

A decorative graphic on the left side of the page features a dark grey background with a grid of small, semi-transparent teal and green squares. A curved line of these squares arcs from the top left towards the center. Below this, there are several overlapping circles of varying sizes and shades of teal and green, some with white outlines, and thin white lines connecting some of them.

COVID-19

BCG Perspectives

Facts, scenarios, and actions for leaders

Publication #4 with a focus on
Accelerating Digital & Technology Transformation

Version: 1 May 2020

COVID-19 BCG Perspectives

Objectives of this document

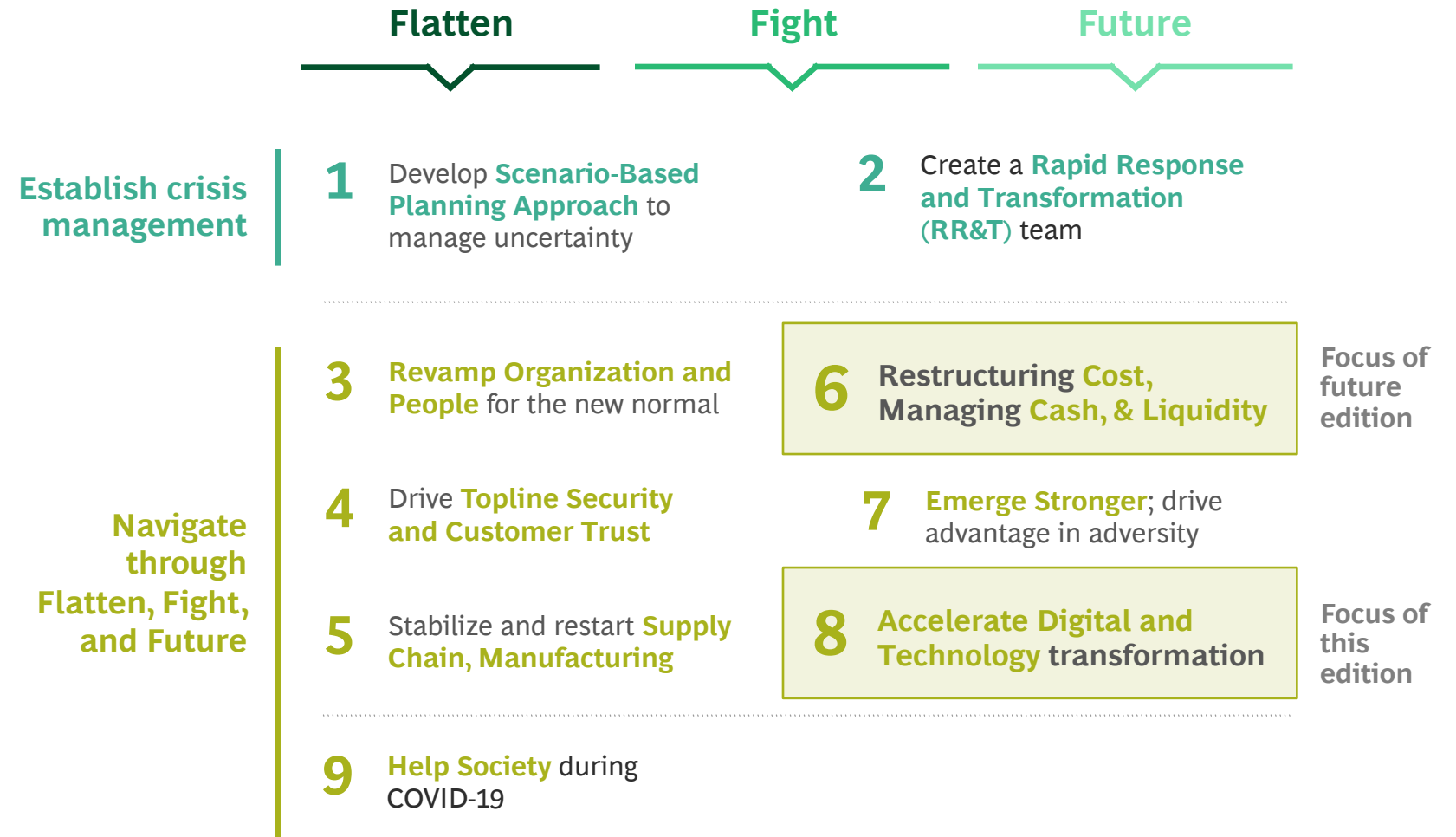
COVID-19 is a global societal crisis

We at BCG believe that the COVID-19 outbreak is first and foremost a societal crisis, threatening lives and the wellbeing of our global community. Society now, more than ever, needs to collaborate to protect people's lives and health, manage mid-term implications, and search for lasting solutions.

Leaders need to drive an integrated response to navigate the crisis

It is the duty of health, political, societal, and business leaders to navigate through this crisis. A complex interplay of epidemic progression, medical response, government action, sector impact, and company action is playing out. This document intends to help leaders find answers and shape opinions to navigate the crisis in their own environments. It encourages thinking across the multiple time horizons over which we see the crisis manifesting itself.

9 action areas for business leaders



Note: RR&T = Rapid Response and Transformation Team
Source: BCG

Executive Summary | COVID-19 BCG Perspectives

Several countries are currently flattening the curve and all need to be actively ensuring containment

- Globally, about 30% of COVID-19 patients have recovered; case doubling rate improved to 25 days
- Many countries are flattening disease spread curve (i.e. doubling rate > 14 days); risk of resurgence looms, but actions being taken to proactively manage
- Governments are monitoring the situation using multiple means, incl. digital technologies; choices depend on privacy and security considerations

Significant impact on economy, sectors, and business; consumers moving online drives need for accelerated digitization

- Flatten: Shut-down of 'non-essential' activities can put estimated 10-30% of economic activity and 15-35% of jobs at risk temporarily¹ (GER, FR, IT, ES, US)
- Fight: 5-20% of economic activity and 5-20% of jobs can be temporarily¹ at risk— implying protracted economic challenges (GER, FR, IT, ES; US)
- Accelerated movement toward vaccine or treatment at scale could limit Fight phase to 12-24 months
- Economic forecasts indicate significant downturn in 2020; global rebound to pre-COVID levels not expected before 2021
- One-third of consumers plan to increase online spending, especially those living in most affected and urban areas
- Crisis expedites urgency of digital transformation—"more urgent priority" for >75% of companies across industries

COVID-19 crisis may become a step-change moment for digital, together with restructuring efforts across industries

- Many of the behavior shifts we are seeing today are expected to persist beyond the crisis; a huge uptick in digital activities is seen across all industries
- CEOs need to navigate digital imperatives to address near term response to crisis and mid-term resilience

We believe during this crisis leaders need to think along two dimensions:

1

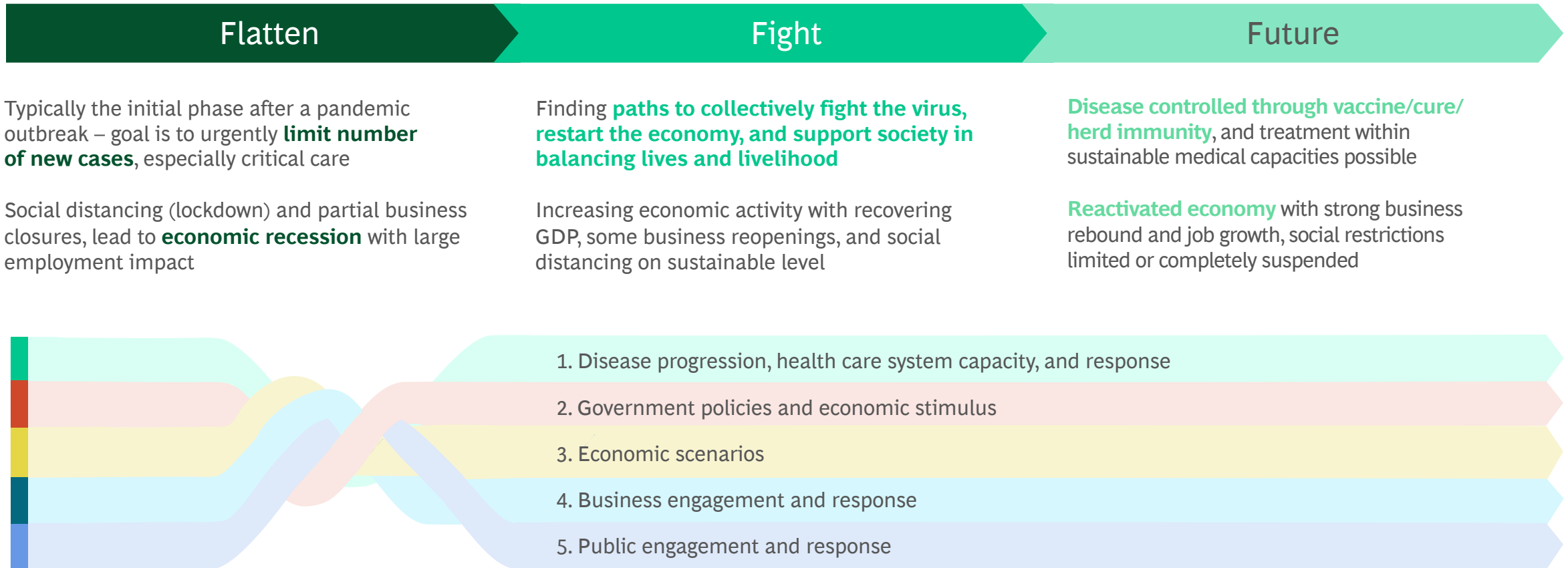
Taking an integrated perspective on health/medical progression, governmental responses, societal reactions, and economic implications to understand business/sector impacts

2

Thinking multi-timescale in a flatten-fight-future logic

1. Impact only for duration of specific phase (Flatten and Fight). Only accounting for first order effects of microeconomic data and subject to change, e.g. as governments act
Source: BCG

COVID-19 will be a journey with three distinct phases requiring an integrated perspective



All of the above five factors result in specific economic and social outcomes in each phase



1

Guide for leaders

Fresh insights: messages for leaders

This week's focus: how to accelerate Digital & Technology transformation

2

Updated epidemic, economic, and business scenarios and impact

Preconditions for restart

Economic impact

Business impact

3

Appendix: Detailed action areas and further readings

Detailed action areas for business leaders

Further readings

What is happening around the world

From 24 to 30 April 2020



Russia's Coronavirus Cases Surpass China's in Latest One-Day Surge



China aims to launch the world's first official digital currency

Little by little, the central bank will acquire more power to track how money is used



Leaders across Europe prepare to ease lockdown

France, Spain and Italy to outline exit plans as the spread of coronavirus in their countries slows



European Commission Launches Big Data Hub for COVID-19 Research



Mint Covid Tracker: India's corona trajectory slowing, with cases doubling in eleven days



Wuhan restarts: Positive trends in the city's recovery



Cuomo Announces Phased Plan to Reopen New York; Deaths Drop

- ▶ Construction and manufacturing would be first to reopen
- ▶ New fatalities dropped to 367, the lowest since March 31

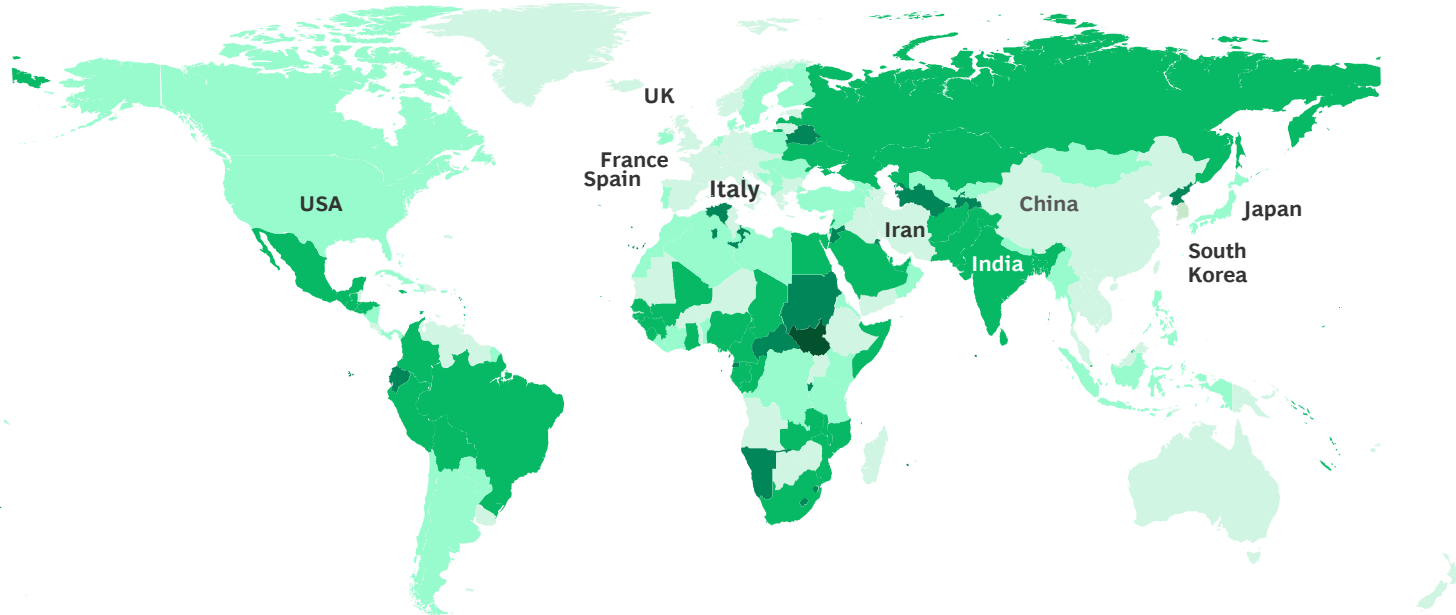


Covid safe: Australian government launches coronavirus tracing app amid lingering privacy concerns

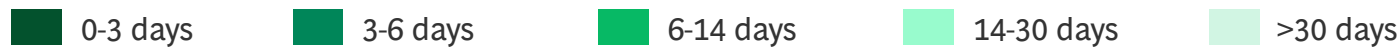
The Covidsafe tracking app is part of the government's strategy to identify, trace and isolate as it looks at life beyond physical distance restrictions

Disease Progression | ~30% reported recoveries¹ globally so far; case doubling rate improves to 25 days

As of 29 April 2020



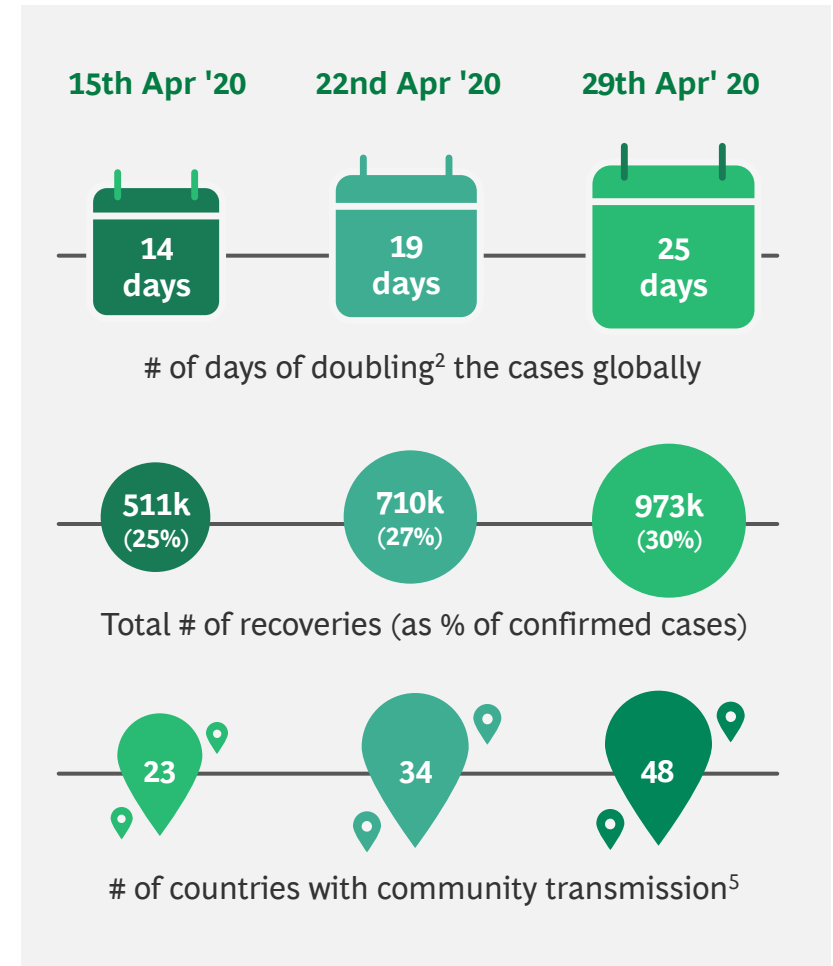
Days of doubling cases:



183
Countries with cases³

3.2M [$\Delta 3\%$]⁴
Confirmed cases globally

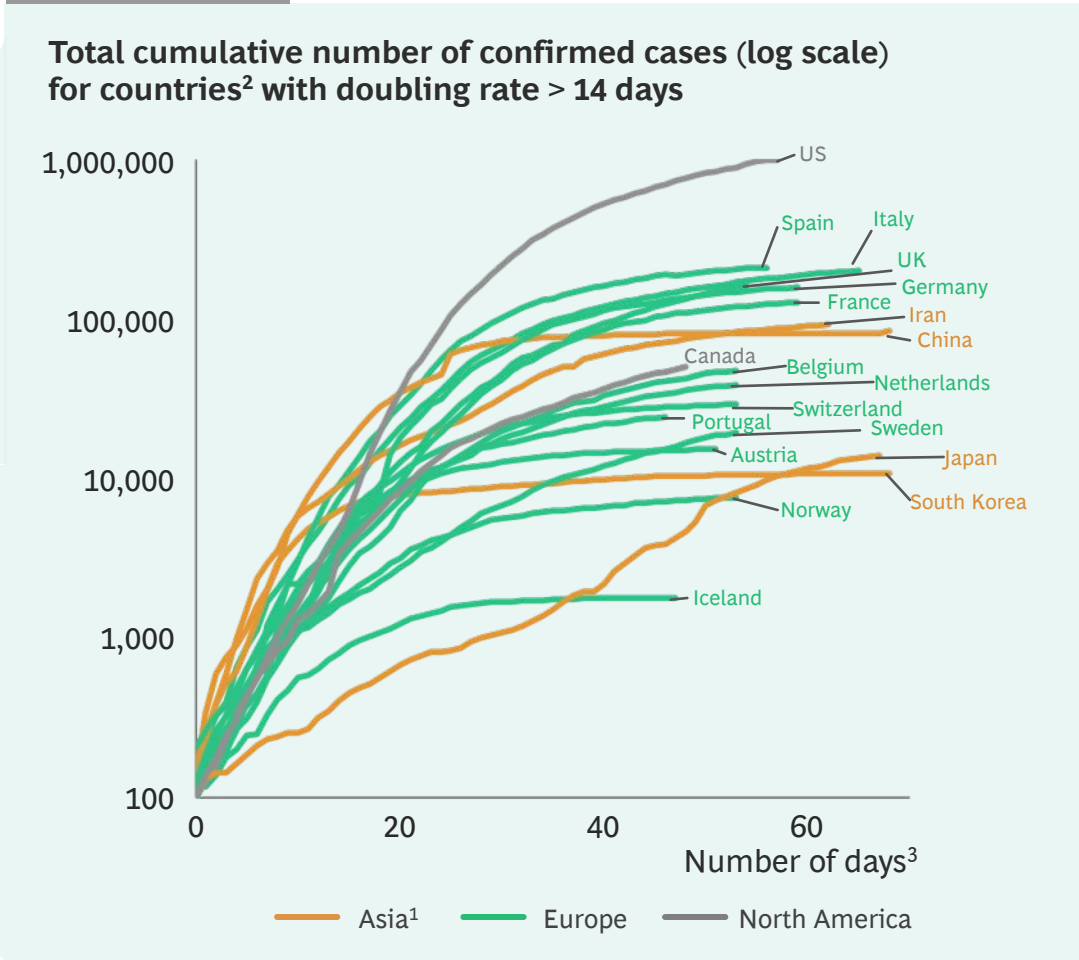
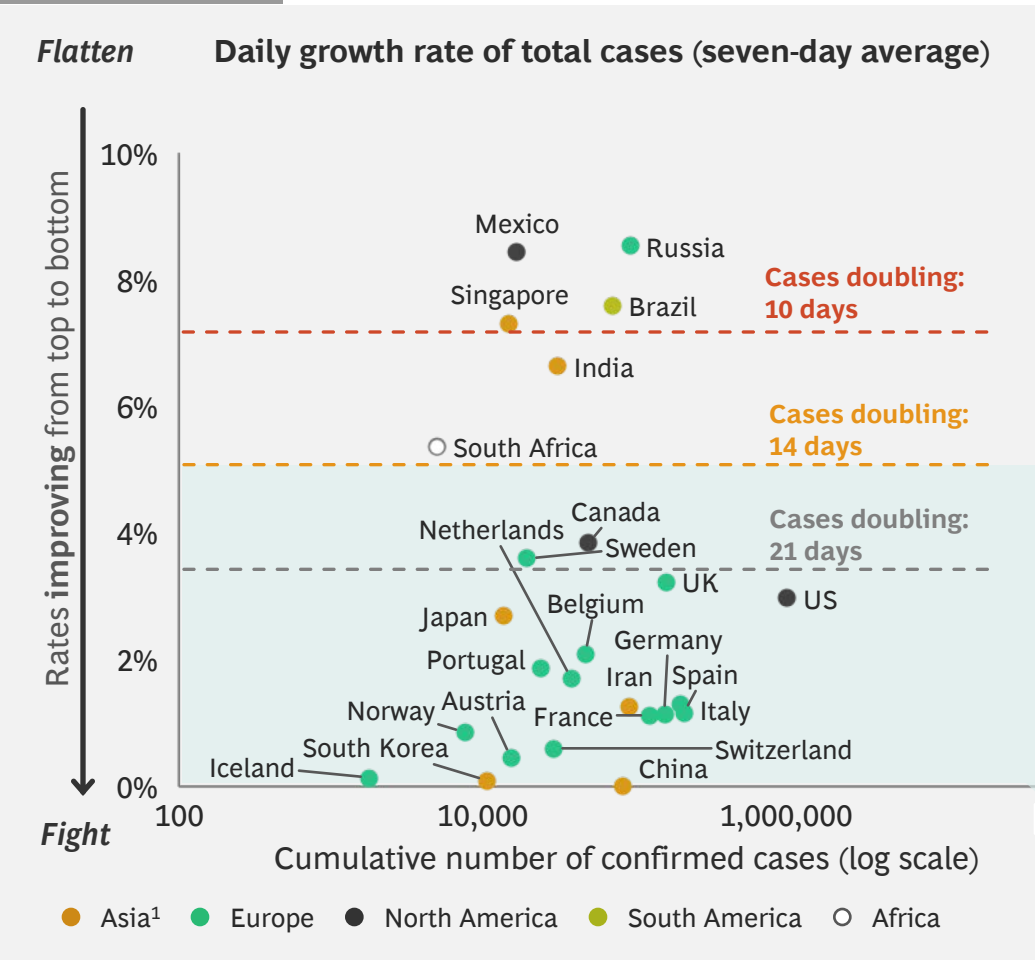
228k [$\Delta 3\%$]⁴
Fatalities globally



Note: Continued cases and fatalities are subject to different testing, propensity, reporting standards and hence imperfect measures
 1. Refers to total reported recoveries as a percentage of total reported infections (cases) 2. No. of doubling days based on 7 day CAGR 3. Basis Johns Hopkins CSSE 4. Daily growth rate basis 7 day CAGR 5. Community transmission defined basis WHO - countries experiencing larger outbreaks of local transmission on basis of decided factors
 Source: Johns Hopkins CSSE, Our world in data, WHO situation reports, BCG analysis

Disease Progression | Many countries are flattening the curve

As of 29 April 2020



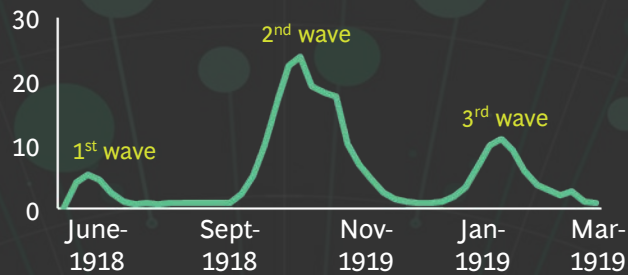
1. Includes Middle East 2. Countries selected from the chart on the left 3. # of days after exceeding 100 confirmed cases
 Source: Johns Hopkins CSSE, Our World in data, WHO situation reports

Disease Progression | Risk of resurgence but actions being taken

Previous pandemics like MERS and the Spanish Flu had disease resurgence two or three times

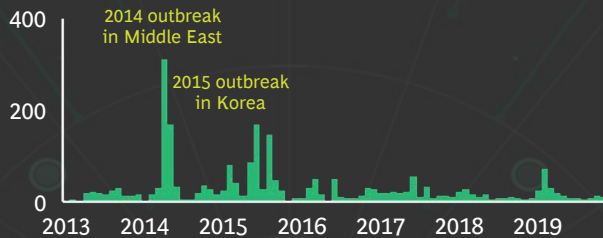
Spanish Flu

UK Deaths per 1,000 persons



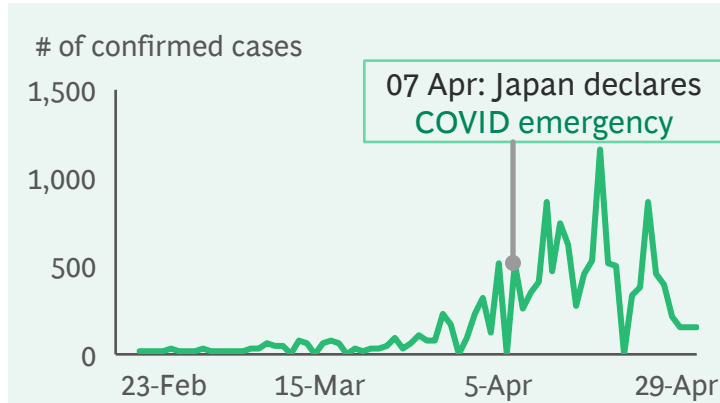
MERS

Number of monthly cases worldwide



As of 29 April 2020

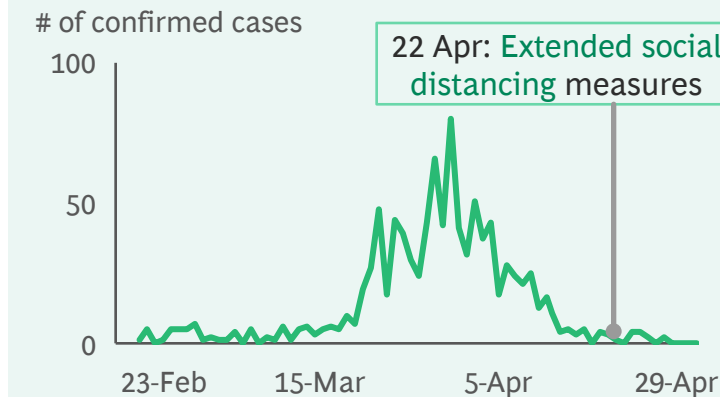
Daily infections by country



Measures to curtail resurgence

Japan

- Employers to reduce the number of employees in workplaces by 70%
- Facilities housing education, exercise, exhibitions, and recreation have been asked to close
- 14 countries added to entry-ban list (in addition to 70+ countries); restrictions extended to end of May



Hong Kong

- Ban on gatherings of 4+ people extended to 7 May; fines up to \$25k for violators
- Closure of bars, pubs, gyms, leisure, and outdoor activities until 7 May
- Extension of immigration restrictions (14 days' compulsory quarantine) by 1 month to 7 June

Government Response | Widespread use of digital technologies in crisis response; choices depend on privacy and security considerations

As of 29 April 2020

Non-exhaustive list

Detect

Use of technologies (IoT, Analytics, Robotics, Imaging) to aid detection of cases based on physical symptoms, history

China

Smart robot patrols

UK

C-19 symptom tracker

Vietnam

NCOVI health monitoring

Alert

Use of communication tech (Chat-bots, Webpages) to share information including disease alerts, treatment, and testing centers

Australia

Coronavirus Australia app

Singapore

FluGoWhere website

UK

GOV.UK Notify portal

Track & Trace

Use of modern computing (GPS, Bluetooth) to trace contact with patients/high-risk individuals

South Korea

Corona 100m app

India

Aarogya Setu app

Australia

COVIDSafe app

Deep dive on next page

Community Support

Coming together of the community (individuals, local groups, organizations and scientific community) on crisis response

Ireland

MyWelfare portal

Singapore

MaskGoWhere portal

USA

COVID-19 high performance computing consortium

Collaboration

Use of technologies (AI, Big Data, Performance Computing) to enable collaboration across boundaries

USA

AI enabled research dataset

EU

Big data hub for R&D

South Korea

AI-enabled testing kit development

Select examples

Source: BCG

Virus monitoring solutions

Government Response | Australia example—a privacy centric approach used to design the Track & Trace solution

COVIDSafe Australia's contact tracing solution



Key features

Voluntary use only

Limited data captured¹

Stored on app for 21 days only²

Double **consent required** before sharing

APIs³ from Google and Apple **not leveraged**

As of 29 April 2020

Will **use** of the application be mandatory or optional?

Optional

Mandatory

Will the application record any **location data**?

No location data recorded

Location data recorded

What **personal information** will be collected by the app?

Phone number only

Phone num. & basic data

Phone number & detailed data⁴

Where will the **data be stored**?

Local on device

Hybrid

Cloud

Who will **decide to upload** the data?

Citizen makes decision to upload data

Data uploaded automatically

How will potentially exposed citizens be **notified**?

Manually via phone call

Automatically via SMS or In App Notification

1. Name, age range, postcode, mobile number 2. Bluetooth, with anonymous reference identifiers
3. Application Programming Interface 4. For example DOB, address and/or travel history in addition to basic demographics
Source: Publicly available media and government websites

Government Response | South Korea example—focus on building a connected and comprehensive track and trace solution

As of 29 April 2020

Smartphone app

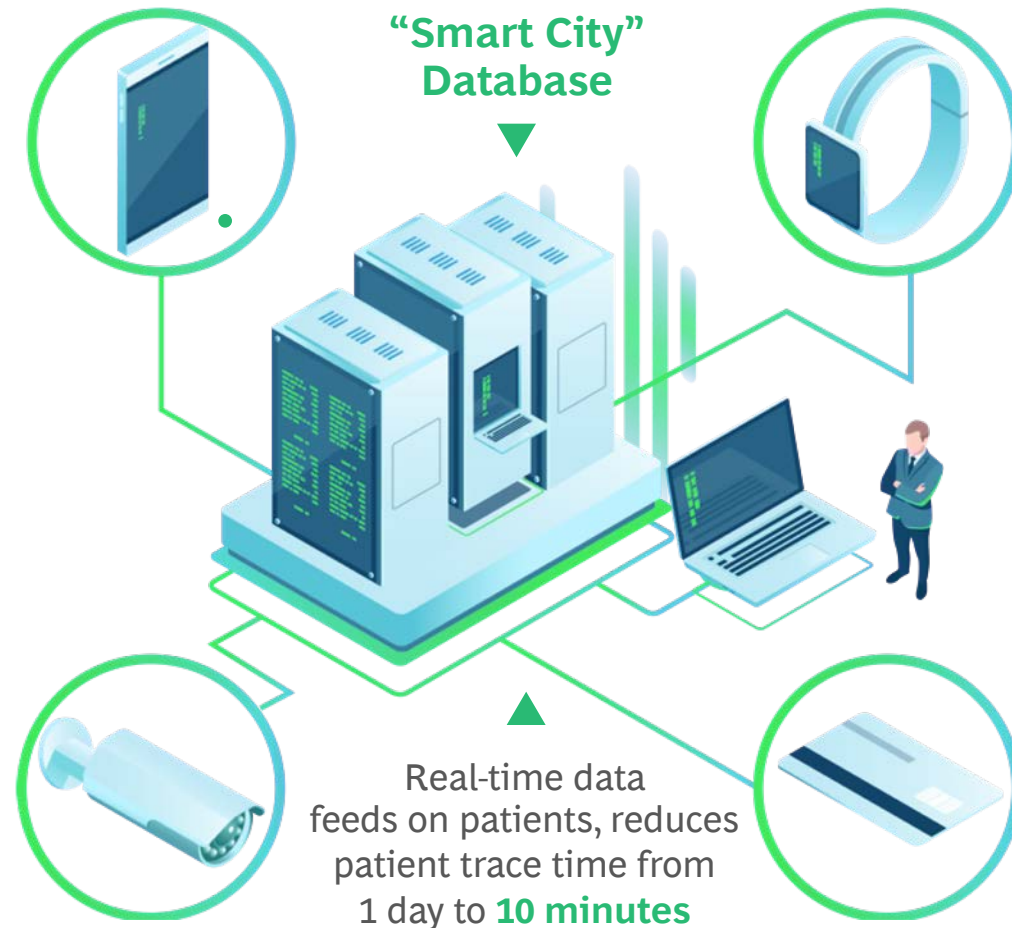
GPS tracking and location-based alert¹

Enables symptom reporting and contact with case workers

Video surveillance

CCTV cameras enable contact identification

High density of tracking: **1 camera per 6.3 people**



Tracking wristbands

Connects to apps via Bluetooth

Alerts officials if person leaves the home or destroys the band

Credit card transactions

System tracks movements based on credit card transaction data

Data submitted by **22 credit card** operators in 10 minutes

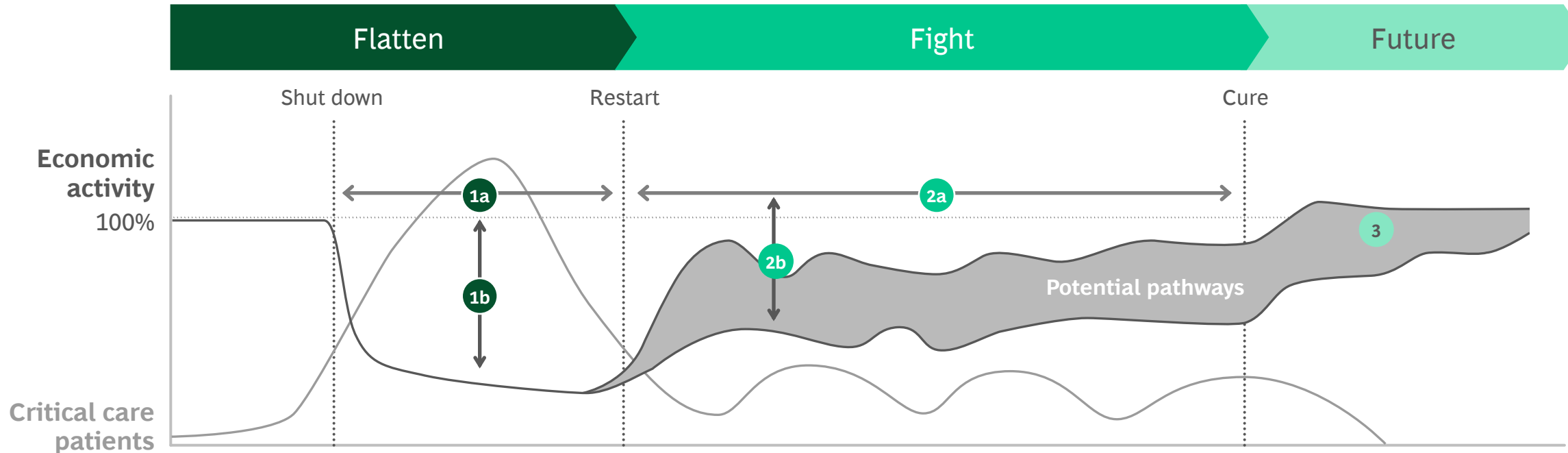
1.Travel history in addition to demographics and phone number

Source: Reuters: Ahead of the curve: South Korea's evolving strategy to prevent a coronavirus resurgence, 15 April 2020; The Straits Times: Coronavirus: South Korea to strap tracking wristbands on those who violate quarantine orders, 11 April 2020; The Korea Herald: South Korea's best method of tracking COVID-19 spread: credit card transactions, 9 April 2020; The Conversation: Coronavirus: South Korea's success in controlling disease is due to its acceptance of surveillance, 16 April 2020; App Annie data base; Google Play store; Press research, BCG

Scenarios and potential outcomes | Five key questions

As of 29 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?

1b To what **DEPTH** does the economy drop in "Flatten"?

2a What will be the **LENGTH** of "Fight"?
What are the preconditions to transition?
When will we achieve them?

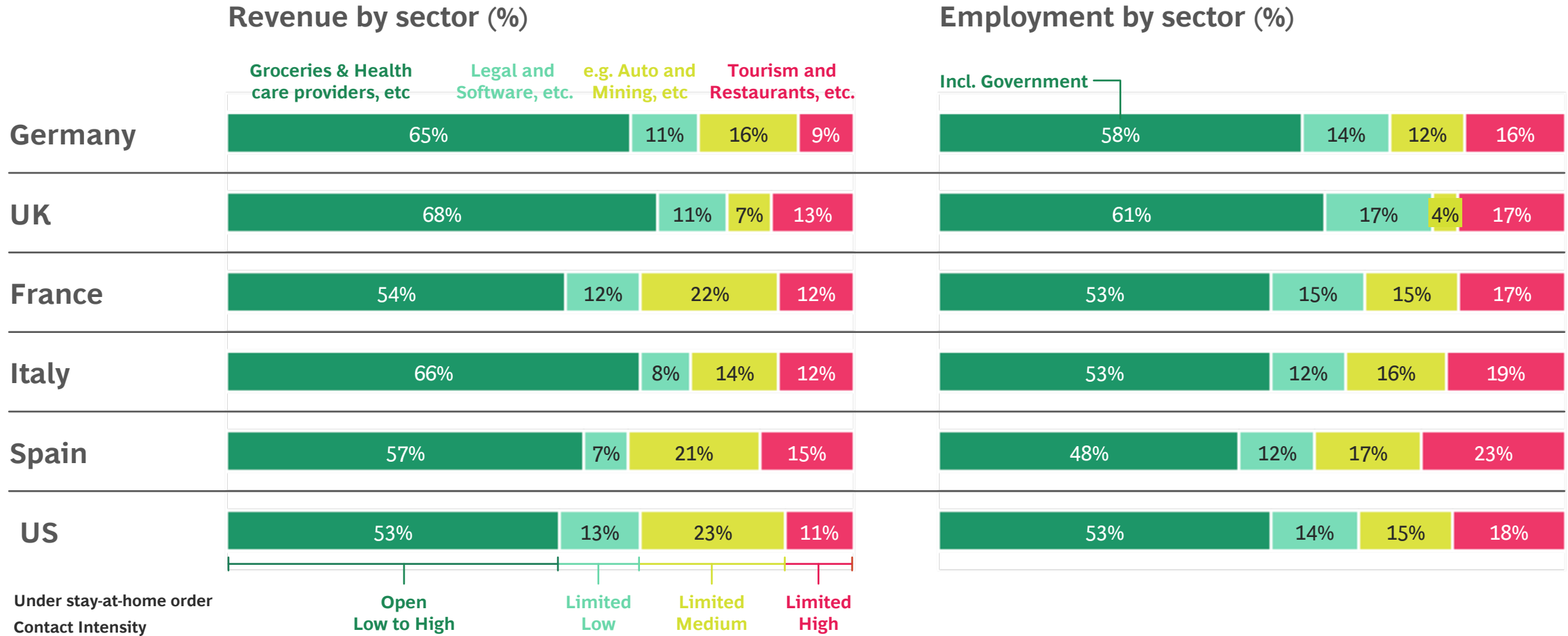
2b What **LEVEL** of recovery does the economy achieve in "Fight"?

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

Economic starting point | Understanding of countries' sector composition critical to estimate direct negative impact of reduced contact

As of 27 April 2020

Preliminary figures



Government employment does not include health care in EU countries to maintain comparison with US

1. European figures reflect gross output by sector, which is analogous to revenue by sector. US figures directly reflect revenue by sector.

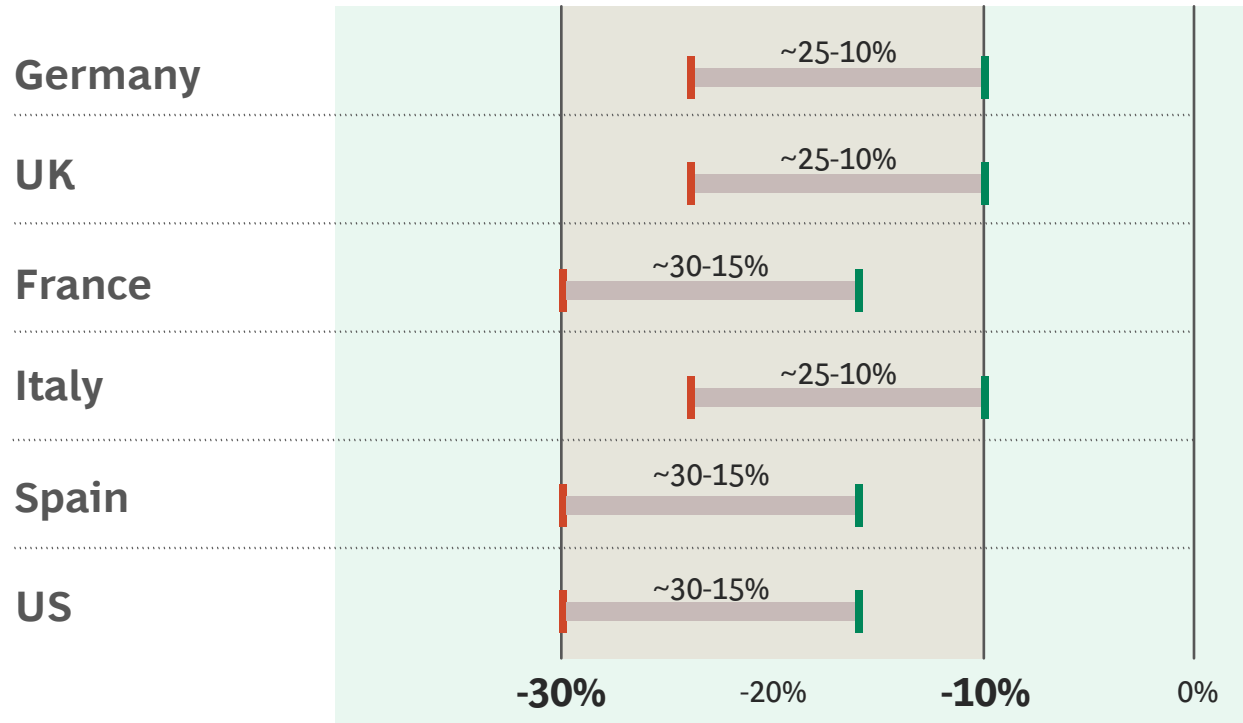
Source: Eurostat Database; St. Louis Fed Reserve; O*NET; American Community Survey; other country-specific sources available on request; BCG COVID response teams; BCG Analysis

Impact during 'Flatten' | Shutdown of 'non-essential' activities can put estimated 10-30% of economic activity and 15-35% of jobs temporarily at risk

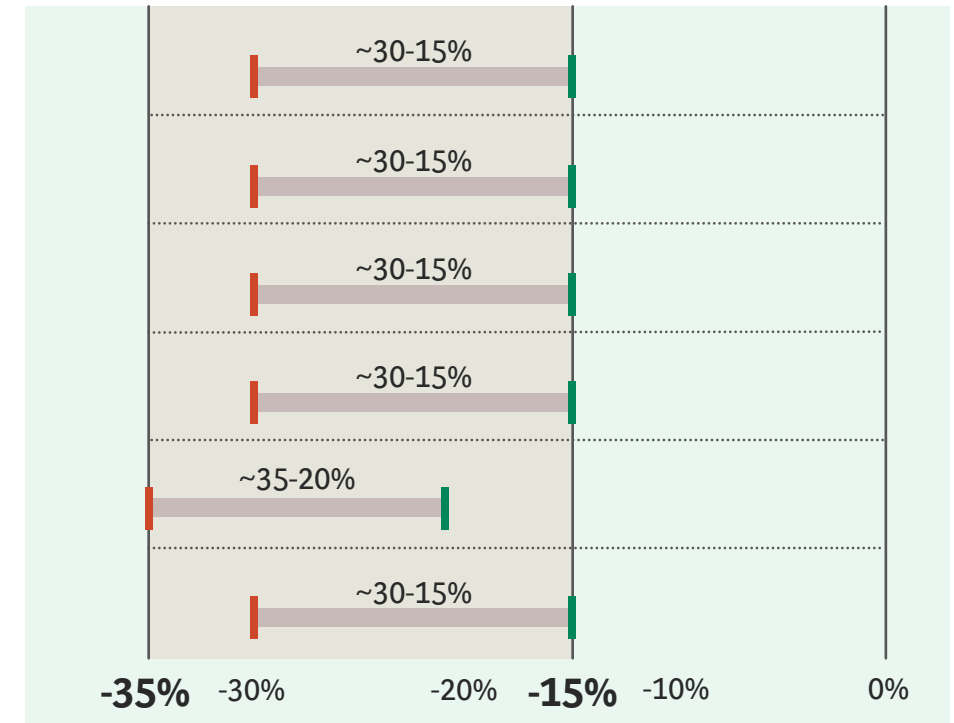
As of 27 April 2020

Preliminary figures – ONLY first order effect of microeconomic data during Flatten phase. Economic impact also depends on length of suppression.

Impaired economic activity¹ during 'Flatten' phase Estimation in private sector relative to pre-COVID in %



Impacted employment during 'Flatten' phase Estimation across the economy in %



Disclaimer: These analyses represent only potential scenarios based on discrete data from one point in time. They are **not intended as a prediction or forecast** and the **situation is changing daily**. Figures shown only reflect economic activity "directly displaced" by effect of virus. However, **multi-order impacts and the impact of government spending and stimulus not considered**

■ Max of estimated range (i.e. period hardest hit by the lockdown) ■ Min of estimated range

Note: Numbers are rounded to nearest 5%. Gov't employment does not include health care in EU countries to maintain comparison with US.
1. European figures reflect gross output by sector, which is analogous to revenue by sector. US figures directly reflect revenue by sector.

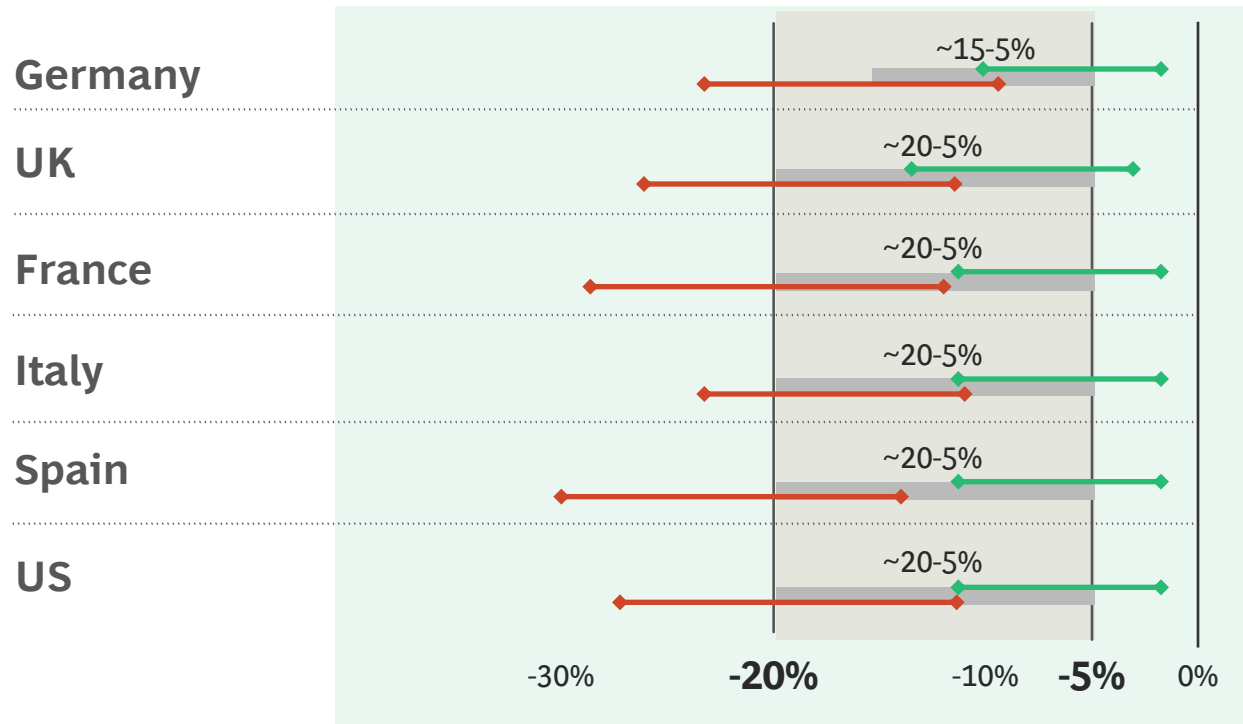
Source: Eurostat Database; St. Louis Fed Reserve; O*NET; American Community Survey; other country-specific sources available on request; BCG COVID response teams; BCG Analysis

Impact during 'Fight' | 5-20% of economic activity and 5-20% of jobs can be temporarily at risk– implying protracted economic challenges

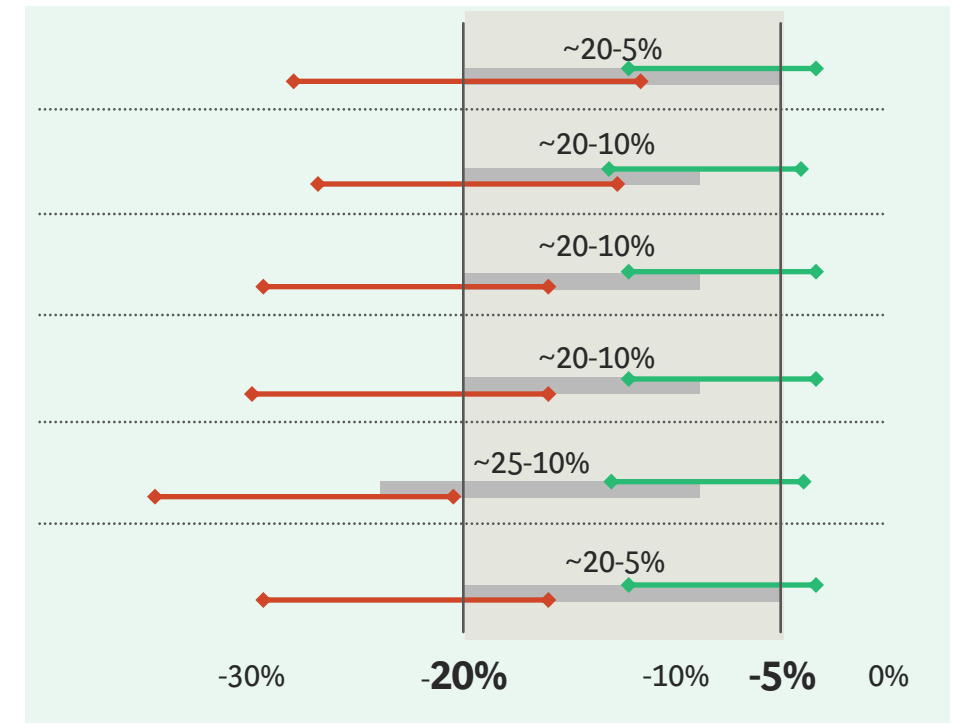
As of 27 April 2020

Preliminary figures – ONLY first order effect of microeconomic data during Fight phase. Economic impact also depends on duration of Fight phase.

Impaired economic activity¹ during 'Fight' phase Estimation in private sector relative to pre-COVID in %



Impacted employment during 'Fight' phase Estimation across the economy in %



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■ Base case
◆ Upper bound case
◆ Lower bound case

Note: Numbers are rounded to nearest 5%. Gov't employment does not include health care in EU countries to maintain comparison with US.
1. European figures reflect gross output by sector, which is analogous to revenue by sector. US figures directly reflect revenue by sector.

Source: Eurostat Database; St. Louis Fed Reserve; O*NET; American Community Survey; other country-specific sources available on request; BCG COVID response teams; BCG Analysis

Duration of Fight | Accelerated movement toward vaccine or treatment at scale could limit Fight phase to 12-24 months

As of 19 April 2020

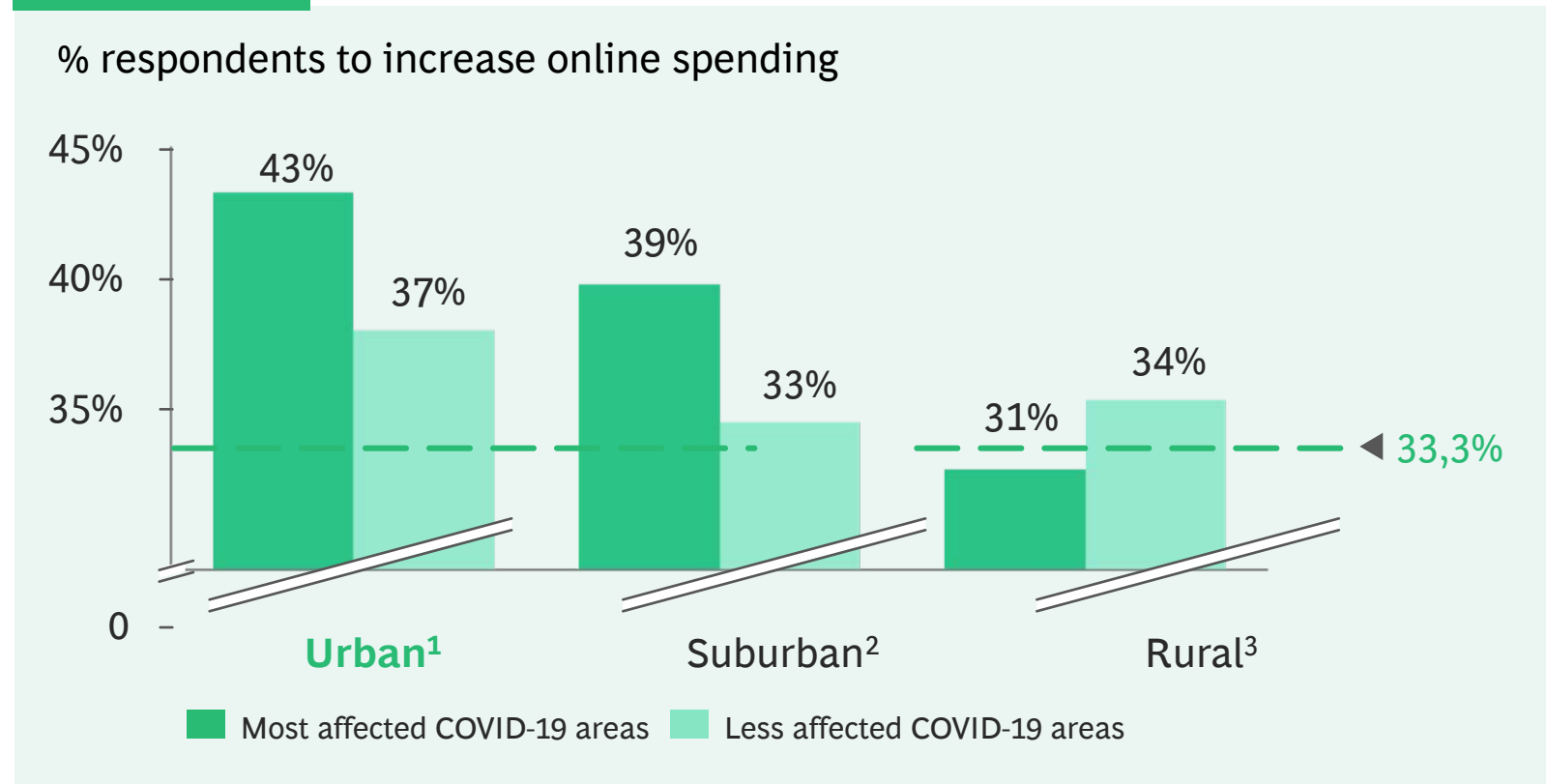
	Current status		Estimated timeline
Vaccine	<ul style="list-style-type: none">• Multiple vaccines (e.g. Moderna, CanSino, AstraZeneca) in Phase 1 trials• Simultaneously, investments being made in manufacturing capacity• Likely about 12 months to earliest FDA-approval• Likely to take 4-6 months post-approval to full implementation	>	April '21 – April '23 (12-36 months) 12-month development "best case", then likely to require time to scale across population
Treatment	<ul style="list-style-type: none">• Anti-viral therapies potentially available at scale in Q4-2020—however, likely only used for more advanced cases• Antibodies from recovered patients currently being tested—use will be limited to small scale/at-risk groups	>	Oct '20 – April '22 (6-24 months) If first round of drugs being tested succeeds – then 6-9 months; if not – substantially longer
Herd immunity	<ul style="list-style-type: none">• Potentially could achieve herd immunity through exposure to disease and subsequent recovery• Would require 60-70% of population to acquire and recover <p>Likely must be combined with treatment</p>	>	Substantial Would likely involve "pulsing" economy on / off, but always maintaining case loads below care capacity

Consumer Sentiment | One-third plan to increase online spending next month, especially those living in most affected and urban areas

As of 27 April 2020

US Example

Respondents planning to increase online spending in the next month



Observations

One third of consumers plan to increase online spending next month

Residents of **more affected areas** to increase online spending more than those of less affected areas

Urban areas see stronger increase in online spending than suburban or rural areas

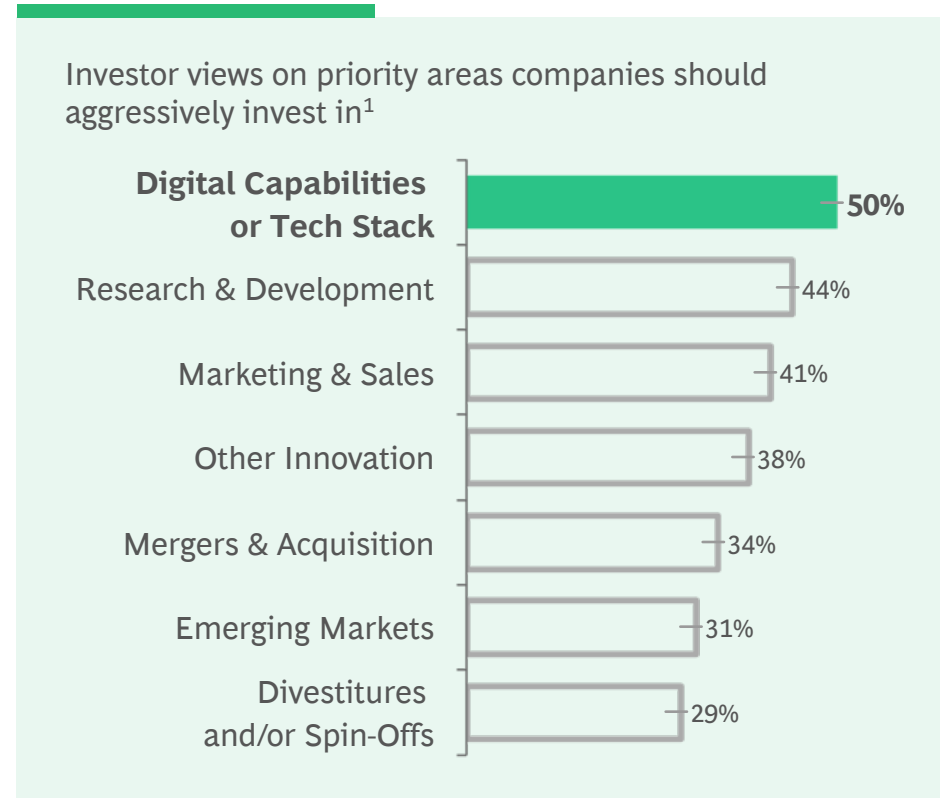
1. Urban areas are those with more than 3,000 people per square mile 2. Suburban areas are those with from 1,000 to 3,000 people per square mile 3. Rural areas are those with less than 1,000 people per square mile

Note: "Most affected areas" are the top 10 states by local number of confirmed COVID-19 cases, according to CDC statistics as of April 20, 2020; "Less affected areas" are the other 40 states and Washington, DC
Source: BCG COVID-19 Consumer Sentiment Survey, April 10–12 2020 (N = 2,960 US); unweighted, representative within +3% of US census demographics

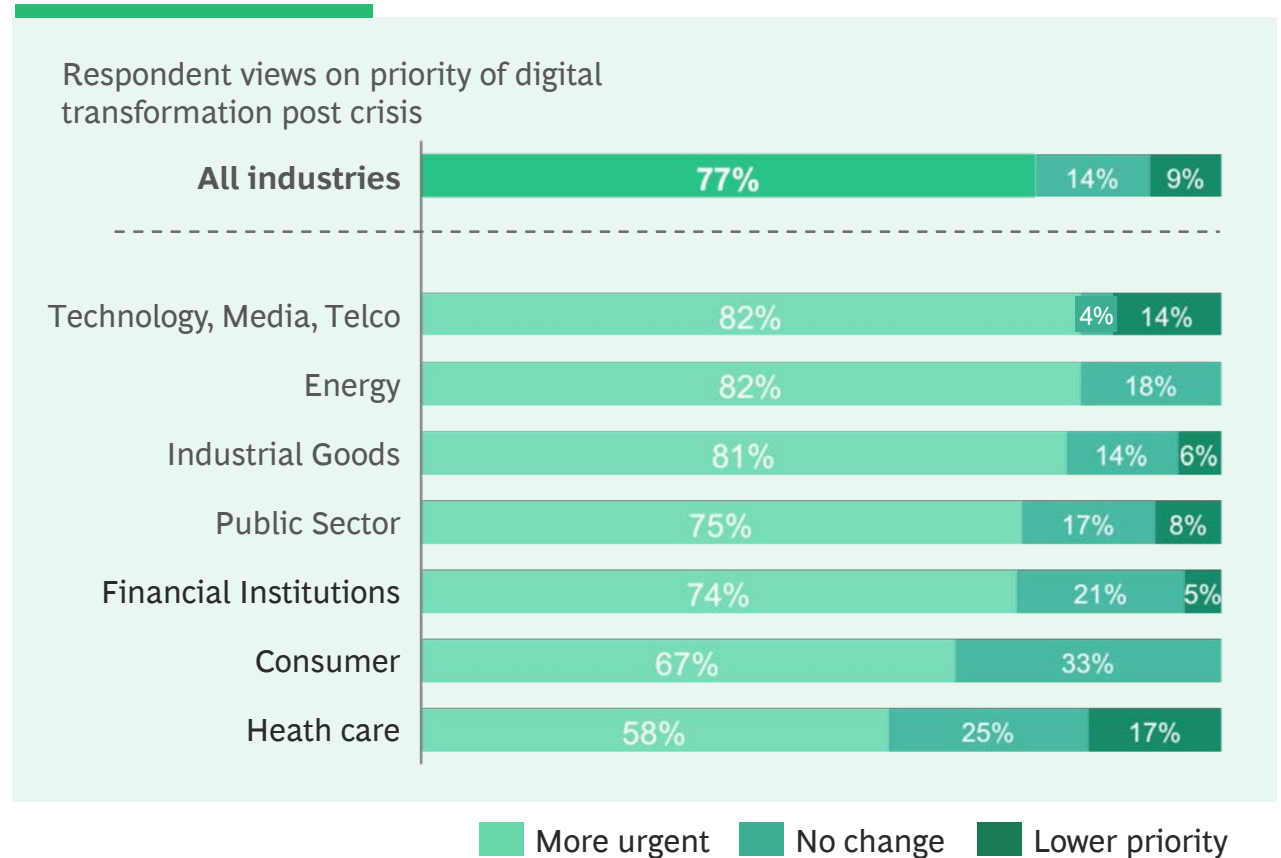
Business Leaders' View | While digital has been a priority for some time, >75% of companies plan to accelerate digital transformation now

As of 29 April 2020

Pre-crisis, digital capability investments have been top priority



Now, >75% of companies plan to accelerate digital transformations



Note: DSR Digital Transformation 2020 Survey still ongoing with n=121; BCG 11th annual investor survey 2019 with n=251
 1. Respondents were asked what percentage of companies should be more aggressive in pursuing the following strategies for value creation
 Source: BCG 11th annual investor survey 2019 (Published 12 Feb 2020); DSR Digital Transformation 2020 Survey; BCG

COVID-19 crisis is a step-change moment for digital and technology transformation

The time to accelerate digitization is now

Many of the behavior shifts we are seeing today are expected to persist beyond the crisis

A huge uptick in digital activities is seen across all industries and all parts of the value chain

Business leaders need to navigate two imperatives

- 1) In the short-term, embrace digital and analytics solutions to help manage the crisis and succeed during turbulent times
 - Apps like 'Safe@Work' can help companies safely manage operations
 - Digitizing analog business models has immediate impact
- 2) In parallel, accelerate digital and technology transformation to become more resilient and take advantage of the new reality
 - Key to winning is intertwining human and technological capabilities
 - Digital levers with significant impact on near- and mid-term performance

Many of the behavior shifts we are seeing today are expected to persist beyond the crisis

Current behavior shifts toward digital activities...

Use of technology increased to replace traditional in-person services; UK telemedicine to see "ten years of change in one week"¹

Use of Zoom and Slack increased; more new users for Zoom YTD than total 2019², for Slack +140% in Q1 2020 compared with Q4 2019³

Tracking and tracing of individuals via cell-phones implemented to prevent further virus spread⁴

Timely location-specific health guidance via digital apps disseminated, allowing organizations to adapt to local situations⁵

Offline marketing campaign dollars reinvested into digital marketing, online-to-offline platforms, and e-commerce⁵

...providing opportunity for persistent market change

Customers more comfortable with **digital interactions**

Remote and **virtual working models** proliferating

Data-driven and **AI-powered decision making** increased, using granular, real-time information

Adaptive management practices more prevalent, building on collaboration and rapid decision making

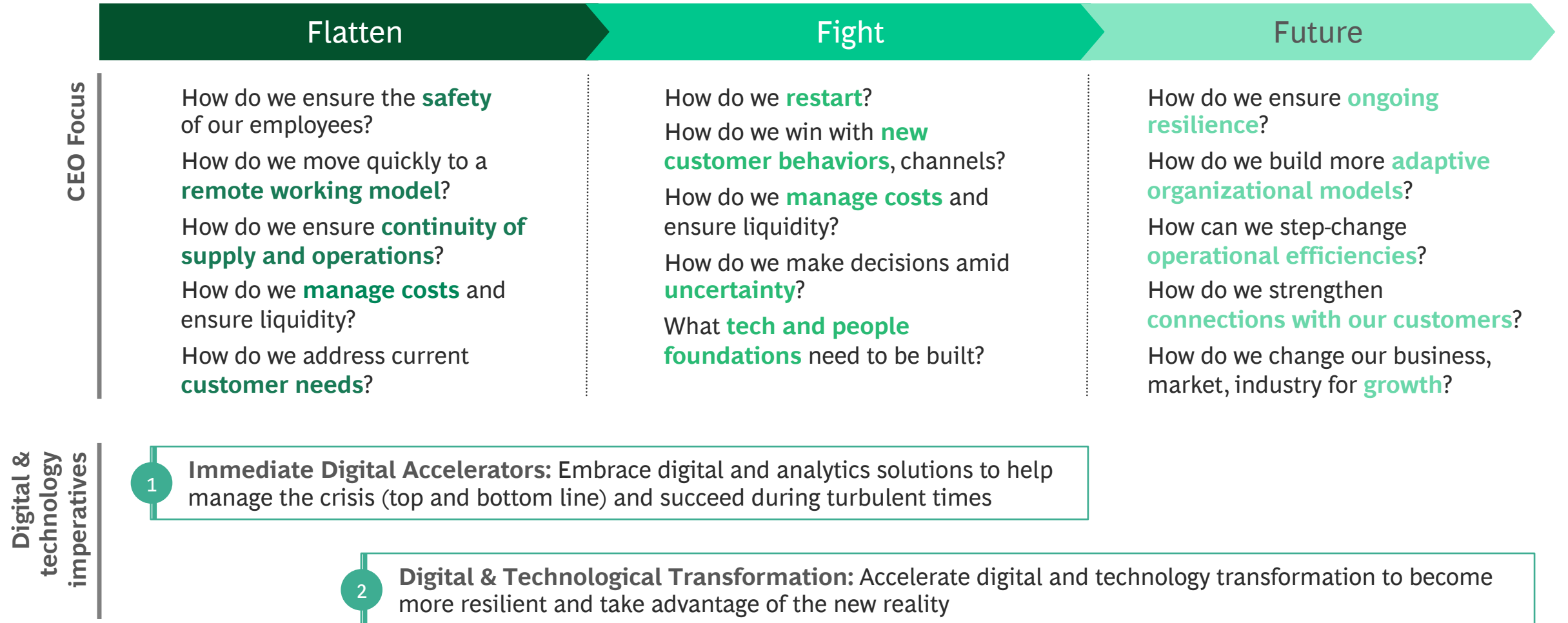
Fortified technology platforms emerging

A huge uptick in digital activities is seen across all industries and all parts of the value chain

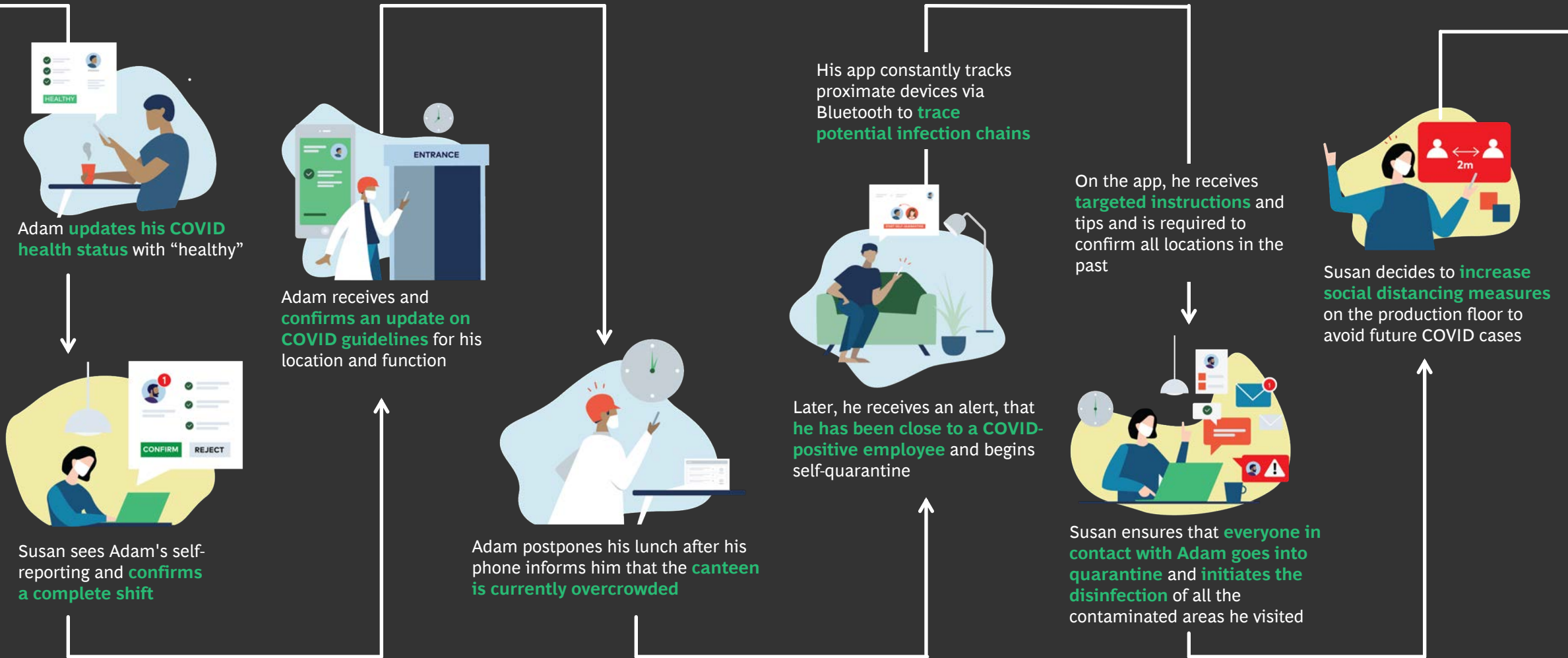
Examples of digital actions taken by companies in various industries

Marketing/ Sales	Blockchain to expand customer reach Financial Service Provider used blockchain to enable small/medium enterprises in contactless bidding for bank loans	Loyalty programs to increase e-sales Beverage producer shifted to e-commerce, linked home delivery with loyalty program to drive repeat purchases	Marketing/sales refocus to boost online Retailer closed all stores and focused on digital marketing/sales, leading to +30% rise in online orders for the quarter
Operations	Process refocus to stay in operation Bank moved large parts of the loan handling process online to minimize loan defaults	Analytics tool to coordinate response Retailer used advanced analytics to simplify local store assortment and better respond to demand changes	Construction to fulfill e-commerce Grocer accelerated construction of e-commerce fulfillment center and doubled online delivery capacity
People	Partnering to retain staff jobs Retailer shared idle staff with online-to-offline retailers to keep staff employed	Robotics technology to treat patients Hospital staffed wards with 5G-powered robots to alleviate the strain on human personnel	Social media to incentivize workers Underwear company used WeChat to coordinate employee engagement in increasing sales within social circles

Business leaders need to navigate two digital and technology imperatives to steer through the crisis, and win in the new reality



Immediate Digital Accelerators | Apps like 'Safe@Work' can help companies safely manage operations



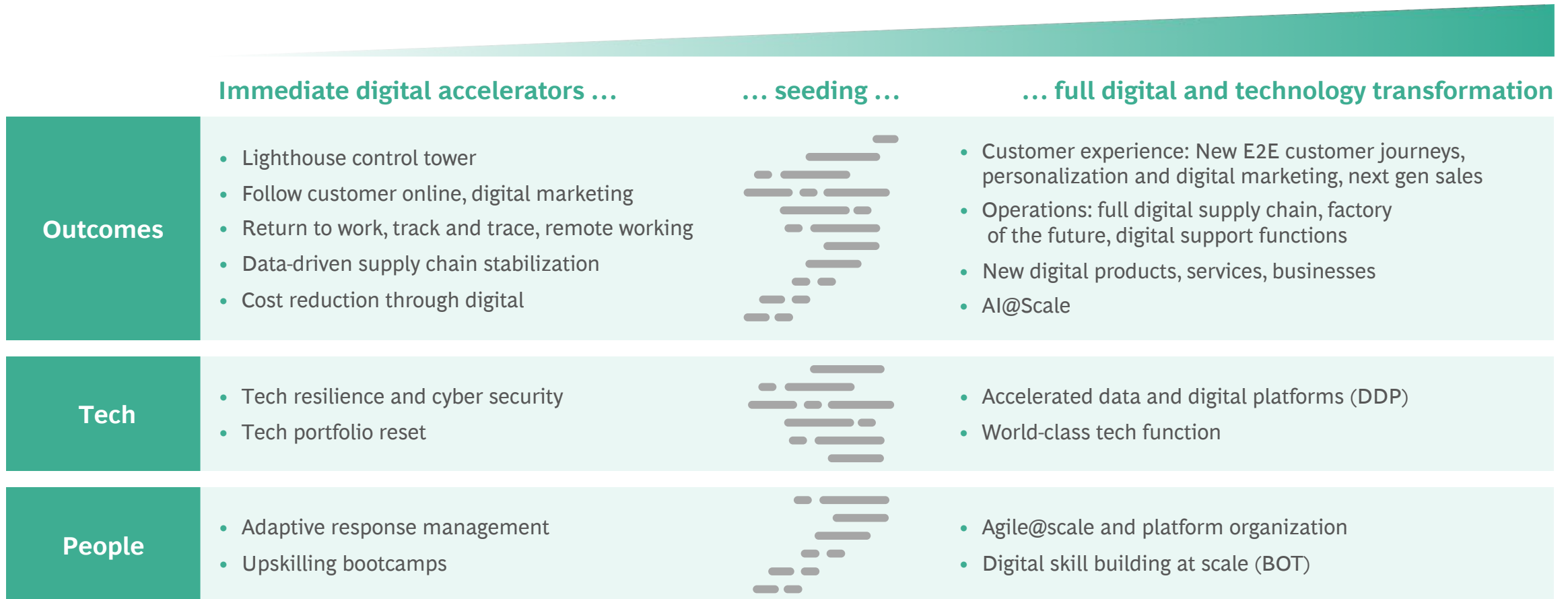
Note: Features are illustrative and require clients' local regulatory and compliance review. You have to make your own assessment on health & safety, privacy and other regulatory, compliance or corporate policy requirements for use and implementation of Safe@Work
Source: BCG

Immediate Digital Accelerators | Digitizing (parts of) analog business models has immediate impact

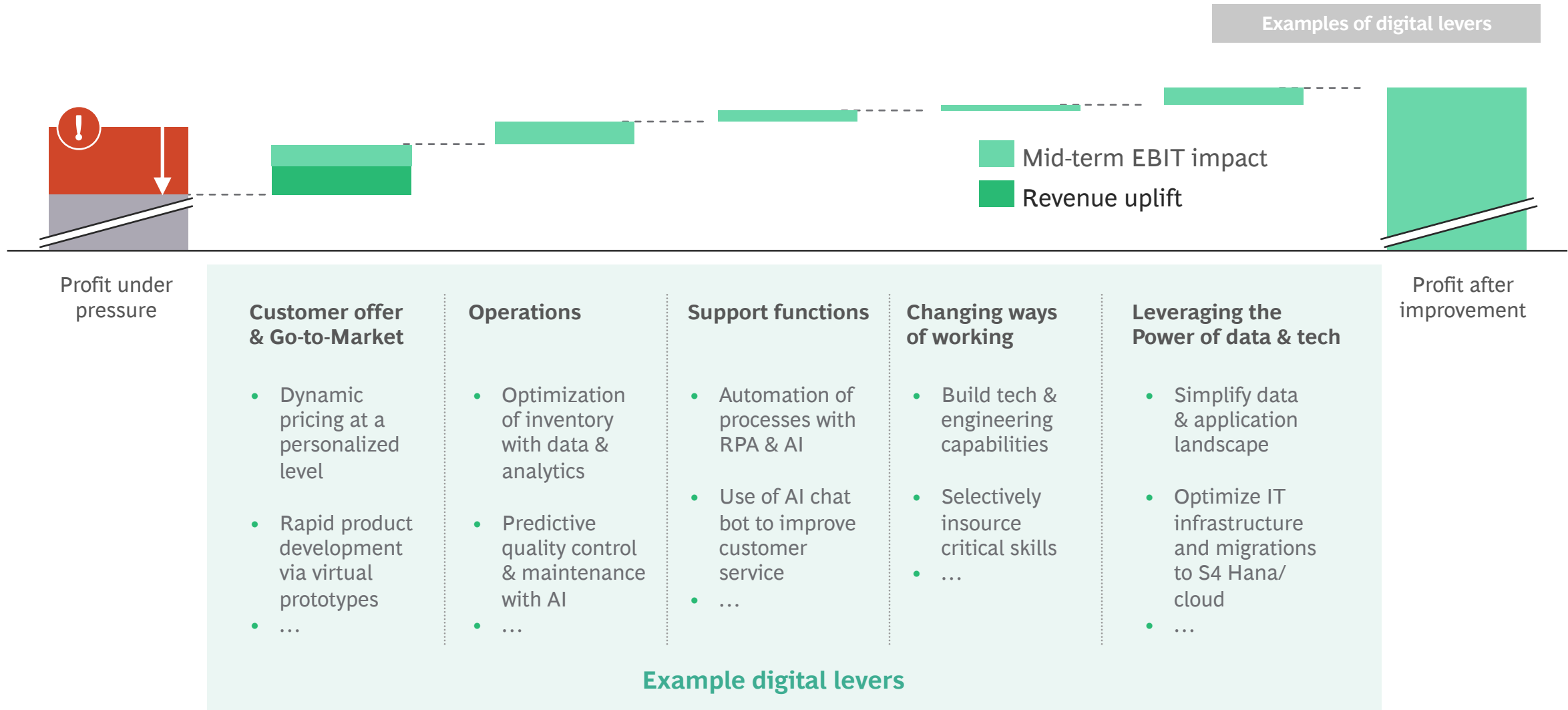
Industry	Context	Response	Impact China Example
Educational institutions	Locked-down schools in multiple countries	Shifted physical education classes to home schooling Used video conferencing tools to engage with students	45M downloads in 42 days of top six education apps
Cosmetic retailer	Closed physical retail stores to limit infections	Redeployed beauty advisors as online influencers Leveraged digital tools to engage customers virtually	200% growth in online sales compared with the prior year's sales
Financial service provider	Increased demand for health care services	Enhanced digital solutions to attract new customers Expanded digital insurance offer to include telemedicine	+52K new customer sign-ups a day in its peak
Beverage producer	Restricted customer access to bars and restaurants	Shifted to omni-channel distribution Promoted DJ livestreams, e-gaming events, and influencers	40% beer sales increase on delivery partner e-commerce platform
Automotive manufacturer	Limited physical contact outside of home	Launched touchless delivery to reduce interaction Offered webcam-based customer service	~12,700 cars sold in March – highest ever monthly sale

Source: Press releases; BCG

Digital & Technology Transformation Journey



Digital & Technological Transformation | Digital levers drive significant impact on near and mid term performance



Guiding principles for leadership in crisis

“THESE are the times that try men's souls. The summer soldier and the sunshine patriot will, in this crisis, shrink from the service of their country; but he that stands by it now, deserves the love and thanks of man and woman. Tyranny, like hell, is not easily conquered; yet we have this consolation with us, that the harder the conflict, the more glorious the triumph.”

Thomas Paine, The Crisis

Be visible, purposeful, and authentic

Communicate in ways that engage and increase the relevance of your teams and clarify the reasons underlying your communications

Use multiple clock-speeds

Think on multiple timescales by considering the now, the next, and the later. Ensure that leadership teams look ahead and prepare for the future

Cut through bureaucracy

Assemble a multi-functional task force that is empowered to make decisions and suspend normal decision protocols

Leverage the principle of “commander’s intent”

Share only key objectives and rationale of required actions to allow the organization to be flexible and adaptive, and allow a focus on execution

Engage externally

Communicate with customers and stakeholders to gather frequent, fresh, firsthand information to adapt and respond effectively

Keep imagination alive

Look out for new needs and opportunities to serve clients now and beyond the crisis. We will not be reverting to a 2019 reality



1

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This week's focus: how to accelerate Digital & Technology transformation

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Updated epidemic, economic, and business scenarios and impact

Preconditions for restart

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Appendix: Detailed action areas and further readings

Detailed action areas for business leaders

Further readings

Updated epidemic, economic, and business scenarios and impact

Preconditions for restart

Some countries need to continue monitoring the case growth closely (cases doubling under 14 days)

Currently available serological tests too unreliable to provide strong solution

Business readiness across health protocols and workplace safety key to ensuring smoother transition during restart

Economic impact

Economic forecasts continue to point to significant downturn in 2020—global rebound to pre-COVID levels not expected before 2021

US: Peak of unemployment insurance claims ten times higher than in the financial crisis

Business impact

Stock markets have currently stabilized after unprecedented drop
TSR¹ has rebounded over last month but impact visible across many sectors; no sector at pre-crisis level

Credit risk continues to be a concern for majority of sectors

Majority of companies negatively affected—yet some companies in each sector manage to emerge much stronger

1. Total Shareholder Return
Source: BCG

Leaders need to get the preconditions for restart right

Health care readiness

Public/economic readiness

Disease progression

Control of virus impact in terms of **case growth rate, environmental factors¹, and disease impact**



Leading indicator that measures are effective, public health is protected

Health care capacity

Adequate **supply of hospital beds, ventilators, ICUs, PPE, trained staff, new treatments**



Capacity sufficient to care for COVID-19 and other health needs

Virus monitoring

Widespread and private virus testing; contact tracing, tracking, and isolation



Testing to inform decisions, resource allocation, and outbreak resolution

Business preparation

Workplace **health protocols** and business readiness



Businesses ensure workplace safety for those returning to work

Public response

Training and availability of **hygiene products; civil awareness, compliance rates**



Public educated and empowered to adhere to guidelines, to play role in containment; societal response²

Government preparation

Leadership capacity, policy framework for public health, sectors, and economy



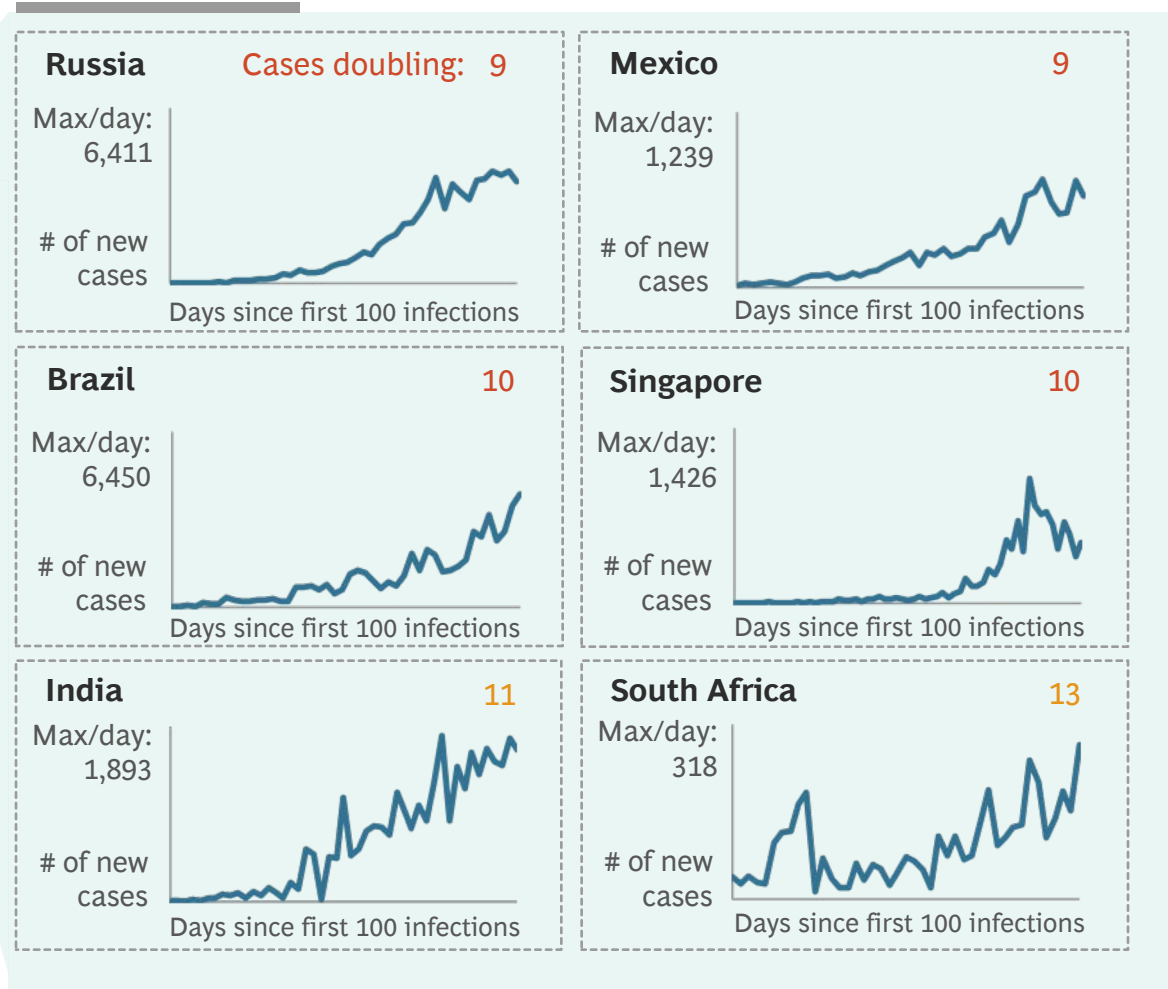
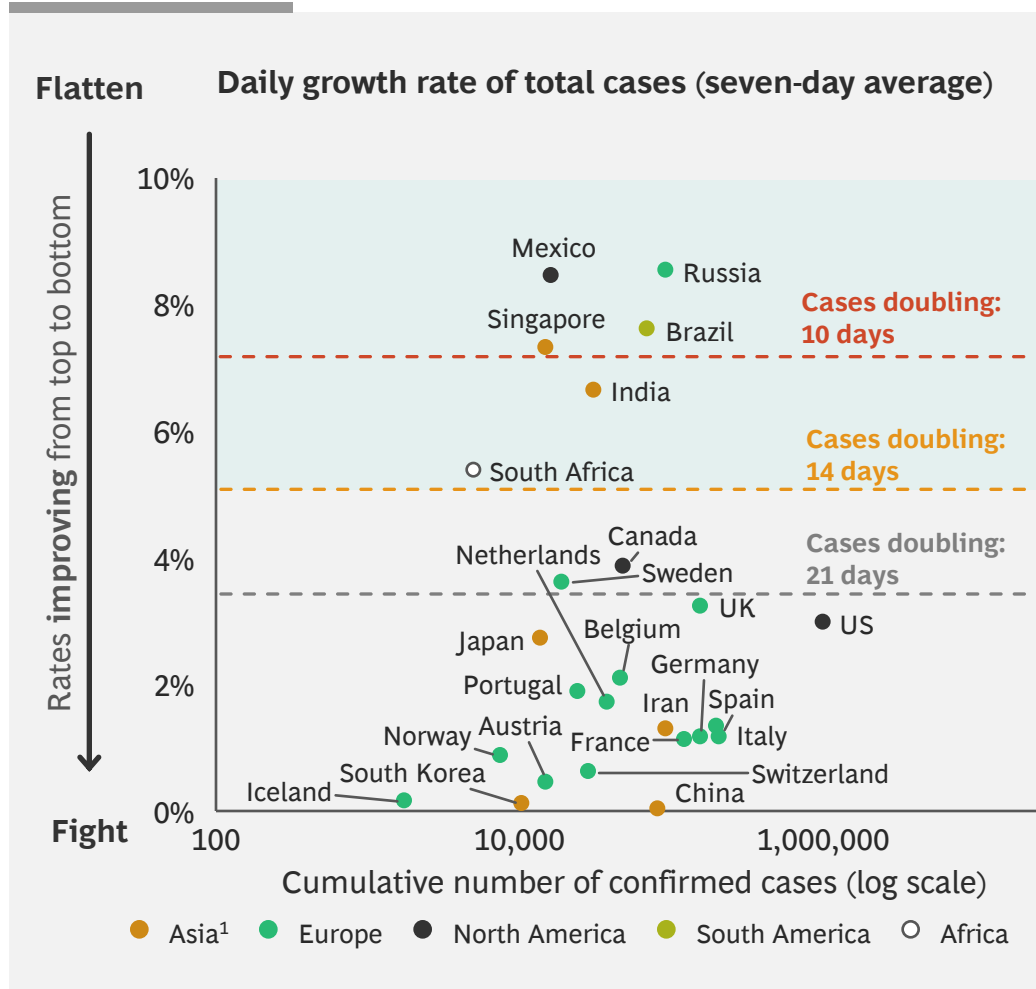
Leadership capacity and decision-making on policy; clear guidance and expectations

1. Environmental factors: population density, demographics (age, health conditions), weather, etc.; mixing from other localities
2. Societal response: physical distancing, gatherings, intergenerational living, mass transit usage, shopping behavior, etc.
Source: BCG analysis

Some countries need to continue monitoring the case growth closely (cases doubling under 14 days)

As of 29 April 2020

Non-exhaustive



Note: For doubling days, round off values calculated based on last 7 days CAGR of total confirmed cases 1. Includes Middle East
 Source: Johns Hopkins CSSE, Our World in data, WHO situation reports

Currently available serological tests too unreliable to provide strong solution

As of 27 April 2020

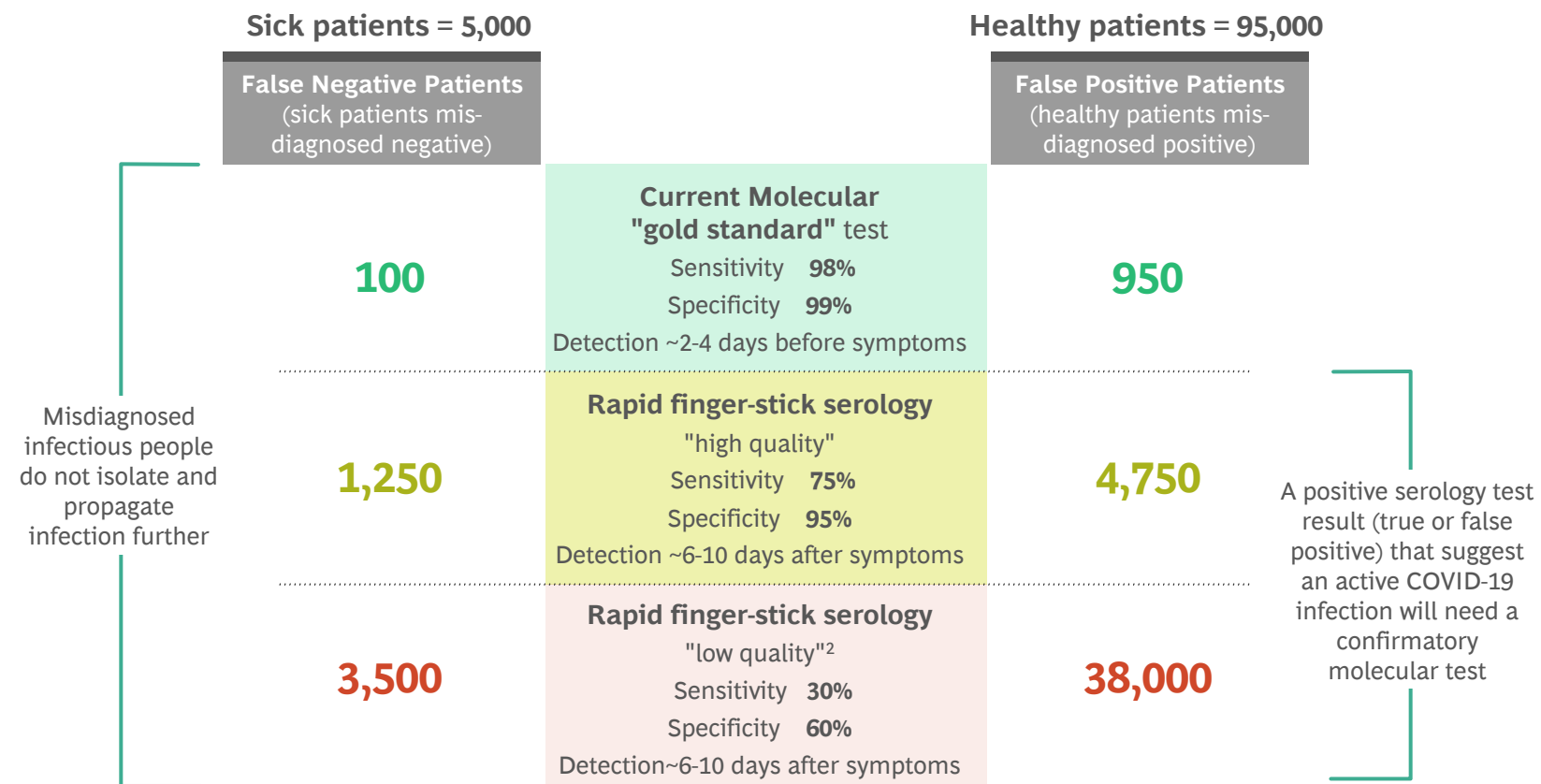
Two test types available for Covid-19 that differ in what they detect and how well they detect

"Gold standard" molecular tests provide the most accurate detection of the virus genetic material (RNA), typically from respiratory swabs, and can detect the virus before symptoms appear

Serological tests detect the human immune response to the virus about one week from when symptoms appear; many "rapid" serology tests launched vary significantly in accuracy relative to molecular tests

Illustration: Implications of Accuracy for Covid-19 Testing

Base data: 100,000 tests performed¹; 5% disease prevalence



Note: Serology tests detect active COVID-19 infection starting ~6-10 days after symptoms appear (IgM earlier, IgG later), or previous exposure to the virus (IgG only) 1. Roughly equivalent to US nationwide daily throughput as of March 31, 2020 2. The Guardian ("Coronavirus test kits withdrawn in Spain over poor accuracy rate", March 27, 2020)
Source: Expert interviews; BCG analysis

Business readiness across health protocols and workplace safety key to ensuring smoother transition during restart

PRECONDITIONS
FOR RESTART



Face masks

Hand sanitizer

Revised social norms

Special cleaning teams

Remote working

Thermal imaging

Physical separation
(e.g. non-overlapping shifts)

Shift A

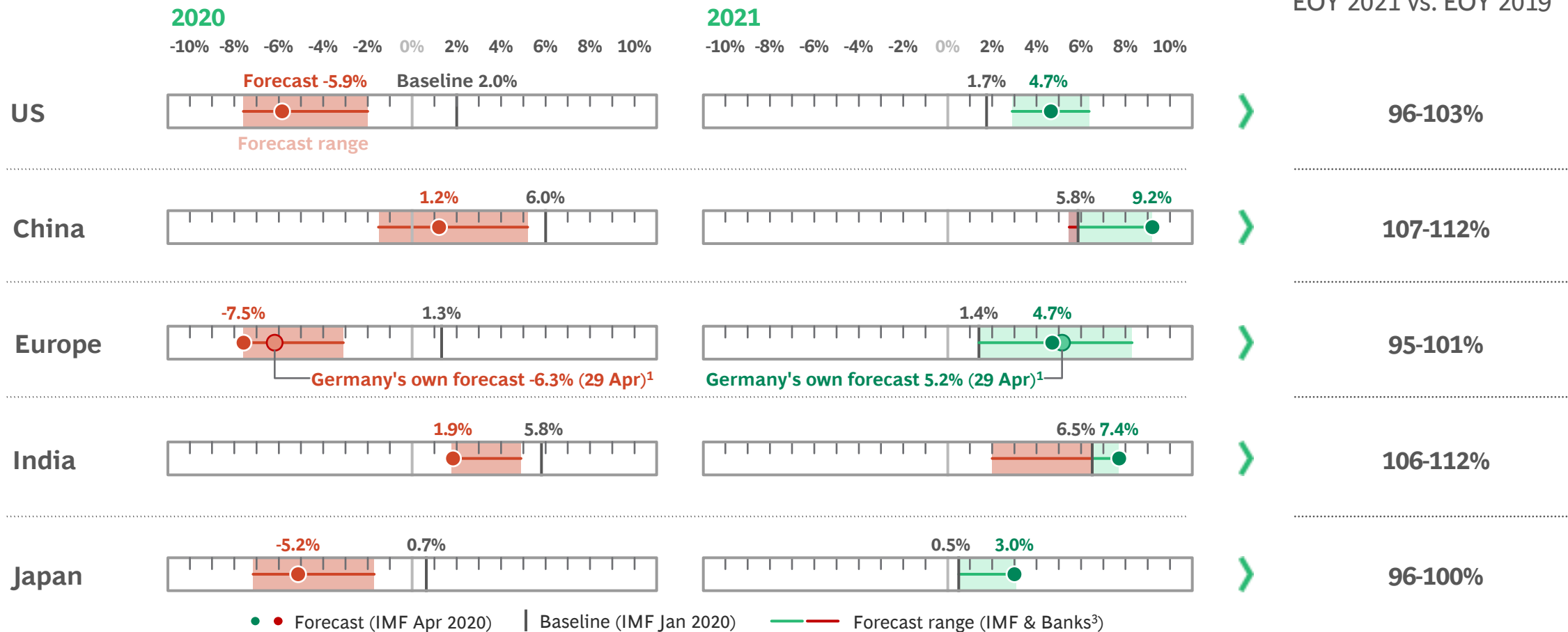
Tracking & tracing

Care for the sick

Economic forecasts continue to point to significant downturn in 2020—global rebound to pre-COVID levels not expected before 2021

As of 28 April 2020

GDP growth forecast vs. baseline

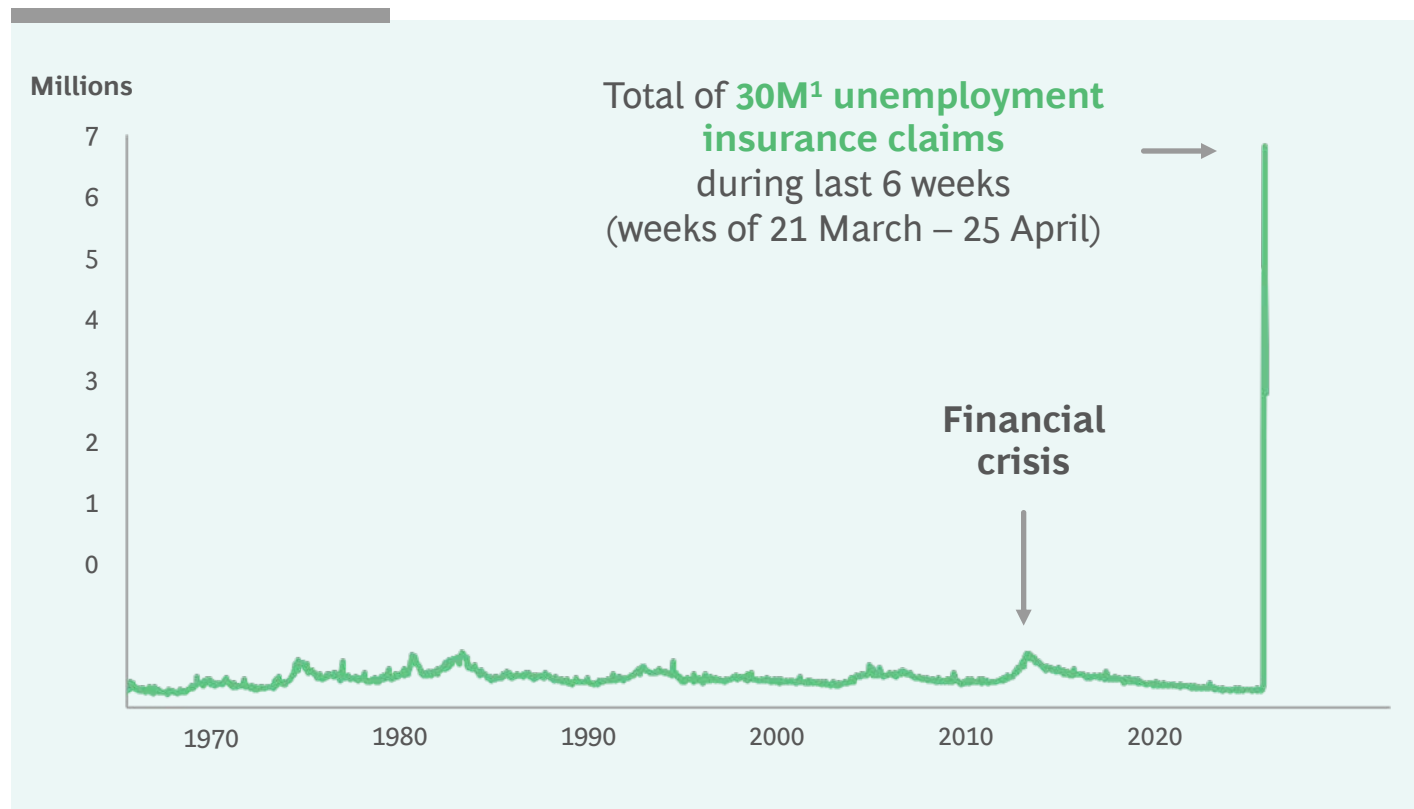


Note: As of reports dated 31 March 2020 to 28 April 2020, YoY forecasts 1. Announced by the German Federal Ministry for Economic Affairs and Energy on 29 Apr 2020 2. Range calculated with 25th & 75th percentile values of forecast range 3. Range from forecasts (where available) of International Monetary Fund, JP Morgan Chase; Morgan Stanley; Bank of America; Fitch Solutions; Credit Suisse; Danske Bank; ING Group; HSBC Source: German Federal Ministry for Economic Affairs and Energy; Bloomberg; IMF; BCG analysis

As of 30 April 2020

US:
Peak of unemployment insurance claims ten times higher than in the financial crisis

Initial US unemployment insurance claims

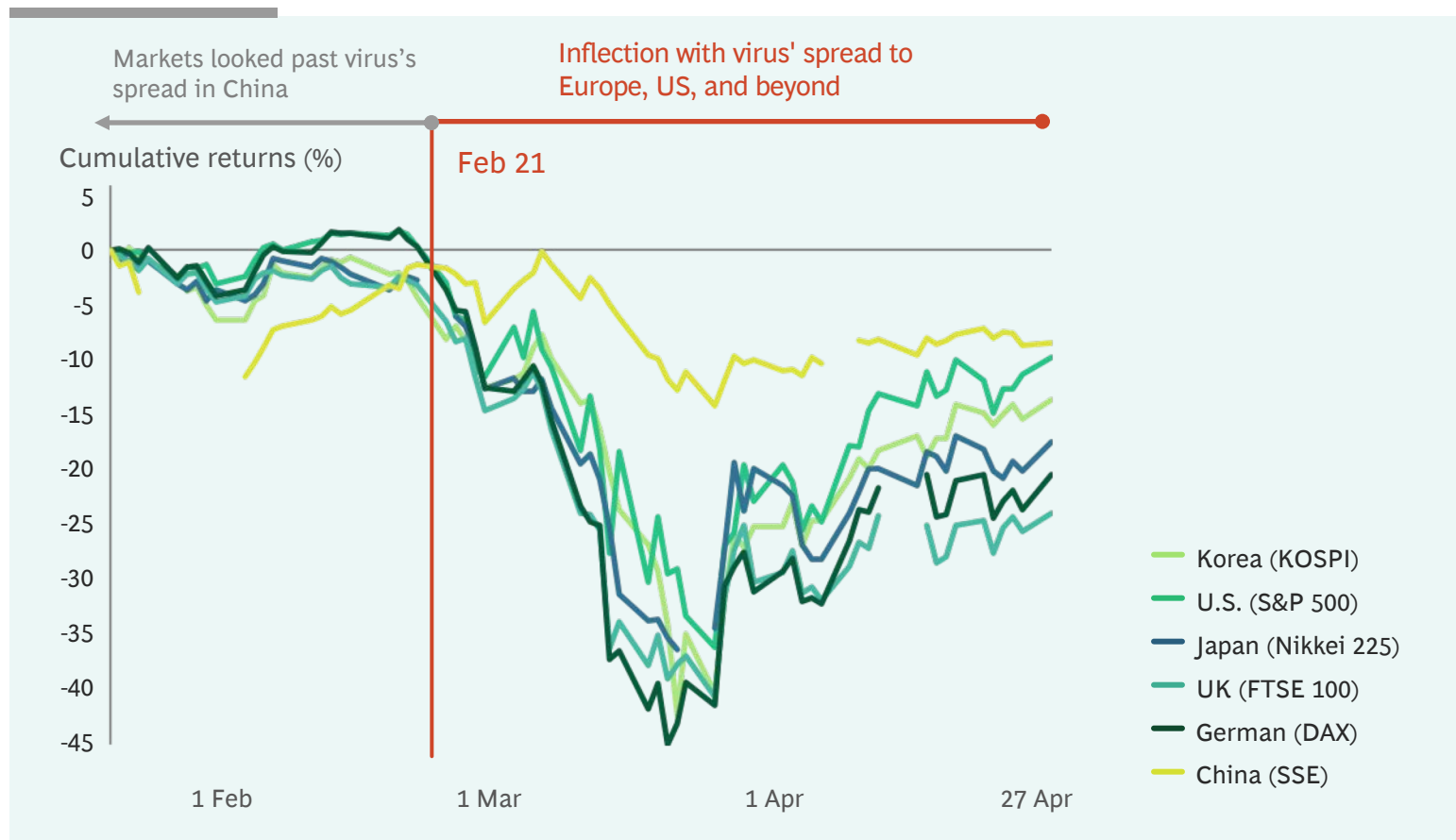


1. Unemployment insurance claims of 3.3M (21 Mar), 6.9M (28 Mar), 6.6M (4 Apr), 5.2M (11 Apr), 4.4M (18 Apr), & 3.8M (25 Apr)
 Source: NBER, US Bureau of Labor Statistics, and BCG Center for Macroeconomics analysis

Stock markets have currently stabilized after unprecedented drop

As of 27 April 2020

Global equity markets varying around a lower mean



Observations

Steeper drop than in 1929

Bigger sell-off than in 2008¹

Higher volatility as in 2008²

1. Financial Crisis S&P sell-off at comparable time frame: 26/09/2008 – 27/10/2008 and 19/02/2020 - 23/03/2020
Source: Impact of the COVID-19 pandemic on global FDI and GVCs, UNCTAD, Bloomberg, Reuters Eikon BCG

2. Peak VIX recorded 16/03/2020

TSR has rebounded over last month, but impact visible across all sectors; no sector above pre-crisis level across regions

As of 29 April 2020

Order of sectors reflects economic scenario and consumer sentiment

	TSR performance ¹	Americas		Europe		Asia		Observations
		21 Feb '20 – 20 Mar '20	21 Feb '20 – 29 Apr '20	21 Feb '20 – 20 Mar '20	21 Feb '20 – 29 Apr '20	21 Feb '20 – 20 Mar '20	21 Feb '20 – 29 Apr '20	
Healthier sectors	Food/staples Retail	-10%	-5%	-15%	-13%	-8%	-9%	Non-discretionary/essential service less hit but still had recovery First sectors recovering regionally
	Pharma	-19%	1%	-20%	-2%	-22%	-1%	
	Semiconductors	-30%	-2%	-43%	-13%	-27%	-10%	
	Household Products	-19%	-6%	-16%	-8%	-5%	4%	
	Telecom	-17%	-8%	-20%	-17%	-14%	-5%	
Pressured sectors	Health Equipment	-33%	-10%	-31%	-13%	-11%	1%	Broad set of industries experiencing pressure, with some regions particularly affected for certain sectors (e.g. Media in Europe) Food & beverage, utilities, media, and health equipment generally better off in Asia
	Tech Hardware	-29%	-10%	-25%	-4%	-23%	-15%	
	Food & Beverage	-26%	-10%	-24%	-14%	-12%	-2%	
	Software	-30%	-9%	-32%	-18%	-28%	-13%	
	Materials	-34%	-11%	-31%	-14%	-30%	-17%	
	Prof. Services	-30%	-15%	-29%	-15%	-31%	-19%	
	Utilities	-33%	-17%	-30%	-24%	-6%	-1%	
	Retailing	-42%	-22%	-36%	-22%	-24%	-7%	
	Capital Goods	-38%	-17%	-35%	-20%	-29%	-18%	
	Media	-36%	-17%	-47%	-34%	-14%	4%	
Vulnerable sectors	Financials	-36%	-16%	-35%	-16%	-19%	-10%	Hardest hit sectors had some recoveries but still performing way below 21 Feb 2020 levels
	Transport	-37%	-20%	-38%	-31%	-13%	-14%	
	Hospitality	-49%	-28%	-47%	-30%	-23%	-14%	
	Durable Goods	-49%	-23%	-32%	-17%	-21%	-11%	
	Real Estate	-42%	-29%	-26%	-17%	-22%	-8%	
	Insurance	-42%	-31%	-40%	-28%	-27%	-16%	
	Banks	-41%	-30%	-44%	-38%	-26%	-20%	
	Auto	-47%	-23%	-45%	-25%	-32%	-20%	
Energy	-56%	-32%	-45%	-24%	-41%	-27%		

Note: As of 29 April 2020; Based on top S&P Global 1200 companies; Sectors are based on GICS definitions. TSR = Total Shareholder Return. 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 20 March 2020 through 29 April 2020
 Source: S&P Capital IQ; BCG ValueScience® Center; BCG

Credit risk continues to be a concern for majority of sectors

As of 29 April 2020

		Median 5-year CDS ¹ implied probability of default ²		Companies in distress (%) ³		Observations
		21 Feb 2020	29 Apr 2020	21 Feb 2020	29 Apr 2020	
Healthier sectors	Food/staples Retail	4%	5%	0%	0%	Less discretionary and cash-rich sectors are largely at lower risk of default in current climate
	Pharma	3%	3%	0%	5%	
	Semiconductors	5%	7%	0%	14%	
	Household Products	4%	4%	0%	0%	
	Telecom	4%	7%	0%	15%	
Pressured sectors	Health Equipment	4%	5%	0%	0%	Retailing with spike in companies in distress (~40% of retailing sector with > 15% implied probability of default)
	Tech Hardware	4%	4%	0%	0%	
	Food & Beverage	3%	3%	0%	0%	
	Software	4%	4%	0%	0%	
	Materials	4%	6%	4%	17%	
	Prof. Services	5%	5%	0%	0%	
	Utilities	3%	4%	0%	0%	
	Retailing	5%	7%	0%	41%	
	Capital Goods	3%	4%	2%	12%	
	Media	5%	8%	0%	14%	
Vulnerable sectors	Financials	4%	6%	0%	0%	Auto, hospitality, and energy industries facing greatest risk of default based on current credit profile
	Transport	3%	3%	0%	36%	
	Hospitality	5%	11%	7%	43%	
	Durable Goods	4%	6%	0%	5%	
	Real Estate	5%	9%	0%	16%	
	Insurance	4%	6%	0%	0%	
	Banks	4%	6%	0%	4%	
	Auto	5%	11%	0%	33%	
	Energy	5%	13%	0%	35%	

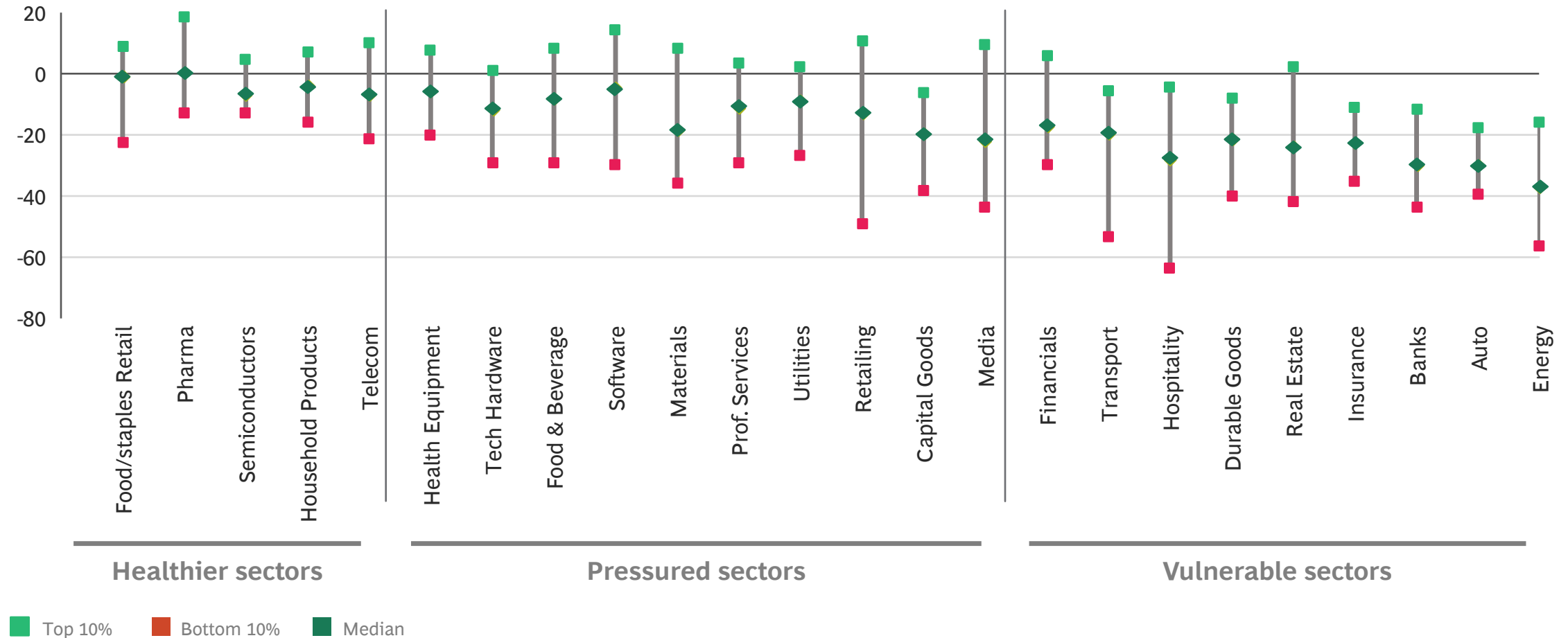
Note: As of 29 April 2020; Based on top S&P Global 1200 companies; Sectors are based on GICS definitions

1. Credit Default Swap 2. Performance is tracked on 21 February 2020 (before international acceleration of outbreak), and 29 April 2020 3. Distressed comprises over 15% implied probability of default Source: S&P Capital IQ; BCG ValueScience® Center; BCG

Majority of companies negatively affected—yet some companies in each sector manage to emerge much stronger

As of 29 April 2020

Year-to-date shareholder return in % per sector



Note: Sectors are based on GICS definitions; data as of 29 April 2020; Companies sampled from S&P Global 1200
 Source: S&P Capital IQ; BCG ValueScience® Center



1

Guide for leaders

Fresh insights: messages for leaders

This week's focus: how to accelerate Digital & Technology transformation

2

Updated epidemic, economic, and business scenarios and impact

Preconditions for restart

Economic impact

Business impact

3

Appendix: Detailed action areas and further readings

Detailed action areas for business leaders

Further readings

Detailed measures across priority action areas (1/3)

Establish crisis management

1

Develop **Scenario-Based Planning Approach** to manage uncertainty

2

Create a **Rapid Response and Transformation (RR&T) team**

Navigate through Flatten, Fight, and Future

3

Revamp **Organization and People** for the new normal

Flatten

- Deep-dive into possible outcomes of disease spread, demand shifts, supply/operations issues, regulatory requirements, and potential operations restart; adjust for sector-specific issues
- Perform scenario stress tests around cash-flow
- Establish preconditions for what it will take to get workforce back to offices, factories, etc.
- Set up teams to work on different time horizons (Flatten, Fight, Future) to avoid reverting to crisis management across all

- Establish nimble cross-functional Rapid Response & Transformation team (RR&T)
- Refine processes to manage the crisis situation, remote working, disruption in supply
- Ensure smooth transition of operations and workforce to the 'new reality'
- Shift to digital/remote customer interactions

- Define policies to keep employees safe with high morale
- Engage across levels to retain talent
- Move to online/remote working; redefine rosters, and train for efficiency/effectiveness
- Establish preconditions for coming back to the working environment; clearly communicate them
- Build SWAT teams to address critical business areas, such as product launch, digital channel redesign, retail delivery models

Fight

- Frequently run scenarios and update plan; focus on understanding the de-averaged impact by geography and line of business, depth of demand drop, duration of Fight phase
- Develop recommendations for daily planning, resources, supply chain, workforce, and other stakeholder management as per modeled scenarios

- To manage the massive complexity of "restarting," enhance Rapid Response & Transformation team structures
- Develop approach for how to bring people back to work, how/when to engage customers
- Establish governance and standardization to effectively coordinate other areas from the RR&T

- Get ahead of the curve to manage policies to get teams back to work safely
- Take a clear view of forward demand and the new normal: manage/restructure organization to fit capacity needs
- Create dedicated focus to accelerate digital, process automation, new ways of working

Future

Detailed measures across priority action areas (2/3)

Navigate through Flatten, Fight, and Future

4

Drive **Topline Security & Customer Trust**

5

Stabilize and restart **Supply Chain, Manufacturing**

6

Manage **Cost, Cash, and Liquidity**

Flatten

- Reach out to customers for their situation and needs,
- Drive actions to inspire confidence and ensure ability to deliver (multichannel, people-light approaches)
- Manage volatility in demand, and refine sales motions (to virtual, etc.) and objectives

- Take measures to ensure operations continuity: workforce safety and management, stop-gap measures for supply chain, site readiness (access, maintenance, services, suppliers)
- Ensure open and direct communication with employees
- Explore solutions to retain key talent

- Build forecasts for COVID-19 impact on P&L, balance sheet, investor base
- Review capital sufficiency scenarios and possible effects on credit risk
- Manage credit and debt commitment for short term
- Create agile FY20-21 business plans and budgets to deal with uncertainty

Fight

- Assess changes in customers' behaviors
- Adapt and transform channels (e-commerce), sales, marketing spend, pricing, and support
- Ramp up commercial efforts significantly to seize market shifts; leverage learnings to accelerate digital capabilities

- Ensure quick and safe restart of facilities; push centrally driven efficiency measures
- Set up capabilities (org, control tower) to manage unstable supply chain; explore alternate networks, dual/multiple suppliers for critical goods and services, delivery methods, etc.
- Accelerate production as demand rebounds; account for product shifts

- Build central team to simulate financials as per evolving scenarios; drive agile ways of working ways
- Decisively take structural actions: TURN PMO, zero-based budgets, layering/restructuring, re-base tech portfolio, etc.; deploy rapidly as speed is predictive of success in downturns

Future

Detailed measures across priority action areas (3/3)

Navigate through Flatten, Fight, and Future

7

Emerge stronger; drive advantage in adversity

8

Accelerate Digital & Technology transformation

9

Help Society during COVID-19

Flatten

- Stress-test current value proposition and business offerings, and scan crisis impact on key customer/market trends

- Address and serve immediate workforce needs for remote working
- Leverage tools for conducting key processes online
- Adapt traditional processes to become digitally viable

- Ensure immediate support to employees, suppliers, communities, etc.
- Team with government/local communities/across industries to address crisis
- Leverage assets, supplier relationships, logistics networks, and employees to help adjacent communities
- Work across industry boundaries to identify cross-sectoral synergies to deploy solutions

Fight

- Plan for new projects to shift the portfolio and leverage the 'new normal'; plug capability gaps
- Identify white spaces in own industry and ecosystem
- Selectively invest in areas where opportunistic M&A can be conducted
- Develop and implement strategy to exploit greater talent availability

- Identify and implement key digital use cases and adapt to agile way of working
- Accelerate use cases to meet demand shifts
- Redesign key customer journeys with emphasis on digital interventions

- Determine how to contribute in the crisis to employees, customers, through medical response, supply of essential items for society, or by playing a positive economic/employment role
- Allocate innovation resources where possible to focus on solutions to COVID-19 crisis
- Leverage expertise developed to support government policies and responses, rebuild business for local customers, suppliers, etc.

Future

Source: BCG

Further reading on facts, scenarios, and key focus areas for leaders

To know more, refer to the previous editions

As of 10 April 2020

1

Facts, scenarios, and actions for business leaders

- Epidemic progression
- Thinking on a multi-timescale perspective for leaders, preparing their responses across three phases:

(1) FLATTEN the COVID-19 infection curve, (2) collectively FIGHT the virus, preserve public health, and progressively reopen sectors of society and the economy, and (3) prepare for the FUTURE

As of 17 April 2020

2

Preparing for restart

- Testing proliferation and digital tracking of the spread; race for the cure
- Updates on government measures including first liftings of restrictions
- BCG scenarios on duration and depth of economic impacts
- Key questions and considerations for governmental and business leaders to address when restarting

As of 24 Apr 2020

3

Emerging stronger from the crisis

- Health care capacity and testing
- Business preparation and public response as key to a sustainable transition
- Consumer sentiments, economic impact forecasts, and TSR¹ performance across industries
- The relevance for business leaders to leverage real-time, leading indicators
- Perspectives on how to prepare and win with innovation as an accelerator out of the crisis

1. Total Shareholder Return
Source: BCG

Additional perspectives on COVID-19

Selected overarching publications



Technology & Digital

[The Rise of the AI-Powered Company in the Postcrisis World](#)



People & Organizations

[Take Care of Tech Talent When it Matters](#)



Operations & Digital

[Building the Bionic Supply Chain](#)



Globalization & Digital

[The Race for Digital Advantage in Africa](#)



Crisis Response Checklist

[Checklist](#)



Transformation

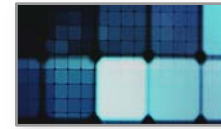
[COVID19: Win the Fight, Win the Future](#)

Selected sector and functional publications



Media

[Media Companies Amidst COVID-19](#)



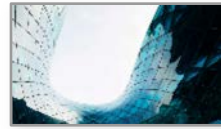
Technology

[How Tech Companies Can Shape Their Demand Recovery Post-Coronavirus](#)



Consumer

[COVID-19 Consumer Sentiment Snapshot #7: Retracing the Old Normal](#)



Financial Institutions

[For Banks, COVID-19 Makes Transformation That Much More Urgent](#)



Telecommunications

[Time for action: In times of COVID-19 Telcos need to move rapidly to be part of the solution](#)



Financial Institutions

[Global Risk 2020: It's Time for Banks to Self-Disrupt](#)



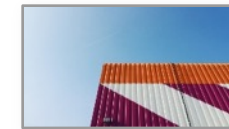
Health Care

[Biopharma Applies New Service & Support Models amid COVID-19](#)



Automotive

[Auto Companies Will Outlast COVID-19 & Come Out Stronger](#)



Transportation & Logistics

[Transportation & logistics companies must adapt to keep supplies moving](#)

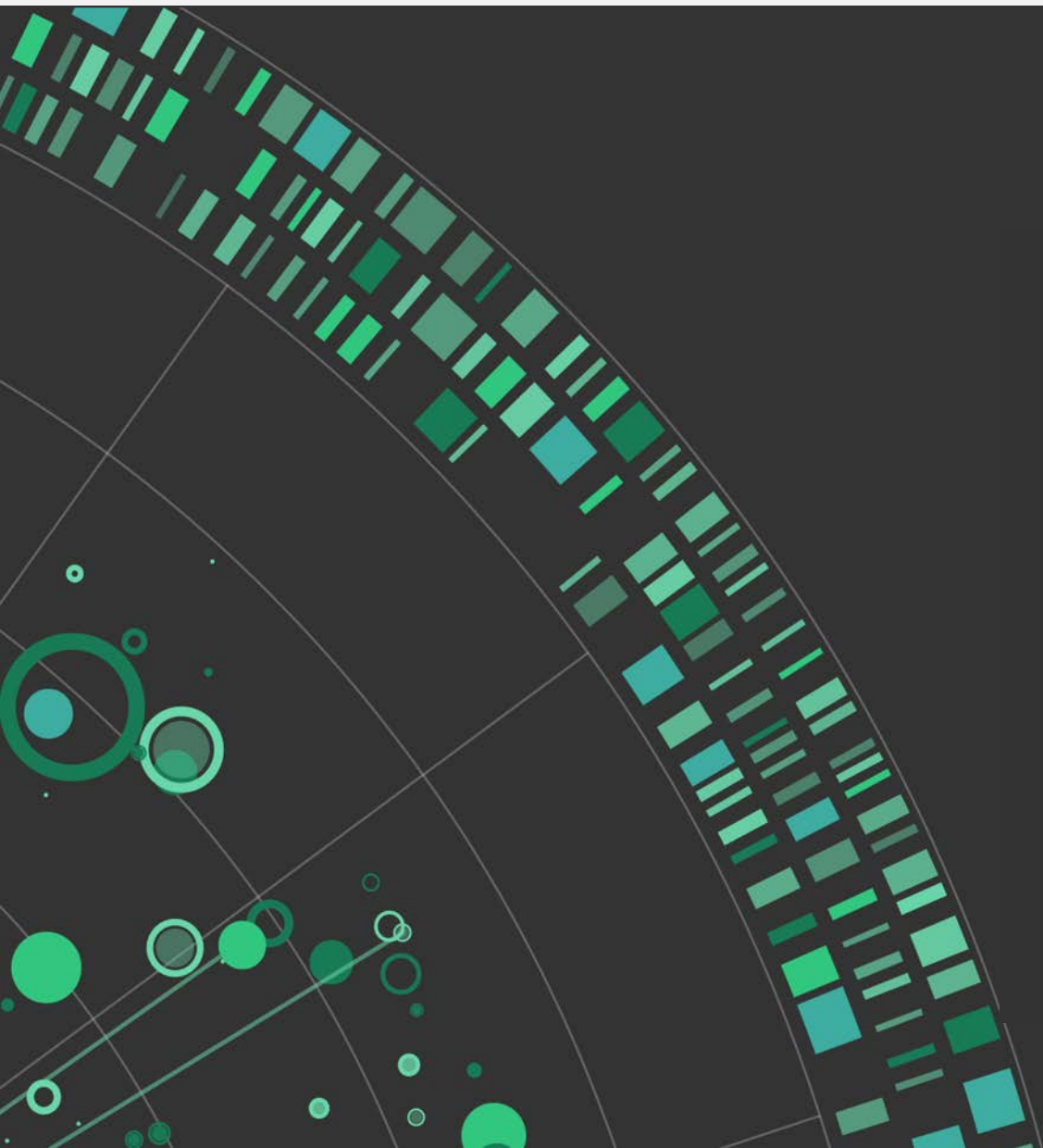
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