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STEVEN A. ALTMAN AND CAROLINE R. BASTIAN DHL GLOBAL CONNECTEDNESS INDEX 2022

An in-depth report on the state of globalization

Key Highlights

HOW WE MEASURE GLOBAL CONNECTEDNESS

Very often in the public debate, globalization is equated with international trade. In this publication, we take a broader view that observes cross-border flows of trade, capital, information, and people around the globe.

We could measure these flows by just tracking metrics such as the quantity of traded goods, the amount of international investment or the number

Depth

activity

of migrants. But a sole focus on such absolute numbers says little about the actual extent of globalization. As an example, should we be afraid of hyper-globalization if the world's exports reach \$40 trillion? Or has globalization really reversed if trade has shrunk by 10%? We can only answer such questions by putting numbers like these in perspective. We do this in two ways:



1. We measure the *depth* of international flows:

This means we determine how much of a country's trade, capital, information, and people flows are international rather than domestic. For trade, for example, we compare exports to total economic output. This and other ratios help us evaluate how significant the respective international flow is.

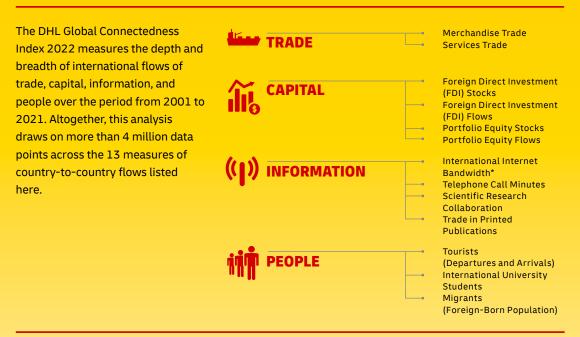
2. We measure the breadth of international

Breadth

Geographic distribution of

international flows

flows: This means we evaluate to what extent flows are distributed broadly around the globe rather than concentrated between specific origins and destinations. After all, in a truly globalized world, one would expect countries to trade with a wide variety of nations rather than just a few neighbors.



* Country Level Only

ABOUT THIS BROCHURE

DEAR READER,

The range of predictions about globalization has been astonishing lately. Some have even declared its "end."

Undoubtedly, we have been hit by a series of severe crises and shocks in recent years: a pandemic, a war in Europe, trade conflicts, rapid increases in food and energy prices, and rising geopolitical tensions. We live in a volatile world, and globalization does face challenges.

But in uncertain times like these, it is especially important to base our views and forecasts on reliable facts. The DHL Global Connectedness Index 2022 provides an ideal foundation to do just that. Analyzing data from over 170 countries, it reveals how goods, people, capital, and information move around the world, providing us with a unique, in-depth picture of the state of globalization and its prospects.

And the latest numbers may surprise some readers. They clearly show that international flows have been remarkably robust in the face of today's headwinds, strongly refuting the notion that globalization is on the retreat. The data provide plenty of reasons to believe in its power, its benefits, and its resilience.

On the following pages, this brochure presents key highlights of the DHL Global Connectedness Index 2022 in a concise overview. For the complete report with many more insights, analyses and visualizations, as well as source citations and additional resources, we invite you to visit dhl.com/gci.

Enjoy the read!

Frank Appel CEO, Deutsche Post DHL Group

A Alton

Steven A. Altman Senior Research Scholar and Director of the DHL Initiative on Globalization, NYU Stern





10 KEY TAKEAWAYS

After a modest decline in 2020, the DHL Global Connectedness Index rebounded to above pre-pandemic levels in 2021, and currently available data point to another increase in 2022. International flows have proven remarkably resilient through recent crises, strongly rebutting the notion that globalization has gone into reverse.

2

There is evidence of decoupling between the United States and China across most types of international flows. This decoupling has not—or at least not yet—led to a broader fragmentation of international activity between rival blocs.

3

Trade flows stretched out over longer distances during the Covid-19 pandemic, contrary to predictions of a shift from globalization to regionalization. Roughly half of all international flows already happen inside major world regions, and it is still an open question whether regionalization will increase significantly in the coming years.

The volume of world trade in goods reached 10% above its pre-pandemic level in mid-2022, and trade in services also surpassed pre-pandemic levels last year. Trade growth, however, is forecast to slow in 2023, mainly due to slower global economic growth.

5

Foreign direct investment flows, which reflect companies buying, building, or reinvesting in international operations, rebounded to above prepandemic levels in 2021, before starting to weaken in the second quarter of 2022. The globalization of information flows continued in 2021, based on measures such as the growth of international internet traffic and international voice calls. The proliferation of data flow restrictions, however, raises questions about future prospects for global information flows.

People flows remained below pre-pandemic levels through 2022, due to the continued effects of the pandemic on international travel. The number of people traveling to foreign countries roughly doubled in 2022, but was still down 37% from 2019.

The Netherlands was the most globally connected country in 2021, after falling to second place in 2020. Singapore ranked second overall and first in terms of the size of international flows relative to domestic activity. The United Kingdom had the most globally distributed flows.

Europe is the most globally connected region, with 8 of the 10 most globally connected countries located there. Europe leads on connectedness of both trade and people, while North America leads on capital and information.

10

The public policy environment has become less favorable for globalization, increasing the risk of a costly decline or fragmentation of international flows. Present challenges should motivate a focus on making globalization work better in order to preserve and expand the benefits of a connected world.

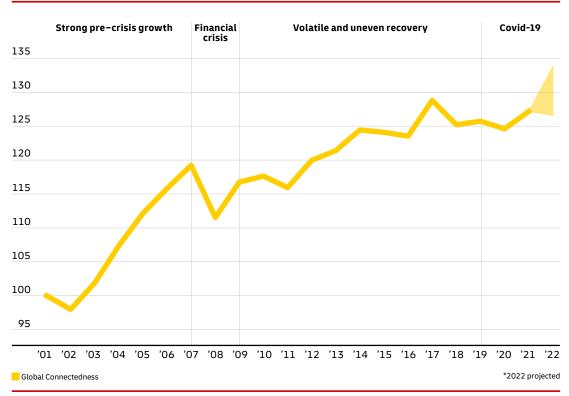
HAS GLOBALIZATION GONE INTO REVERSE?

The world has faced a series of shocks over the past decade, with the Covid-19 pandemic and the war in Ukraine following on the heels of the U.S. – China trade war and the UK's withdrawal from the EU. These disruptions, along with rising geopolitical tensions, have prompted speculation about the end of globalization.

The latest data on actual flows between countries, however, strongly refute the notion that a major retreat from globalization is underway. After a modest decline in 2020 because of the Covid-19 pandemic, the DHL Global Connectedness Index rebounded to above pre-pandemic levels in 2021. And currently available data point to another increase in 2022, despite effects of the war in Ukraine.

Nonetheless, today's threats to globalization are real and demand attention. Trade protectionism has increased, international investments face heightened scrutiny, and data flow restrictions are proliferating. Meanwhile, geopolitical tensions challenge international cooperation and key institutions, such as the World Trade Organization.

DHL Global Connectedness Index, 2001–2022*



The DHL Global Connectedness Index summarizes globalization based on international flows of trade, capital, information, and people worldwide. As it focuses on business and economics, trade and capital flows are given more weight (35% each) than information and people flows (15% each).

⁶⁶ The Covid-19 pandemic only caused the index to decline modestly in 2020, and the index rebounded to well above its pre-pandemic level in 2021. ⁹⁹

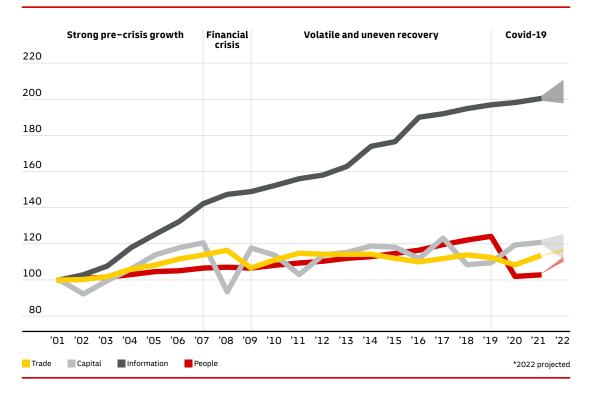
FOUR FLOWS THAT CONNECT THE WORLD



How have the Covid-19 pandemic and the war in Ukraine affected the growth and globalization of international trade, capital, information, and people flows? The figure below depicts how each category of flows developed over two decades. Even in the face of substantial shocks over the last few years, international flows have shown remarkable resilience. By 2021, global flows of trade, capital, and information had surpassed their pre-pandemic levels. And while people flows were stagnant in 2021, they made progress towards recovery in 2022.

Most types of international flows are likely to continue growing in 2023, albeit at a slower pace. This is due mainly to weaker global economic growth following a set of large interest rate increases aimed at curbing inflation.

DHL Global Connectedness Index, four pillars, 2001 - 2022*



The trade pillar of the DHL Global Connectedness Index covers trade in goods and services. The capital pillar measures foreign direct investment (FDI) and portfolio equity investment. The information pillar tracks voice calls, scientific research collaboration, and trade in printed publications. The people pillar includes international travel, education, and migration.

TRADE

- Trade volumes plummeted at the beginning of the Covid-19 pandemic, but they recovered swiftly in 2020 and continued growing in 2021 and 2022.
- Trade is expected to grow at a slower pace in 2023, mainly due to weaker macroeconomic conditions.
- The global trade to GDP ratio increased in 2021 and 2022, but it is forecast to decline modestly in 2023.
- The policy environment for international trade has worsened since 2018 as countries enacted new protectionist measures, but recent data indicate some softening of this trend.

CAPITAL

- FDI recovered to above pre-pandemic levels in 2021.
- The war in Ukraine and slowing global growth began to weigh on FDI flows in the second quarter of 2022.
- Most new investment policy measures support FDI, but a growing number of countries are enacting policies restricting or regulating FDI flows.
- Global portfolio equity flows remained fairly stable despite large swings in flows to emerging markets.
- While some indicators of corporate globalization have declined modestly in recent years, others have remained stable or continued to grow.

INFORMATION

- The growth of international data flows spiked in 2020, but this did not lead to a sustained acceleration.
- In 2021 and 2022, the growth rate of international internet traffic was back in line with pre-pandemic trends.
- Data on voice calls and scientific collaboration suggest that the globalization of information flows continues but has slowed in recent years.
- Countries are racing to define and implement policies governing international data flows. More restrictive policies could significantly hinder the growth of international activity.

PEOPLE

- International travel was down by roughly 70% from 2019 levels in 2020 and 2021—and still down 37% in 2022.
- The UN World Tourism Organization predicts that the number of people traveling to foreign countries will be only 5 – 20% below pre-pandemic levels in 2023.
- International education and migration were slowed by the pandemic but the effects were much less severe for these flows than for travel.
- The war in Ukraine has caused a large increase in the number of refugees and internally displaced persons.

IS THE WORLD FRACTURING INTO RIVAL BLOCS?

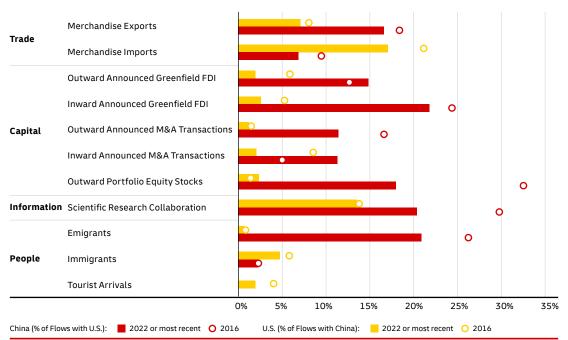


As tensions have intensified between the world's two largest economies, the U.S. and China, fears have grown that a new cold war could fracture the global economy into rival blocs. These concerns grew substantially in 2022, when Russia's invasion of Ukraine prompted many countries to cut business ties with Russia and Belarus, tensions flared over Taiwan, and the U.S. enacted a ban on advanced semiconductor sales to China.

In fact, there is clear evidence of U.S. – China decoupling across a wide variety of international flows since 2016. The figure below tracks the shares of U.S. flows that are with China and vice versa. When the bars (most recent shares) do not extend as far to the right as the circles (shares in 2016), this is evidence of decoupling.

The figure also shows that China is more "coupled" with the U.S. than vice versa: Across all but two of the flow types (merchandise imports and immigrants), the share of China's flows involving the U.S. is larger—often much larger—than the share of the U.S.'s flows involving China.

But is there also a fragmentation between rival blocs of countries? Data indicate that this is—at least so far—much more limited, both in terms of the types of flows involved and the magnitude of the changes in flow patterns. There is very little evidence of close allies of the U.S. and China reducing their focus on flows with the rival bloc.



U.S. – China flows, 2022 (or most recent) vs. 2016

Data sources: IMF Direction of Trade Statistics, UN Comtrade, fDi Markets, Thomson Reuters, IMF CPIS, Clarivate Web of Science, UN DESA International Migrant Stock, UNWTO Tourism Statistics

The yellow bars show what percent of the U.S.'s flows with all countries were to or from China (in 2022 or most recent year with data available). The red bars show what percent of China's flows were to or from the U.S. For a recent historical comparison, the circles show the same measures as of 2016, before the start of the U.S. – China trade war.

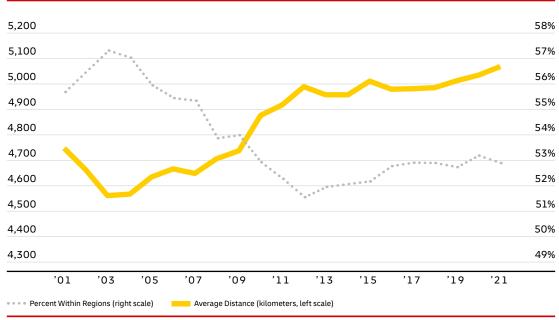
IS THERE A TREND TOWARDS REGIONALIZATION?

Geopolitical tensions, along with concerns about supply chain resilience, have prompted many observers to predict a shift from globalization to regionalization.

Data on actual flow patterns, however, do not show that such a shift has taken place—at least not yet. As an example, the figure below illustrates the share of trade flows happening within regions. They did increase during a brief period between 2012 and 2016, but that trend did not continue. And given that trade took place over longer distances (on average) in recent years, we conclude that trade patterns have not become more regionalized.

All in all, there is no robust evidence of a rising trend in the share of international trade, capital, information, and people flows taking place within major world regions. The only recent exception to this pattern involves people flows, due to a higher proportion of travel during the Covid-19 pandemic taking place between nearby countries.





Trade: Average distance and regionalization trends, 2001 - 2021

Data sources: IMF Direction of Trade Statistics, UN Comtrade, CEPII GeoDist

The gray dotted line in this figure shows the percentage of global merchandise trade happening within rather than between regions (with countries grouped into seven roughly continent-sized regions). The yellow line tracks the average distance (in kilometers) traversed by all merchandise trade flows, providing a measure that does not depend on how one chooses to group countries into regions.

LEADERS IN GLOBALIZATION

MOST CONNECTED COUNTRIES

This edition of the DHL Global Connectedness Index employed more than 4 million data points to track the globalization of 171 countries from 2001 to 2021. The ranking on the next page shows that there are countries from every geographic region among the 55 most globally connected countries. The Netherlands once again tops the list, after falling to second place (after Singapore) in 2020. (For rankings in all years, refer to dhl.com/gci.)

TOP 10 CLIMBERS 2001 – 2021



The ranking above highlights the ten countries whose global connectedness scores increased the most from 2001 to 2021.

At the top of this list, Albania and Georgia are two countries where substantial economic reforms and regional integration drove rises in connectedness. Albania, along with most of its Balkan neighbors, joined the Central European Free Trade Agreement (CEFTA) in 2007 and concluded a Stabilization and Association Agreement with the EU in 2009. In a similar vein, Georgia has recently executed trade agreements with major economies in its region. Latvia, Lithuania, and Estonia all became EU members in 2004 and have established deep connections within the bloc.

Mozambique and Sierra Leone exemplify the importance of peace and security for global connectedness. Both countries experienced a marked rise in connectedness following the conclusion of civil wars.

The United Arab Emirates substantially increased its global connectedness via a multifaceted economic development strategy spanning areas such as international shipping, air connections, tourism, and finance, supported by the development of free zones and extensive employment of foreign labor and capital. Several of the same strategies were also embraced by neighboring Qatar, propelling its rise in the global connectedness rankings.



Global connectedness ranks, rank changes 2019 - 21, and scores

Global connectedness ranks, rar						
Rank	+/-	Country	Score			
1	0	Netherlands	85			
2	0	Singapore	84			
3	+1	Belgium	81			
4	+1	Switzerland	79			
6	-2	Ireland	77			
6	0	United Arab Emirates	77			
2	0	United Kingdom	76			
8	+2	Sweden	75			
0	-1	Germany	75			
10	+1	Denmark	75			
Ō	-2	Luxembourg	74			
12	+1	Malta	72			
13	+1					
		Hungary	72			
14	+1	Malaysia				
5	+1	Czechia	71			
16	+1	Korea, Republic of	70			
17	+2	Taiwan, China				
18	+5	Israel	70			
19	-7	Norway	70			
20	0	Austria	70			
21	-3	France	70			
22	-1	Finland	70			
23	+3	Slovenia	68			
24	+4	Thailand	68			
25	+8	Poland	68			
26	-4	Spain	68			
27	+4	Estonia	67			
28	+1	United States	67			
29	-2		66			
		Italy				
30	+2	Portugal	66			
31	-7	Hong Kong SAR, China	66			
32	-2	Canada	66			
33	-8	Australia	66			
34	+2	Qatar	65			
35	+2	Bulgaria	64			
36	+5	Greece	63			
37	-2	Cyprus	63			
38	+2	Lithuania	62			
39	-5	Iceland	62			
40	-1	Japan	61			
41	+5	Lebanon	61			
42	-4	New Zealand	60			
43	+1	Latvia	60			
44	-1	Saudi Arabia	60			
45	+4	Russian Federation	58			
46	-1	Chile	 58			
40	-1					
_	-	Slovakia	58			
48	+4	Brazil	57			
49	+8	Romania				
50	-3	Brunei Darussalam	57			
51	-1	Mauritius	56			
52	+4	Serbia	56			
53	-5	Bahrain	56			
54	+1	South Africa	55			
55	-4	Turkey	55			
	-7	Philippines	54			
56	-3					
56 57	+7	Kuwait	54			

many	jes z	019 – 21, anu scu	les
Rank	+/-	Country	Score
59	0	Ukraine	53
60	+5	Croatia	53
_			
61	-3	Viet Nam	53
62	-8	Panama	53
63	-1	Seychelles	53
64	-3	Kazakhstan	52
_	-		
65	-5	China	52
66	+7	Costa Rica	52
67	+2	India	52
68	-5	Georgia	52
69	+8	Oman	51
70	-3	Mongolia	51
71	-3	Peru	50
72	+3	Colombia	50
73	-1	Mexico	50
74	-8	North Macedonia	50
75	-1	Barbados	48
76	+13	Albania	48
77	-6	Cambodia	47
78	+3	Moldova	47
	+1	Armenia	47
80	-2	Uruguay	47
81	+10	Trinidad and Tobago	46
82	+2	Argentina	46
83	-4	Belize	46
84	+15	Libya	46
85	-15	Azerbaijan	46
86	-4	Morocco	46
87	-2	Antigua and Barbuda	46
88	+17	Marshall Islands	45
_			
89	-3	Tunisia	45
90	-3	Jordan	45
91	+1	Fiji	45
92	+10	Ecuador	44
93	+13	Guyana	44
94			
_	+4	Honduras	44
95	-1	St. Lucia	44
96	-3	Sri Lanka	43
97	-14	Grenada	43
98	-3	Ghana	43
99	+5	Suriname	43
100	0	Gabon	43
101	-4	Montenegro	42
102	-14	St. Kitts and Nevis	42
103	-7	Egypt	42
104			
_	-14	Bahamas	42
105	+4	Nicaragua	41
106	-5	Jamaica	41
107	+1	Bosnia and Herzegovina	41
108	-1	Dominica	41
109	+2	Dominican Republic	41
	-7	St. Vincent and the	41
		Grenadines	
	+1	Indonesia	40
112	+5	Congo	39
113	+8	El Salvador	39
114	+18	Guatemala	38
	0	Namibia	38

Rank	+/-	Country	Score
<u> </u>	+4	Mozambique	38
<u> </u>	-7	Tonga	38
118	-4	Mauritania	37
119	-3	Belarus	37
120	+16	Sierra Leone	37
121	+6	Côte d'Ivoire	37
122	-9	Solomon Islands	37
123	+10	Bhutan	36
124	+7	Paraguay	36
125	+20	Liberia	36
126	-2	Algeria	36
127	+2	Lao People's Demo- cratic Republic	36
128	-6	Samoa	35
129	+5	Madagascar	35
130	-11	Iraq	35
131	-5	Pakistan	35
132	-4	Kyrgyzstan	35
133	-10	Nigeria	35
134	-9	Bolivia, Plurinational State of	35
135	0	Cabo Verde	34
136	+3	Gambia	34
137	+5	Senegal	34
138	+10	Guinea	34
139	-2	Zambia	34
140	-10	Myanmar	34
141	+20	Timor-Leste	34
142			
142	-1	Botswana	34
_	-5	Cameroon	34
144	-26	Vanuatu	33
145	+10	Tajikistan	33
146	+6	Iran, Islamic Republic of	33
	-1	Bangladesh	33
148	-5	Eswatini	33
149	+5	Uganda	33
	-6	Uzbekistan	32
151	-11	Angola	31
152	-5	Venezuela, Bolivarian Republic of	31
153	-2	Тодо	30
154	-1	Kenya	30
155	+4	, Burkina Faso	30
156	-7	Kiribati	29
157	-7	São Tomé and Príncipe	29
158	-1	Papua New Guinea	29
159	-3	Nepal	29
160	+2	Zimbabwe	28
161	+2	Benin	28
162	-2	Mali	27
163	-5	Tanzania, United Republic of	27
164	+3	Sudan	27
165	-1	Rwanda	25
		Democratic Republic	
166	-1	of the Congo	24
167	+1	Niger	24
168	+3	Yemen	23
169	-3	Malawi	22
170	-1	Burundi	22
171	-1	Guinea-Bissau	21

East Asia & Pacific
North America

South & Central Asia

Middle East & North Africa South & Central America & Caribbean

THE GLOBALIZATION DEBATE IN 2022

Debates about the future of globalization continued in 2022, with prominent thinkers articulating a variety of perspectives. The war in Ukraine prompted some to predict the end of globalization, while others argued that globalization will continue and change in various ways. The data and analysis in this report can help to evaluate such opposing perspectives.

"The Russian invasion of Ukraine has put an end to the globalization we have experienced over the last three decades." Larry Fink, Chairman and CEO of BlackRock

> "The surprise of the last two years has been how resilient globalization has turned out to be. In an exceptionally turbulent period, the strength and variety of the connections between countries has been more surprising by its durability than by its fragility." Moisés Naím, Distinguished Fellow at the Carnegie Endowment for International Peace

"Rather than the end of economic integration, the world is experiencing a geopolitical recession that has left globalization adrift." Ian Bremmer, President of Eurasia Group

> "The pandemic and the war has ignited tendencies towards greater fragmentation, reshoring of supply chains and retrenchment of capital flows, which will pose long term challenges to both globalization and the global economy." Shaktikanta Das, Governor of the Reserve Bank of India

"We have entered a phase of global integration driven by new forces, one that will be more diverse and more managed than the one that came before. And that needn't be a bad thing." **Wang Huiyao, Founder and President of the Center for China and Globalization**

> "It is still too early to say how this will play out, but one can already see the emergence of three distinct shifts in global trade. These are the shifts from dependence to diversification, from efficiency to security, and from globalization to regionalization." Christine Lagarde, President of the European Central Bank

"Trade and investment ties are holding up. Capital flows are continuing. I don't really think that you can say that there is an age of deglobalization. We live through a reconfiguration of globalization." Sabine Weyand, European Union Director-General for Trade

> "A new kind of globalization is on the horizon, one of new technological tools, demographic shifts, climate changes, and a billion new online consumers. ... Companies may pull back their global footprints or lessen the number of links along their production chains, but there are too many advantages and profits to be made in international making and selling of goods and services to stop." Shannon K. O'Neil, VP and Deputy Director of Studies, Council on Foreign Relations

THE AUTHORS

Steven A. Altman is a Senior Research Scholar at the New York University Stern School of Business and an Adjunct Assistant Professor in NYU Stern's Department of Management and Organizations. Professor Altman is also Director of the DHL Initiative on Globalization at NYU Stern's Center for the Future of Management. His research focuses on globalization and its implications for business strategy and public policy. He holds a PhD from the University of Reading, an MBA from the Harvard Business School, an MPA from Harvard's John F. Kennedy School of Government, and a BS in Economics from the Wharton School of Business at the University of Pennsylvania.

Caroline R. Bastian is a Research Scholar at the New York University Stern School of Business. Ms. Bastian is based in the school's DHL Initiative on Globalization at its Center for the Future of Management. She coordinates the initiative's work on data science, statistics, quantitative methods, and data visualization. Ms. Bastian holds an MS in Applied Statistics for Social Science Research from New York University, a Master of International Affairs from Columbia University, and a BA from Pacific University.

THE DHL INITIATIVE ON GLOBALIZATION

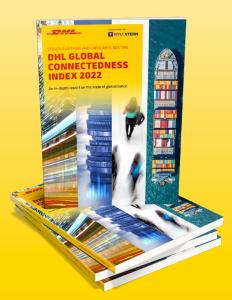
The DHL Initiative on Globalization at NYU Stern's Center for the Future of Management aims to develop and maintain the academic world's most comprehensive collection of data on the globalization of trade, capital, information, and people flows, and to be a leading center of excellence for data-driven globalization research. Drawing upon this unique research base, the Initiative strives to provide business leaders, policymakers, and educators timely and useful insights into the state and trajectory of globalization, how globalization affects companies and countries, and best practices for connecting across borders. Find out more at: **www.stern.nyu.edu/globalization**



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DHL GLOBAL CONNECTEDNESS INDEX 2022

- The DHL Global Connectedness Index is a unique, in-depth report on the state of globalization and its prospects. Analyzing more than four million data points from over 170 countries, it reveals how goods, people, capital, and information move around the world.
- Maps, charts, and other data visualizations bring the facts to life, making the report not only a valuable resource for pinpointing promising business opportunities but also a convenient reference for a broad variety of audiences. Published regularly since 2011, it supports fact-based debates and helps separate fact from fiction about globalization.
- A collection of 171 one-page country profiles provides concise summaries of individual countries' globalization patterns.



Download the complete report at www.dhl.com/gci

This web page also contains additional resources, including an interactive tool that can be used to customize results.

Imprint

Publisher: Deutsche Post DHL Group, Headquarters

Responsible: Monika Schaller, Head of Group Communications, Sustainability & Brand 53250 Bonn, Germany

Project Leadership Deutsche Post DHL Group: Anita Gupta, Mathias Schneider

dhl.com/gci

valid: March 2023 Mat. No. 675-601-092

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