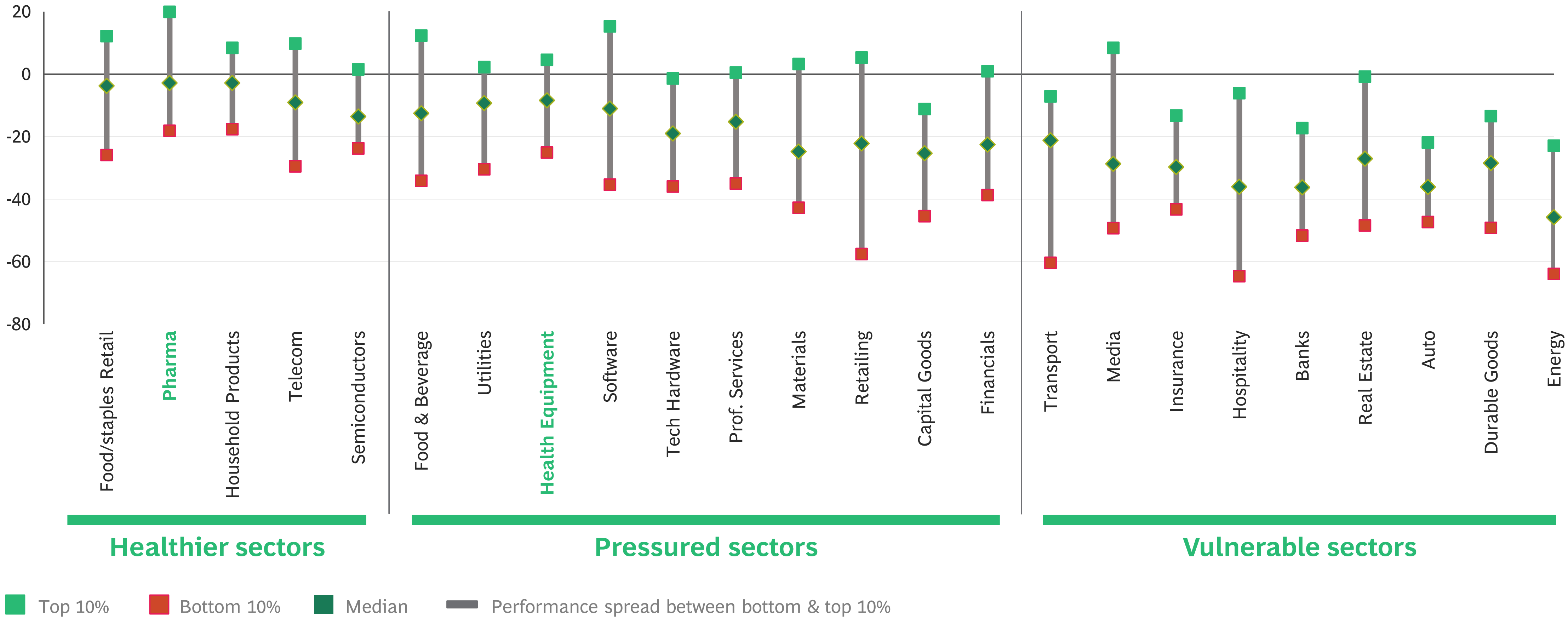
Hardest hit sectors had some recoveries but still performing way below 21 Feb 2020 levels

Note: Based on top S&P Global 1200 companies; Industries are based on GICS definitions 1. Performance is tracked for two periods, first from 21 February 2020 (before international acceleration of outbreak) to 20 March 2020 (trough of the market) and from 21 February 2020 through 22 April 2020
Source: S&P Capital IQ; BCG ValueScience® Center; BCG

COVID-19 impact: While all sectors are affected by the downturn, some companies emerge as winners within each sector

As of 22 April 2020

Year-to-date shareholder return in % per sector



Note: Data as of 22 April 2020; Sectors are based on GICS definitions; Companies sampled from S&P Global 1200

Source: S&P Capital IQ; BCG ValueScience® Center

We believe that Covid-19 will bring **further acceleration** to the trends affecting the sector

1. **Digital:** Breakthroughs on multiple fronts (field forces, patient journey) are expected
2. **Infrastructures:** Upgrades needed (primary care, strategic reserves) will foster innovation
3. **Payers:** Private health insurance will increase importance next to the public system
4. **Sustainability:** Clearer company purposes will accelerate to create Total Societal Impact
5. **Products:** Product categories like antivirals/ vaccines, ventilators/ DPI into the spotlight
6. **Focus on value:** Value assessment as the key criteria to recover accumulated backlog

Leading companies moving to a data-driven, more digitized commercial model

	From…	To:
Personalized messaging / microsegment campaigns	Broad, general messages, often one-sized-fits-all, designed for broadest pool of customers	Personalized messaging using predictive analytics, with individual content tailored to microsegments (ideally segments of one)
Content & Campaign Mgmt.	Multiple, individually created marketing campaigns, which may not be cohesively integrated	Cohesively combined marketing campaigns, based on recurring overarching messaging, which fit seamlessly into one another
Dynamic multichannel orchestration	Full exposure of customers to all available channels, regardless of individual preferences	Real-time, dynamic multichannel optimization based on predicted RoI of specific combinations of commercial tactics / messages against HCP types
Precision targeting & segmentation	Targeting based on traditional analyses of historical RXing data, leveraging 30-yr old methodologies	AI-driven segmentation and adaptive call plans, predicting likelihood of Rx behavior, based on HCP characteristics and physician network influence
Next-best-action engines	Pre-defined multichannel campaigns, not differentiating by customer segment or preferences	ML-based 'Next best action' engines, identifying tactically optimal engagement plans for individual customers

Implementation of fully data-driven and digitized commercial model can yield top line impacts of 10-15%

Source: BCG

There are opportunities on all the 6 dimensions of Total societal impact for company with purpose

- **Global Economic Value** (economic incentives alignment between payers and BiopharmaCos)

- **Access to Healthcare**, i.e. **availability** (incl. developing healthcare infrastructure) & **affordability**

- **Local communities enablement** (Capacity building of local providers[1]; Education and awareness building)

- **Carbon footprint** across supply chain
- **Pharmaceuticals in the environment**
- **Resource Management**

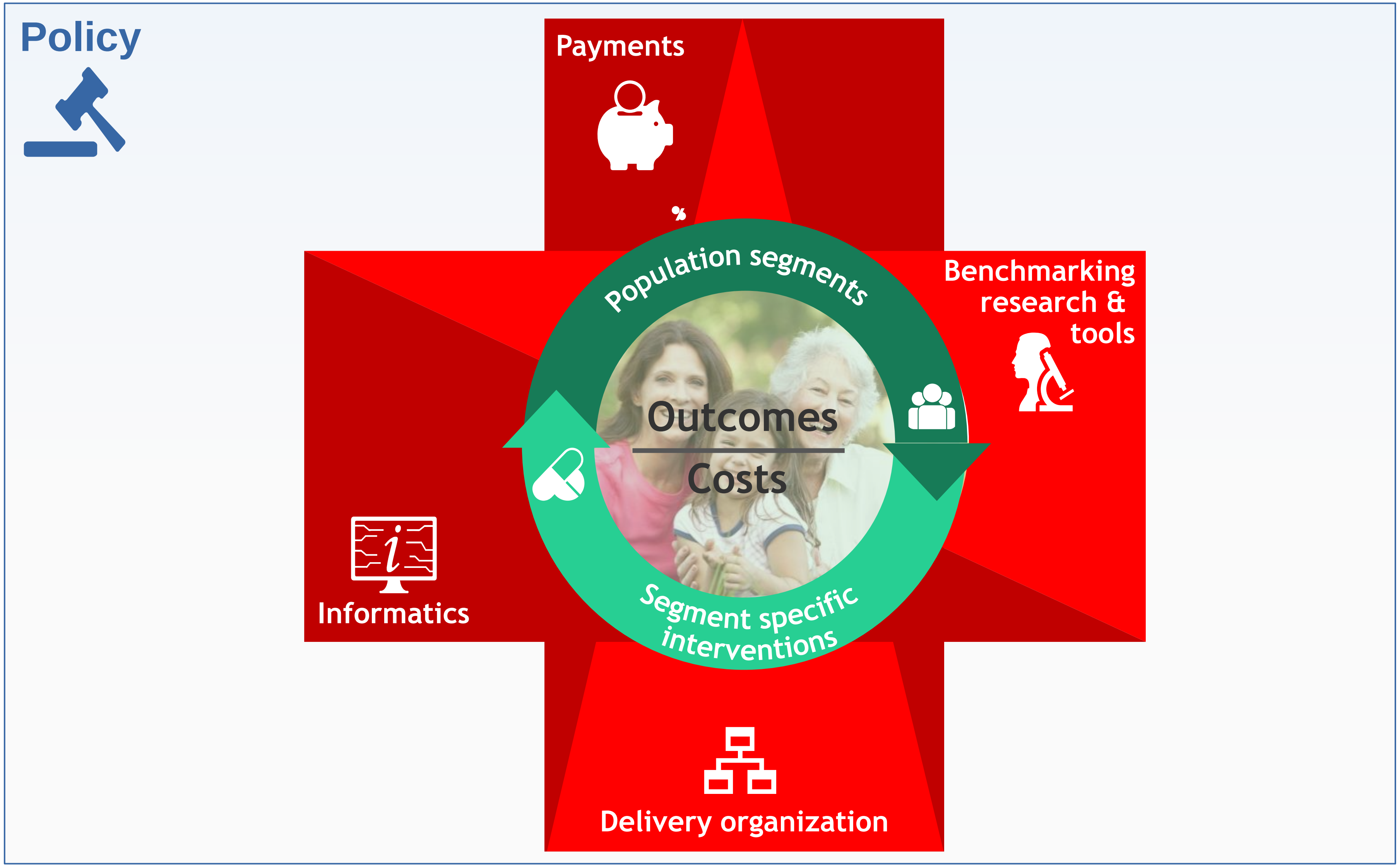
- Patient's **well-being** (Product's safety; Enablement; Lifestyle improvement)

- **Clinical trials** (incl. animal testing)
- **Ethical Business Practices**
- Responsible **supply chain** (incl. health & safety)

1. Local provider being, e.g., physicians, wholesalers, hospitals, pharmacies

WORLD ECONOMIC FORUM
COMMITTED TO IMPROVING THE STATE OF THE WORLD

Outcome measurement at the centre of the Value Based Healthcare



Disclaimer

The services and materials provided by Boston Consulting Group (BCG) are subject to BCG's Standard Terms (a copy of which is available upon request) or such other agreement as may have been previously executed by BCG. BCG does not provide legal, accounting, or tax advice. The Client is responsible for obtaining independent advice concerning these matters. This advice may affect the guidance given by BCG. Further, BCG has made no undertaking to update these materials after the date hereof, notwithstanding that such information may become outdated or inaccurate.

The materials contained in this presentation are designed for the sole use by the board of directors or senior management of the Client and solely for the limited purposes described in the presentation. The materials shall not be copied or given to any person or entity other than the Client (“Third Party”) without the prior written consent of BCG. These materials serve only as the focus for discussion; they are incomplete without the accompanying oral commentary and may not be relied on as a stand-alone document. Further, Third Parties may not, and it is unreasonable for any Third Party to, rely on these materials for any purpose whatsoever. To the fullest extent permitted by law (and except to the extent otherwise agreed in a signed writing by BCG), BCG shall have no liability whatsoever to any Third Party, and any Third Party hereby waives any rights and claims it may have at any time against BCG with regard to the services, this presentation, or other materials, including the accuracy or completeness thereof. Receipt and review of this document shall be deemed agreement with and consideration for the foregoing.

BCG does not provide fairness opinions or valuations of market transactions, and these materials should not be relied on or construed as such. Further, the financial evaluations, projected market and financial information, and conclusions contained in these materials are based upon standard valuation methodologies, are not definitive forecasts, and are not guaranteed by BCG. BCG has used public and/or confidential data and assumptions provided to BCG by the Client. BCG has not independently verified the data and assumptions used in these analyses. Changes in the underlying data or operating assumptions will clearly impact the analyses and conclusions.

BOSTON
CONSULTING
GROUP

bcg.com