

EASE OF DOING DIGITAL BUSINESS 2019

Which Countries Help Expedite Entry, Growth,
and Exit of Technology-Based Businesses?

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The Fletcher School, Tufts University

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Global Open Data Index	The Private Capital Research Institute (PCRI)	
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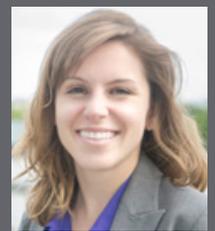
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ABOUT

DIGITAL PLANET

Digital Planet, an interdisciplinary research initiative of The Fletcher School's Institute for Business in the Global Context, is dedicated to understanding the impact of digital innovations on the world and providing actionable insights for policymakers, businesses, investors, and innovators.

INSTITUTE FOR BUSINESS IN THE GLOBAL CONTEXT

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EXECUTIVE SUMMARY

If the yardstick of effectiveness of any scorecard or ranking were tangible efforts, by those graded, to “improve bad ratings or maintain good ones,”¹ few come even remotely close to the World Bank’s annual *Doing Business* survey. A comparison of country regulations—on starting, running, and folding an enterprise—designed to motivate country governments to improve their business environment and remain attractive to businesses and investors, *Doing Business* has inspired more than 3,500 reforms² across 190 economies to date; in 2017-18 alone, 128 economies undertook a record 314 reforms.³

While it remains by far one of most influential measures of business regulations and enforcement, *Doing Business* says little about the ease or difficulty of doing *digital* business. We aim to close this gap with this first analysis of the *Ease of Doing Digital Business (EDDB)* in 42 countries around the world. We find that digital business environments require distinctive policy focuses and investments. Our evaluation is inspired by and intended as a complement to the World Bank’s influential scorecard; it is designed to provide decision-makers with a basis to go beyond a mere comparison of countries on factors that determine “traditional” business-friendliness into the nuances that affect setting up and operating digital businesses across markets. While it is true that most businesses have elements of digital technology built into them, we define “digital businesses” as those with a digital platform⁴ as core to their business models. To that end, we analyze the ease of entry and operation of four essential digital platforms: e-commerce platforms (such as Amazon, Alibaba, and so on); digital media platforms (such as YouTube, Netflix, Tencent Video, and such); sharing economy platforms (such as Uber, Airbnb, Bolt, Gojek, and others); and online freelance platforms (such as Upwork, Toptal, and similar).

These four platforms capture the core ways in which digitalization is transforming our daily lives. E-commerce has already significantly impacted the way we search for and order goods, from groceries to textbooks. Digital media is continuing to change the way we access news and entertainment, with digital news subscriptions overtaking print subscriptions and video streaming sites outperforming cable television. Transportation, accommodation, delivery services, and other physical services are being reorganized through new business models in the sharing economy. Lastly, the digital gig economy (online freelance) is also shaping the future of work, as employment is shifting from full-time traditional jobs to remote, contract-based jobs arranged on online platforms. The digital economy will inevitably influence the way we work, shop, travel, and entertain ourselves, and our four chosen platforms encompass these existing and imminent changes.

DIGITAL BUSINESSES ARE ESSENTIAL—AND DIFFERENT

In our *Digital Planet 2017* report,⁵ we said that as the digital economy continues to exert an ever larger impact on global growth, countries would do well to pay particular attention to the “digital competitiveness” of their countries, strengthening the digital and analog foundations that underpin their ability to compete in the global digital economy. We also observed that digital platforms are a ticket to inclusion into the global marketplace and that governments and policymakers keen to foster inclusive growth among their citizenry ought to work towards enabling greater access and eliminating barriers to digital platforms.

Attracting and nurturing digital business is key to inclusive economic growth both for advanced and advancing economies. Digital businesses represent the most dynamic aspect of most major economies. In the US, for example, the digital economy grew 3.7 times faster in the 11 years through 2016, compared to the economy as a whole, according to the Commerce Department's Bureau of Economic Analysis.⁶ Digital businesses, once they are past a threshold of size and visibility, bring with them outsized expectations: they dominate lists of the most valuable companies, from those that are publicly traded⁷ to privately-held unicorns.⁸ Digital businesses are also key to economic and social leapfrogging⁹ opportunities across the developing world.

While digital businesses have to contend with many of the same challenges as all businesses, they are different in many ways.

- They grow or shrink at different speeds and are governed by several factors that are specific to the digital ecosystems.
- The nature of market resistance and competition are different for such businesses.
- Digital businesses also present some nuanced regulatory challenges. Growing concerns about the power of the big technology companies¹⁰ leads to increasing scrutiny on how to balance essential network effects with keeping the market power of the companies in check.
- Given their strategic value, digital businesses are often given different priority by governments. The US-China rivalry is a case in point: almost every international digital business that has tried and failed to enter China has encountered barriers.¹¹ Conversely, the US government has targeted the Chinese digital giant, Huawei, for particularly stringent restrictions.¹²
- Rules governing the mobility of data, protection of user privacy or net neutrality can fundamentally affect the ease of doing digital business—and these rules vary across countries.

More generally, numerous factors are idiosyncratic to digital businesses, including infrastructural considerations such as digital access and adequate bandwidth, institutional impediments for creation of digital content such as internet censorship, and the availability of talent pools sought by freelance platforms. Despite the growing importance of the sector, these factors are not as well understood, benchmarked across countries, or systematically evaluated for action by policymakers, business leaders, and investors.

CREATING A SCORECARD FOR THE EASE OF DOING DIGITAL BUSINESS

We posed the question: How easy is it for the most significant digital platforms to enter, operate, thrive or exit in markets around the world, and what are the primary facilitators and barriers?

In our quest for answers, we drew upon 236 variables¹³ across 42 countries from over 60 data sources comprising public databases such as those from the World Bank and the World Economic Forum; subscription services, such as GSMA and Euromonitor; and proprietary sources, such as Akamai, Chartbeat, and Private Capital Research Institute. To create a composite picture of “digital business,” we considered four types of digital platforms representing distinct value propositions and the primary

business models—e-commerce platforms, digital media, sharing economy platforms, and online freelance—as the leading indicators of digital business opportunities in a country.

To arrive at a country's overall Ease of Doing Digital Business score, we combined foundational measures essential to the functioning of any digital business (the ease of starting, running, and folding an enterprise—that is, the *Doing Business 2019* score as our point of departure; the state of digital and analog foundations, a derivative of our Digital Evolution Index (DEI);¹⁴ and the ease of data accessibility and mobility) with measures of the “levers of ease” specific to each of the four above-mentioned platforms (supply barriers and boosters; institutional barriers and boosters; and market sophistication).

The following two visuals capture the resulting analysis of how the ease of doing digital business in 2019 varies across the world and how it compares with *Doing Business 2019*.

There are several implications that emerge from this analysis. In the rest of this report, we delve into three broad categories of findings: patterns among notable countries, patterns across digital platforms, and a comparison of the *EDDB* with the *Doing Business 2019* rankings. The main takeaways and conclusions from our *EDDB* report are summarized below.

- First, unsurprisingly, digital regulations and public policy choices are key determinants of the Ease of Doing Digital Business. These can range from user privacy rules and internet freedoms to those governing sharing economy and e-commerce companies or those protecting the rights of freelance workers.
- Second, infrastructural elements that are at the intersection of the digital with the physical world, from internet and mobile access to payments and fulfilment, are all key to performance on *EDDB*, just as they are key to traditional businesses.
- Third, since digital businesses are built on platforms that match users on either side of a transaction, the factors governing all users' capabilities are key to *EDDB*. Skills, user sophistication, and the willingness to engage with digital platforms are all material.
- Fourth, as *Exhibit 1* illustrates, greater ease for one kind of a digital platform in a country does not automatically translate into ease for every other kind of digital platform. Policymakers need a granular awareness of the factors that buoy and beset specific digital platforms. Focused actions directed towards identifying and eliminating platform-specific barriers along with eliminating barriers at the foundational level are key to digital business competitiveness.
- Lastly, and perhaps most importantly, data accessibility and mobility of data across-borders is central to the sustained growth of and innovation among digital businesses. Several countries¹⁵ have restrictions on data flows or onerous data localization laws in place. Such laws have the effect of imposing a regressive tax on digital businesses: they raise the costs of entry and of doing digital business especially for startups¹⁶ and SMEs, encourage rent-seeking¹⁷ behavior among established domestic actors, and reduce competition.¹⁸ Policymakers keen to foster robust and competitive digital economies would do well to measure and monitor their Gross Data Product—or, as we call it, The New “GDP”¹⁹—eliminate barriers to accessibility of data, and work towards shared norms for cross-border data flows.²⁰

EXHIBIT 1: EASE OF DOING DIGITAL BUSINESS

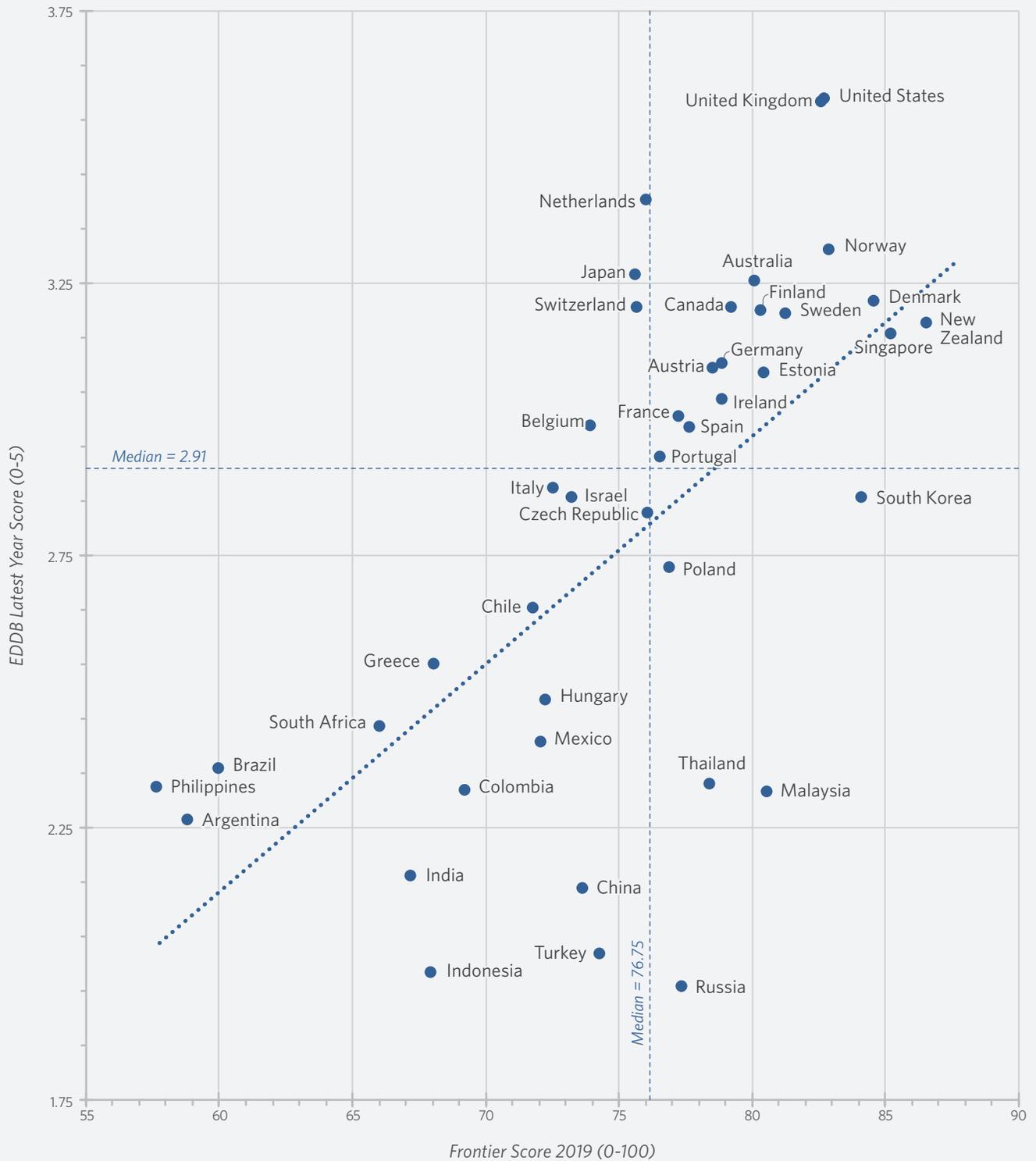
	Foundational Factors			Digital Platforms				EDDB Score
	World Bank Doing Business	Digital and Analog Foundations	Data Accessibility	E-Commerce	Digital Media	Sharing Economy	Online Freelance	
United States	●	●	●	●	●	●	●	3.60
United Kingdom	●	●	●	●	●	●	●	3.59
Netherlands	○	●	●	●	○	●	●	3.41
Norway	●	●	●	○	○	●	○	3.32
Japan	○	○	●	●	●	○	○	3.27
Australia	○	○	●	○	○	○	●	3.26
Denmark	●	○	○	●	○	●	●	3.22
Switzerland	○	●	○	●	●	○	○	3.21
Canada	○	●	○	○	●	○	●	3.21
Finland	○	●	○	○	○	●	○	3.21
Sweden	●	●	○	●	○	○	○	3.20
New Zealand	●	○	●	○	○	○	●	3.18
Singapore	●	●	○	○	○	○	●	3.16
Germany	○	○	○	●	●	○	○	3.11
Austria	○	○	○	○	○	○	○	3.10
Estonia	○	○	●	○	○	●	●	3.09
Ireland	○	○	○	○	○	○	○	3.04
France	○	○	○	○	●	○	○	3.01
Belgium	○	○	○	●	○	○	○	2.99
Spain	○	○	○	○	○	○	○	2.99
Portugal	○	○	○	○	○	○	○	2.94
Italy	○	○	○	○	○	○	○	2.88
Israel	○	○	○	○	○	●	○	2.86
South Korea	●	○	○	○	○	○	○	2.86
Czech Republic	○	○	○	○	○	○	○	2.83
Poland	○	○	○	○	○	○	○	2.73
Chile	○	○	●	○	○	○	○	2.66
Greece	○	○	○	○	○	○	○	2.56
Hungary	○	○	○	○	○	○	○	2.49
South Africa	○	○	○	○	○	○	○	2.44
Mexico	○	○	○	○	○	○	○	2.41
Brazil	○	○	○	○	○	○	○	2.36
Thailand	○	○	○	○	○	○	○	2.34
Philippines	○	○	○	○	○	○	○	2.33
Colombia	○	○	○	○	○	○	○	2.33
Malaysia	○	○	○	○	○	○	○	2.32
Argentina	○	○	○	○	○	○	○	2.27
India	○	○	○	○	○	○	○	2.17
China	○	○	○	○	○	○	○	2.14
Turkey	○	○	○	○	○	○	○	2.02
Indonesia	○	○	○	○	○	○	○	1.99
Russian Federation	○	○	○	○	○	○	○	1.96



EDDB Score is comprised of Foundational Factors (World Bank Doing Business, Digital and Analog Foundations, Data Accessibility), and Platform Levers (Supply, Institutions, and Market Sophistication). To avoid double-counting, in the above chart, the Digital Platform scores represent the platform-only scores (not including Foundational Factors).

Source: Digital Planet, The Fletcher School at Tufts University

EXHIBIT 2: EASE OF DOING DIGITAL BUSINESS COMPARED TO WORLD BANK DOING BUSINESS 2019



CONTEXT

In our *Digital Planet 2017* report²¹ we noted the rise of digitalization and the multifold growth in cross-border flows of technology, ideas, news, entertainment and expressed cautious optimism about this liminal moment in the global economy where data flows exerted a larger impact on global growth than merchandise goods trade, a phenomenon some researchers called the fourth channel of globalization and the era of digital globalization. We also urged policymakers, especially those in the Digital South,²² to pay particular attention to the “digital competitiveness”²³ of their countries—as in, double down on strengthening the digital and analog foundations underpinning their ability to compete in the global digital economy—and leverage digital platforms to plug their citizens into the digital global marketplace, foster inclusive growth, and use digital inclusion as a force multiplier to make tangible progress on at least a third of the Sustainable Development Goals.

The jury is still out on the prospects of digital globalization, given the events over the last two years. If 2018 was the year of techlash,²⁴ an apt portmanteau to capture the growing public animosity towards large technology companies that came to a belated realization about the industry not being able to govern itself, 2019 has shaped up to be the year of digital protectionism²⁵—a growing global trend of data localization²⁶ regulations on the grounds of law enforcement, national security, or unabashed economic protectionism—that threatens to scuttle the global flows of data, a vital source of global growth for most of this decade and the *sine qua non* for the sustained growth of digital businesses and the global digital economy. Rather than creating commonsense regulations that beget optimal market competition and channeling these emerging digital platforms into becoming engines of livelihood and a ticket to inclusion into the global marketplace for their citizens, many countries are wrongheadedly choosing to impose knee-jerk data restrictions and rules that impede new entrants and frustrate the operations of existing digital platforms.

The progress of digital inclusion in recent years has been a mixed bag. While the global internet user growth rate is holding somewhat steady,²⁷ the quality of inclusion leaves much to be desired: internet speeds are well below 10 Mbps—deemed to be the minimum speed required for consumers to “fully participate in a digital society”²⁸—especially in parts of the world where most of the recent billion new users²⁹ reside. Despite these weaknesses in digital and analog foundations and institutional inconsistencies, the creative gales of digital innovation continue to blow around the globe with startups and innovators using data and digital patches to fix broken information and infrastructural links in some cases, upend entire existing structures in some others, and in the process creating value for consumers and investors and a whole new category of jobs in the global gig economy.³⁰ Consider three such examples: Sokowatch,³¹ an SMS-compatible B2B platform to accommodate the ground reality of smart phones still being a luxury item for large swathes of African consumers, connecting millions of informal retailers across Africa to create a digital supply chain; Gojek,³² which brought price discovery, transparency, and convenience to motorbike taxis crisscrossing Jakarta’s notoriously gridlocked streets to become Indonesia’s first and only decacorn;³³ and Upwork,³⁴ a global online freelance platform that connects high skilled freelancers based anywhere in the world with short-term projects. These digital platforms and many others like them have been successful in identifying gaps in the market and creating viable new markets by plugging said gaps.

Digital platforms and their underlying technologies lend themselves quite well to working with and around infrastructural constraints and to scaling internationally in record time. However, entering, operating, and growing a digital business across-borders represents an entirely different challenge when compared to the experiences of “traditional” businesses. Consider the travails of e-commerce platforms such as Amazon and Walmart, who have come to realize that regulators in India treat online retailers differently;³⁵ ride-sharing and home sharing companies such as Uber³⁶ and Airbnb³⁷ experiencing resistance from multiple stakeholders other than just the incumbents and other competitors in parts of Europe; and of almost every international digital platform that has tried and failed to enter China.³⁸

The factors that govern the ease of building digital economy businesses globally, unlike that of traditional businesses, are not as well understood or measured. The World Bank’s annual *Doing Business* rankings, designed to motivate country governments to improve their business environment and remain attractive to businesses and investors, do provide a comparison of country regulations on starting, running, and folding an enterprise. While it remains one of the most influential measures of business regulations and enforcement—having inspired more than 3,500 reforms³⁹ across 190 economies to date, and in 2017-18 alone, a record 314 reforms⁴⁰ across 128 economies—*Doing Business* says little about the ease or difficulty of doing *digital* business. Nor does it include any measures pertaining to factors governing the ease of business-building in the digital economy, such as access to adequate levels of bandwidth to facilitate engagement on digital platforms; efficiency of postal delivery services for international shipments and last mile delivery in country; institutional enablers for creation of digital content and the internet censorship environment; the regulations on and pushback against ride-sharing platforms; the availability of skilled talent sought by freelance platforms; and data protection and privacy concerns, to name a few.

It is essential to understand the factors that facilitate the building of digital businesses for several reasons:

- Digital businesses, if successful, are disproportionate in their capacity to create value. If the global digital economy were its own country, in 2016 it would have been the fifth largest national economy, valued at \$4.2 trillion.⁴¹
- Digital businesses are dynamic and are major contributors to economic growth. The US digital economy grew at an average annual rate of 5.6% in the 11 years through 2016, compared with 1.5% growth in the economy as a whole, according to the Commerce Department’s Bureau of Economic Analysis.
- Digital businesses are governed by factors distinctive from the factors that determine the ease or difficulty of building businesses in traditional sectors.

With an aim to close this gap in our collective understanding, we posed the question: How easy is it for the most significant digital platforms to enter, operate, thrive, or exit in markets around the world, and what are the primary facilitators and barriers? The search for answers led us to identifying the factors that buoy and beset digital businesses and the creation of this analysis of the *Ease of Doing Digital Business (EDDB)* in 42 countries around the world. Our evaluation is inspired

by and intended as a complement to the World Bank’s influential scorecard; it is designed to provide decision-makers with a basis to go beyond a mere comparison of countries on factors that determine “traditional” business-friendliness into the nuances that affect setting up and operating digital businesses across markets.

Our analysis explores the ease of four major digital business platforms—e-commerce, digital media, sharing economy, and online freelance—that have been transforming the way we buy, sell, dwell, work, play, and pay. The results also provide insight into the forms of intervention that might help improve conditions in any given country as well as factors that hold a country back. They highlight the role of complex factors that are central to digital business ecosystems, such as a country’s approach to protecting and regulating access to user data, digital payment rails, and other aspects of digital infrastructure, as well as norms, regulations, and consumer attitudes that have a profound influence on the ease of doing digital business. Barriers to doing digital businesses, our research reveals, tend to be a combination of institutional and infrastructural factors, as well as those idiosyncratic to the market and nature of the digital platform used to establish the business.

We continue to remain optimistic about the promise and potential of digital platforms in unlocking inclusive growth. The forms of policy and regulatory interventions needed to realize this are still in their formative stages. Many governments are trying to work out their stance on fundamental issues from data usage, localization, and access to regulations governing media content, cross-border payments, authentication and e-commerce, in addition to policies for sharing economy businesses that challenge existing norms in established industries, such as retail, hospitality, and taxis. As governments attempt to figure out their positions—based on domestic calculus and internal evaluations, and by benchmarking against other governments—we hope this report and our comparative ranking of the ease of doing digital business will be helpful in guiding their policy choices and decisions.

EASE OF DOING DIGITAL BUSINESS 2019

AN INTRODUCTION TO OUR FRAMEWORK

OUR CONCEPTUALIZATION OF THE EASE OF DOING DIGITAL BUSINESS

We conceptualized the *Ease of Doing Digital Business (EDDB)* scorecard as an evidence-based comparison (across 42 countries) of how easy it is for digital businesses to enter, operate, thrive, and exit. We go beyond a mere comparison of country regulations to also gauge market attractiveness not in terms of market size but in terms of supply conditions and market sophistication.

While all businesses have elements of digital technology built into them, we define “digital businesses” as ones that have a digital platform⁴² as core to its business model.

To create a composite picture of “digital businesses,” we consider four types of digital platforms—e-commerce platforms (such as Amazon, eBay, Alibaba etc.); digital media platforms (such as YouTube, Hulu etc.); sharing economy platforms (such as Didi Chuxing, Uber, Airbnb etc.); and online freelance platforms (such as Upwork, Toptal etc.)—as the leading indicators of digital business opportunities in a country. We chose these four platforms for our study because:

- these platforms represent the primary forms of digital businesses;
- the associated business models are a direct outcome of the spread of the internet and related advancements in digital technologies;
- the platforms are broadly representative of the era of “digital globalization,” in which data flows have been shaping and enabling “the movement of goods, services, finance, and people”⁴³ both within and across-borders and creating valuable data and information in the process.

While ecommerce, digital media, and sharing economy platforms are fairly distinct categories in and of themselves, online freelance encompasses a wide range of activities which are usually colloquially bucketed under the catchall term “the gig economy.” For the purposes of measuring the *EDDB*, we define online freelance as highly skilled freelancers using the internet to secure, complete, and deliver projects. The lower end of gig economy workers, like ride-share drivers, are included in the sharing economy platform.

To arrive at a country’s overall Ease of Doing Digital Business score, we combined foundational measures essential to the functioning of any digital business (the ease of starting, running, and folding an enterprise—that is, the Doing Business 2019 score as our point of departure; the state of digital and analog foundations, a derivative of our Digital Evolution Index;⁴⁴ and the ease of data accessibility and mobility) with measures of the “levers of ease” specific to each of the four above-

mentioned platforms (supply barriers and boosters; institutional barriers and boosters; and market sophistication) in the following manner:

- platform scores amounting to 50% of the total country score and
- foundational factors amounting to the other 50%

EXHIBIT 3

Platform Levers (50% of total score)		Weight & Description	
E-commerce	20%	Online retailing and delivery platforms	
Digital Media	15%	Platforms distributing and delivering media and entertainment	
Sharing Economy	10%	Platforms facilitating the sharing of assets between private individuals and groups (example: rideshare, home-share etc.)	
Online Freelance	5%	Platforms connecting high skilled freelancers with employers, facilitating discovery to delivery of short-term projects	

EXHIBIT 4

Foundational Factors (50% of total score)		Weight & Description	
Data Accessibility	25%	The extent to which data easily moves across and within borders, including the intensity of data flows and data restrictions. This is a measure of the free flow of data as well as government openness to sharing anonymized data publicly, and policies in place to safeguard user privacy.	
Digital and Analog Foundations	15%	Indicators descriptive of foundations—i.e., the Demand, Supply, Institutions, and Innovation conditions—essential for all digital platforms.	
World Bank Doing Business	10%	Doing Business Distance to Frontier measure for 2019, representing how far a country performs compared to the best possible	

OUR GUIDING PRINCIPLES FOR CREATING A SCORECARD

Creating a scorecard for a part of the global economy where the rules of the game are still evolving is an arduous and yet much needed endeavor. As the global data accessibility debate illustrates, there is little consensus on best practices and policies pertaining to many aspects of the digital economy. To enable us to navigate our way and guide the creation of a first of its kind scorecard, we laid out a few guiding principles:

Focus on measuring aspects of ease, not market size.

While size is an important aspect of market attractiveness and tends to dominate most economic assessments, the primary focus of this study was to create comparable metrics for aspects of ease—such as barriers and boosters of the institutional, infrastructural, and idiosyncratic nature—that are often overlooked and under-researched. Ease of entry, operation, and exit can complement market size and, in some cases, can even compensate for it. The converse isn't necessarily true; a lack of ease can negate attractiveness advantages that come with size.

Focus on how easy it would be for any actor—small, large, foreign, domestic—to enter, operate, and exit a digital business in a country.

China is the most striking example of a country where, due to a variety of factors,⁴⁵ it is much easier for domestic players to start and run a digital business than it is for foreign actors. In seeking measures of ease and in evaluating the prevailing institutional and infrastructural environment, we took the perspective of an actor seeking to enter said market irrespective of the actor's country of origin.

Smart and fair regulation is better than a regulatory void or over-regulation.

As new business models emerge, regulators are faced with the challenge of creating rules of the road. In seeking measures for regulations pertaining to emerging digital platforms, we took the perspective that neither over-regulation nor a lack of regulation is preferable as one stifles business activity and the other creates uncertainty; countries that laid out clear and fair rules of competition scored better than those that didn't. Case in point: For the sharing economy, countries that have regulations that encourage a plurality of transport options score higher than countries that either expressly ban ride sharing or have no regulations in this area.

Data should flow freely—with adequate privacy safeguards.

In keeping with our view that free unfettered data flows are a vital source of global growth and the sine qua non for the sustained growth of digital businesses and the global digital economy, our scorecard favors countries that facilitate data accessibility and mobility of data across-borders while ensuring adequate privacy protections. Data Accessibility accounts for 25% of the overall EDDB score. See the "state of data accessibility" section of this report on page 39 for a detailed discussion on global data flows.

THE LEVERS OF EASE OF DOING DIGITAL BUSINESS (EDDB)

For each digital platform, we consider three main “levers of ease”: Supply, Institutions, and Market Sophistication.

Supply measures infrastructural barriers and boosters that include access, transaction and fulfillment infrastructure indicators unique to each platform. For example, for the sharing economy, the plurality of transportation and availability of idle assets are measured.

Institutions measures regulatory barriers and boosters that include platform-specific policies, trust, and institutional effectiveness. For example, for online freelance, taxation of foreign income and use of digital payments is measured. For the sharing economy, the rigidity of home and ride-sharing regulations are measured.

Market Sophistication measures idiosyncratic aspects unique to the market and the nature of digital platform, including platform-specific measures that inform the broader context of the market. For example, educational attainment and unemployment levels are an important contextual measure for online freelance. For the sharing economy, urbanization and travel/tourism levels are relevant.

EXHIBIT 5

	E-Commerce	Digital Media	Sharing Economy	Online Freelance
Supply Barriers and Boosters	Fulfillment Quality of trade and transport infrastructure, quality of logistics services	Availability of Attention Proportion of top 50 visited websites that are news or entertainment	Availability of Idle Assets Home ownership rates, car ownership rates	Incentives to Freelance Discouraged Job Index, Length of commute, Health care index
	Transaction % aged 15+ with a financial or mobile money account	Export Flow of Local Content Value of creative goods exports	Plurality of Transportation Efficiency of public transportation, efficiency of bike lanes	Drivers to Hire Freelancers MSME Density, Services, value added
	Connectivity Percentage of the population covered by at least a 3G mobile network	Import Flow of Global Content Value of creative goods imports	Plurality of Accommodation Options Hotel occupancy rates	Freelancing Activity Average number of freelancers per day, number of freelance projects issued
		Flow of User-Generated Content Share of social media users that upload content monthly	Connectivity Percentage of the population covered by at least a 3G mobile network	Mobile Connectivity 4G speed, LTE WiMAX coverage

	E-Commerce	Digital Media	Sharing Economy	Online Freelance
Institutional Barriers and Boosters	<p>Ease of Fulfillment Legal framework for consumer protection, registering property, ease of arranging shipments</p> <p>Ease of Cross-border Trade Efficiency of the clearance process, time and cost to export/import goods across-borders, taxes on international trade</p> <p>Ease of Market Entry Wholesale FDI regulatory restrictiveness indicator, anti-monopoly policy, regulations on foreign direct investment (FDI)</p>	<p>Institutional Environment for Creation of Local Content Tolerance for immigrants, cyber attacks, government spend per capita on public broadcasting networks</p> <p>Institutional Openness to Global Content Web Index's Content Blocking Index, Internet shutdowns</p> <p>Institutional Censorship Freedom of the Net, Google government removal requests, net neutrality protections</p>	<p>Government Stance Availability of ride-sharing at airports, ride-sharing regulations, home-sharing regulations</p> <p>Level of Security Crime, violence, against women</p> <p>Pushback Taxi union strength, protests and violence</p>	<p>Transaction Enablers E-invoicing promotion, received digital payments in past year</p> <p>Worker Protection Paid maternal leave, paid annual leave</p>

Market Sophistication	<p>Consumer Sophistication Digital skills among active population, school enrollment, secondary</p> <p>E-Commerce Usage E-commerce market size, used the internet to buy something online in the past year, made digital payments in the last year</p>	<p>Mobile Broadband Coverage Percent of population with at least an LTE/WiMAX mobile network</p> <p>Consumer Sophistication Literacy rates, share of population with tertiary education</p> <p>Digital Media Usage Percent using Twitter, percent using YouTube, share of internet population that uses video streaming, social media usage</p> <p>Media Monetization Mobile ad spend, digital ad spend per capita, subscription OTT viewer</p>	<p>Market Characteristics Urbanization, age, extent of travel and tourism</p> <p>Ride Sharing: Platform Development, Growth, & Adoption Investments, ride-sharing usage growth</p> <p>Home Sharing: Platform Development, Growth, & Adoption AirBnB listings</p> <p>Trust Trust in strangers</p>	<p>Educational Attainment Availability of skilled employees, share of unemployed persons with advanced education (%)</p> <p>Skill Supply Percent of active freelancers in the software and technology industry, PISA science, reading and math scores</p>
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A note to the reader on interpreting our scorecards: The scorecards in this report are constructed to enable the reader to spot, compare and contrast—at a glance—areas of strength and weakness for countries across the many measurement parameters. The overall country score in Exhibit 6 is a cumulation of foundational factor scores and levers of ease (“platform levers”) scores for each platform. The reader can easily glean from the scorecard the specific foundations and platforms that any given country is strong or weak in. For example: the reader can identify, from a cursory scan, that Online Freelance is an area of relative strength for India despite its weaknesses in other areas.

Along the same line, in our discussion of individual platforms (Exhibits 8-11), the overall country score for the digital platform is a cumulation of foundational factors and the platform levers. The spot charts make it easy for the reader to identify the specific foundational aspect or platform lever a country is strong or weak in. Staying with the India example, the Online Freelance scorecard (Exhibit 11) indicates Market Sophistication as a relatively strong lever for India.

SCORES AND RANKINGS

Exhibit 6 below shows the EDDB scores, in descending order of rank, of 42 countries and a comparison, in a spot chart format, of their scores on the three foundational factors and the four digital platforms. While the overall scores offer a view of the so-called bottom line in terms of where in the world it is the easiest to do digital business, the spot chart provides a nuanced view of the relative strengths and weaknesses of each country and the bright spots within countries.

EXHIBIT 6: EASE OF DOING DIGITAL BUSINESS

	Foundational Factors			Digital Platforms				EDDB Score
	World Bank Doing Business	Digital and Analog Foundations	Data Accessibility	E-Commerce	Digital Media	Sharing Economy	Online Freelance	
United States	●	●	●	●	●	●	●	3.60
United Kingdom	●	●	●	●	●	●	●	3.59
Netherlands	○	●	●	●	○	●	●	3.41
Norway	●	●	●	○	○	●	○	3.32
Japan	○	○	●	●	●	○	○	3.27
Australia	○	○	●	○	○	○	●	3.26
Denmark	●	○	○	●	○	●	●	3.22
Switzerland	○	●	○	●	●	○	○	3.21
Canada	○	●	○	○	●	○	●	3.21
Finland	○	●	○	○	○	●	○	3.21
Sweden	●	●	○	●	○	○	○	3.20
New Zealand	●	○	●	○	○	○	●	3.18
Singapore	●	●	○	○	○	○	●	3.16
Germany	○	○	○	●	●	○	○	3.11
Austria	○	○	○	○	○	○	○	3.10
Estonia	○	○	●	○	○	●	●	3.09
Ireland	○	○	○	○	○	○	○	3.04
France	○	○	○	○	●	○	○	3.01
Belgium	○	○	○	●	○	○	○	2.99
Spain	○	○	○	○	○	○	○	2.99
Portugal	○	○	○	○	○	○	○	2.94
Italy	○	○	○	○	○	○	○	2.88
Israel	○	○	○	○	○	●	○	2.86
South Korea	●	○	○	○	○	○	○	2.86
Czech Republic	○	○	○	○	○	○	○	2.83
Poland	○	○	○	○	○	○	○	2.73
Chile	○	○	●	○	○	○	○	2.66
Greece	○	○	○	○	○	○	○	2.56
Hungary	○	○	○	○	○	○	○	2.49
South Africa	○	○	○	○	○	○	○	2.44
Mexico	○	○	○	○	○	○	○	2.41
Brazil	○	○	○	○	○	○	○	2.36
Thailand	○	○	○	○	○	○	○	2.34
Philippines	○	○	○	○	○	○	○	2.33
Colombia	○	○	○	○	○	○	○	2.33
Malaysia	○	○	○	○	○	○	○	2.32
Argentina	○	○	○	○	○	○	○	2.27
India	○	○	○	○	○	○	○	2.17
China	○	○	○	○	○	○	○	2.14
Turkey	○	○	○	○	○	○	○	2.02
Indonesia	○	○	○	○	○	○	○	1.99
Russian Federation	○	○	○	○	○	○	○	1.96



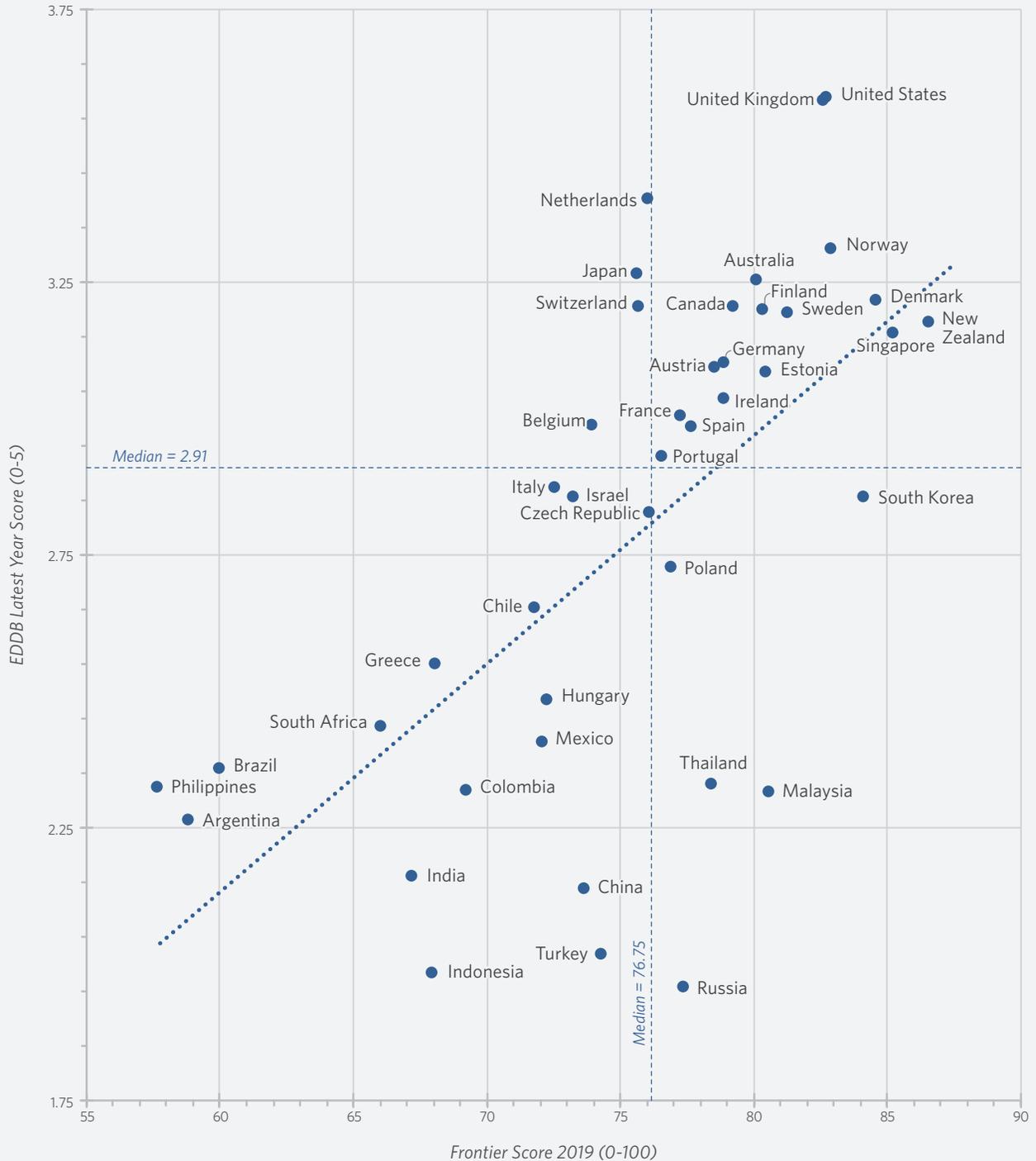
EDDB Score is comprised of Foundational Factors (World Bank Doing Business, Digital and Analog Foundations, Data Accessibility), and Platform Levers (Supply, Institutions, and Market Sophistication). To avoid double-counting, in the above chart, the Digital Platform scores represent the platform-only scores (not including Foundational Factors).
 Source: Digital Planet, The Fletcher School at Tufts University

EMERGING PATTERNS AND INSIGHTS

EDDB 2019 VS. WORLD BANK'S DOING BUSINESS 2019: A COMPARISON

Exhibit 7 shows how the EDDB scores compare with the corresponding scores of the same countries on the World Bank's Doing Business 2019 evaluation.

EXHIBIT 7: EASE OF DOING DIGITAL BUSINESS COMPARED TO WORLD BANK DOING BUSINESS 2019



There is a modest correlation between the *Doing Business* and the *EDDB* scores (coefficient of 0.42). While regulations and procedures pertaining to the ease of starting, running, and folding a business are applicable to both traditional and digital businesses, being highly competitive in *Doing Business* is neither necessary nor sufficient for competitiveness in *EDDB*. There are two ways in which the scores in one diverge from the scores on the other.

1. Advanced economies are making reforms to their digital domains, whereas emerging economies are still closing gaps in the physical domain. Several advanced economies—such as the Netherlands, Japan, and Switzerland—having achieved near-median levels of ease in *Doing Business* many years ago, seem to be building on their *Doing Business* advantages and strong digital and analog foundations to improve their *EDDB* whereas emerging markets such as Malaysia, Thailand, and Russia, which are also high digital momentum countries according to our Digital Evolution Index 2017, are playing catch up by aggressively improving their *Doing Business* scores and have yet to address their digital deficiencies. These markets would do well to concurrently work towards closing their “ease gap” in the digital domain and strengthening their digital foundations vis-à-vis advanced nations.

To take a closer look, consider the cases of Switzerland and Malaysia. As *Exhibit 7* shows, while Switzerland does better, relatively speaking, on *EDDB* than on the *Doing Business* scores, the opposite is true for Malaysia. On one hand, Switzerland is seen as slipping in the *Doing Business* rankings⁴⁶, particularly because of its weaker performance in the “starting a business” category. It has not done enough to keep up with the reforms made by other countries that have been more aggressive in promoting entrepreneurship. Switzerland has, however, consistently maintained a strong score in the digital foundational factors and is particularly outstanding in enabling digital media, which has given it a boost on the *EDDB* score. On the other hand, recently, Malaysia had carried out six business reforms,⁴⁷ and as a result it jumped nine spots on the World Bank *Doing Business* ranking to the 15th spot. Yet, Malaysia has not dealt with several barriers that affect digital businesses. These include cross-border inefficiencies and ease of market entry; a relatively lower percentage of its population covered by a 3G or better network; and factors that affect efficient fulfillment (timeliness, quality of trade and transport infrastructure, quality of logistics services, tracking and tracing). Malaysia also has a lower score on data accessibility because of the high frequency of government removal requests directed at companies such as Google and because of government requests to Facebook for user data as well as lower scores on the Freedom of the Press and Freedom of the Net indices. In contrast, Switzerland performed very well across all these metrics.

2. Some digital platforms benefit from reforms that boost *Doing Business* scores: e-commerce, given its high reliance on analog foundations for fulfillment and logistics demonstrates the strongest relationship with the *Doing Business* scores (co-efficient of 0.49). Digital Media followed by Sharing Economy stand out as the platforms with the lowest correlation with the *Doing Business* scores. In other words, countries that are strong on *Doing Business* get a boost in their e-commerce platform scores, which in turn boosts their overall *EDDB* performance.

PATTERNS ACROSS DIGITAL PLATFORMS

While all four platforms are facilitated by digital technology, the underlying factors that make them work are distinct, which accounts for the variation in how consistent a country is across the platforms, particularly as one goes lower in the EDDB rankings. Several countries, while digitally advanced, are inhospitable to certain digital platforms but not to certain others. For example, many European countries have responded to the emergence of sharing economy platforms with various curbs and bans even while encouraging other digital platforms.

In this section, we provide scorecards for each of the four platforms, complete with the foundational factors of countries and a breakdown of the three levers of ease: supply boosters, institutional boosters, and market sophistication.

(EASE OF DOING) E-COMMERCE

Given the high reliance of e-commerce on analog foundations for fulfillment and logistics, the factors that govern the e-commerce platforms bear the strongest relationship with those governing traditional businesses.

Countries in the top quartile of the scores for this platform benefit from a combination of e-commerce-friendly policies, strong enforcement regime against monopolies and cartels and factors that make it easier to transact across-borders. For example, even though the EU has made significant strides towards forging a single digital market, cross-border shipping costs remain high and inconveniences persist,⁴⁸ which have had an impact on scores for several EU nations. On the other hand, the ASEAN region has many sources of friction across the e-commerce value chain; these include gaps in access to digital payments, inefficiencies in customs processes, last mile delivery challenges, and a lack of regulatory harmonization that limit cross-border transactions.

China and the US are the two most significant players in the e-commerce market. In 2017, these two countries accounted for over half of the global e-commerce sales of physical goods. By measures of value of sales on e-commerce platforms, China's e-commerce market in 2019 is expected to be over three times the size⁴⁹ of US's. Despite its size and its strong market sophistication score, China still ranks 36th on (Ease of Doing) e-commerce primarily because its stringent data localization laws, cross-border trade frictions, and market entry restrictions make it a challenging place for new e-commerce entrants to enter and operate.

EXHIBIT 8: ECOMMERCE

	Foundational Factors			Platform Levers			EDDB Score
	World Bank Doing Business	Digital and Analog Foundations	Data Accessibility	Supply	Institutions	Market Sophistication	
United Kingdom	●	●	●	○	●	●	3.66
Netherlands	○	●	●	●	●	●	3.63
United States	●	●	●	○	○	●	3.62
Japan	○	○	●	●	○	○	3.57
Norway	●	●	●	○	○	○	3.48
Sweden	●	●	○	●	●	○	3.44
Denmark	●	○	○	●	●	●	3.44
Finland	○	●	○	●	○	○	3.40
Switzerland	○	●	○	●	●	○	3.40
Germany	○	○	○	●	○	●	3.35
Australia	○	○	●	○	○	●	3.35
New Zealand	●	○	●	○	○	○	3.32
Austria	○	○	○	○	●	○	3.32
Singapore	●	●	○	●	○	○	3.31
Belgium	○	○	○	●	●	○	3.28
Canada	○	●	○	○	○	●	3.28
Ireland	○	○	○	○	○	○	3.21
Spain	○	○	○	○	●	○	3.17
France	○	○	○	○	●	●	3.17
Estonia	○	○	●	○	○	○	3.10
South Korea	●	○	○	○	○	●	3.05
Italy	○	○	○	○	○	○	3.04
Portugal	○	○	○	○	○	○	3.03
Israel	○	○	○	○	○	○	2.95
Czech Republic	○	○	○	○	○	○	2.88
Poland	○	○	○	○	○	○	2.83
Greece	○	○	○	○	○	○	2.51
Hungary	○	○	○	○	○	○	2.48
Chile	○	○	●	○	○	○	2.47
Thailand	○	○	○	○	○	○	2.29
Malaysia	○	○	○	○	○	○	2.21
South Africa	○	○	○	○	○	○	2.21
Mexico	○	○	○	○	○	○	2.12
Brazil	○	○	○	○	○	○	2.10
Colombia	○	○	○	○	○	○	2.05
China	○	○	○	○	○	○	2.04
Philippines	○	○	○	○	○	○	1.95
Turkey	○	○	○	○	○	○	1.92
India	○	○	○	○	○	○	1.87
Argentina	○	○	○	○	○	○	1.86
Indonesia	○	○	○	○	○	○	1.75
Russia	○	○	○	○	○	○	1.70



EDDB Score is comprised of Foundational Factors (World Bank Doing Business, Digital and Analog Foundations, Data Accessibility), and Platform Levers (Supply, Institutions, and Market Sophistication).
Source: Digital Planet, The Fletcher School at Tufts University

(EASE OF DOING) DIGITAL MEDIA

The factors that govern Digital Media bear the least resemblance to those governing traditional businesses. Digital Media platforms in our study display the weakest correlation with the World Bank's *Doing Business* scores.

Countries in the top quartile of the scores for Digital Media platforms are buoyed by greater Internet and media freedoms; countries in the bottom quartile are beset by media restrictions and Internet censorship. The former group of countries also demonstrates a higher propensity to consume subscription-based content, whereas those in the bottom quartile tend to consume more social media-driven content.

Japan and South Korea make for an interesting contrast and highlight these distinctions. While both countries are comparable in the sophistication of their consumers and in the quality of supply infrastructure, Korea lags Japan on internet freedoms and censorship measures and scores much lower. China and India, collectively accounting for over a third of the global media consumers, do well on measures of market sophistication, along with Indonesia, and on supply boosters, along with Thailand and Turkey, owing to high levels of user-generated content, but they all are hampered by lower institutional scores because of restrictions on internet freedoms and media censorship.

EXHIBIT 9: DIGITAL MEDIA

	Foundational Factors			Platform Levers			EDDB Score
	World Bank Doing Business	Digital and Analog Foundations	Data Accessibility	Supply	Institutions	Market Sophistication	
United States	●	●	●	●	●	●	3.62
United Kingdom	●	●	●	●	●	●	3.46
Japan	○	●	●	●	○	●	3.28
Canada	●	●	○	●	●	●	3.13
Switzerland	○	●	○	●	○	○	3.08
Australia	●	●	●	○	●	●	3.06
Netherlands	○	●	●	○	○	●	3.06
Norway	●	●	●	○	○	○	3.04
Germany	●	●	○	●	●	●	3.03
France	○	○	○	●	●	○	2.99
New Zealand	●	○	●	○	○	○	2.97
Estonia	●	●	●	○	●	○	2.93
Denmark	●	●	○	○	○	○	2.91
Sweden	●	●	○	○	○	○	2.89
Austria	○	○	○	○	○	○	2.88
Czech Republic	○	○	○	○	●	○	2.88
Finland	○	●	○	○	○	○	2.86
Spain	○	○	○	○	○	○	2.85
Singapore	●	●	○	●	○	○	2.84
Italy	○	○	○	●	○	○	2.82
Chile	○	○	●	○	○	○	2.79
Ireland	○	○	○	○	○	○	2.77
South Korea	●	●	○	○	○	○	2.75
Portugal	○	○	○	○	○	○	2.75
Belgium	○	○	○	○	○	○	2.74
Colombia	○	○	○	○	○	○	2.65
Brazil	○	○	○	○	○	○	2.64
Argentina	○	○	○	○	○	○	2.63
Mexico	○	○	○	○	○	○	2.62
Poland	○	○	○	○	○	○	2.62
South Africa	○	○	○	○	○	○	2.55
Philippines	○	○	○	○	○	○	2.54
Israel	○	○	○	○	○	○	2.54
Greece	○	○	○	○	○	○	2.47
Hungary	○	○	○	○	○	○	2.45
Malaysia	●	○	○	○	○	○	2.41
Thailand	○	○	○	○	○	○	2.40
India	○	○	○	○	○	○	2.32
China	○	○	○	○	○	○	2.24
Indonesia	○	○	○	○	○	○	2.22
Turkey	○	○	○	○	○	○	2.09
Russia	○	○	○	○	○	○	2.05



EDDB Score is comprised of Foundational Factors (World Bank Doing Business, Digital and Analog Foundations, Data Accessibility), and Platform Levers (Supply, Institutions, and Market Sophistication).
Source: Digital Planet, The Fletcher School at Tufts University

(EASE OF DOING) SHARING ECONOMY

The factors that govern the asset sharing economy bear little resemblance to those governing traditional businesses. Sharing economy platforms in our study (ride-share and home share) display the second weakest correlation with the World Bank's Doing Business scores.

Countries in the top quartile on the Sharing Economy platform lead in the availability of idle assets and have fostered policies that integrate these businesses into their economies while mitigating the resistance and protests from various constituencies negatively affected by the growth of sharing economy businesses. The bottom five countries are dragged down by a combination of gaps in infrastructure, resistance from interest groups such as taxi drivers, protests and high levels of crime and violence. Among developed nations, Japan and Korea score low on Sharing Economy because of regulations that favor big incumbent businesses in the automotive and hospitality sectors. Denmark⁵⁰ and Estonia⁵¹ stand out in Europe for creating taxation structures that work with sharing economy platforms and their participants.

Among emerging market nations, China is a standout; it has been a hotbed for a wide variety of homegrown asset-sharing platforms that extend beyond cars and homes to umbrellas and bicycles.⁵² Latin American countries in our study do better on sharing economy, ride-sharing in particular, compared to other platforms, owing to a combination of limited regulations, minimal resistance from interest groups, large populations living in urban agglomerations, and high levels of peer to peer trust.

EXHIBIT 10: SHARING ECONOMY

	Foundational Factors			Platform Levers			EDDB Score
	World Bank Doing Business	Digital and Analog Foundations	Data Accessibility	Supply	Institutions	Market Sophistication	
United States	●	●	●	○	●	●	3.79
United Kingdom	●	●	●	●	●	●	3.72
Netherlands	○	●	●	○	○	●	3.70
Finland	○	●	○	●	●	●	3.58
Norway	●	●	●	●	○	●	3.53
Denmark	●	○	○	●	○	●	3.36
Australia	○	○	●	○	●	○	3.33
Estonia	○	○	●	●	●	○	3.29
Singapore	●	●	○	○	○	●	3.26
Sweden	●	●	○	●	○	●	3.24
Israel	○	○	○	○	●	○	3.23
Portugal	○	○	○	○	○	○	3.15
Switzerland	○	●	○	○	○	●	3.14
Ireland	○	○	○	●	○	○	3.14
Canada	○	●	○	○	○	○	3.11
Austria	○	○	○	○	○	○	3.10
New Zealand	●	○	●	○	○	○	3.05
Spain	○	○	○	○	○	○	2.88
Chile	○	○	●	○	○	○	2.83
Germany	○	○	○	○	○	○	2.83
France	○	○	○	○	○	○	2.82
Belgium	○	○	○	○	○	○	2.76
Mexico	○	○	○	○	○	○	2.71
Czech Republic	○	○	○	○	○	○	2.69
Greece	○	○	○	○	○	○	2.67
South Africa	○	○	○	○	○	○	2.67
Hungary	○	○	○	○	○	○	2.61
Brazil	○	○	○	○	○	○	2.58
Italy	○	○	○	○	○	○	2.57
Japan	○	○	○	○	○	○	2.56
Poland	○	○	○	○	○	○	2.54
Philippines	○	○	○	○	○	○	2.53
South Korea	○	○	○	○	○	○	2.51
Argentina	○	○	○	○	○	○	2.47
China	○	○	○	○	○	○	2.51
India	○	○	○	○	○	○	2.24
Russian Federation	○	○	○	○	○	○	2.22
Colombia	○	○	○	○	○	○	2.22
Thailand	○	○	○	○	○	○	2.13
Malaysia	○	○	○	○	○	○	2.11
Turkey	○	○	○	○	○	○	1.95
Indonesia	○	○	○	○	○	○	1.84



EDDB Score is comprised of Foundational Factors (World Bank Doing Business, Digital and Analog Foundations, Data Accessibility), and Platform Levers (Supply, Institutions, and Market Sophistication).
 Source: Digital Planet, The Fletcher School at Tufts University

(EASE OF DOING) ONLINE FREELANCE

Online freelancers, like traditional businesses operating across-borders, face burdens of invoicing, figuring out the intricacies of taxation of foreign income, filing of taxes, and other issues. To that extent, there is a mild correlation with World Bank's Doing Business. Beyond that, the factors governing the ease of online freelancing are significantly different.

Most of the cross-border online freelancing work (except within China) takes place in English. Countries in the top quartile tend to dominate in freelancing specializations that require a high level of English language proficiency. High skilled talent pools together with low institutional barriers and adequate supply enablers, such as broadband connectivity, make for a winning combination. China and India, while dragged into the bottom quartile owing to institutional or supply barriers, tend to lead in key areas for freelance jobs that are software and technology based.

EXHIBIT 11: ONLINE FREELANCE

	Foundational Factors			Platform Levers			EDDB Score
	World Bank Doing Business	Digital and Analog Foundations	Data Accessibility	Supply	Institutions	Market Sophistication	
United Kingdom	●	●	●	●	●	●	3.56
United States	●	●	●	●	●	●	3.40
Australia	●	●	●	●	●	●	3.35
Netherlands	●	●	●	●	●	●	3.35
Singapore	●	●	○	●	●	●	3.31
New Zealand	●	●	●	●	○	●	3.30
Norway	●	●	●	○	●	●	3.30
Canada	●	●	○	●	●	●	3.25
Estonia	●	●	●	●	●	●	3.21
Denmark	●	●	○	●	●	●	3.19
Sweden	●	●	○	○	●	●	3.17
Finland	●	●	○	○	●	●	3.15
Ireland	●	●	●	○	●	●	3.09
Switzerland	●	●	○	○	●	●	3.08
Japan	○	●	●	●	○	○	3.01
Israel	○	●	●	●	○	○	3.00
Austria	●	●	●	○	●	●	2.98
Portugal	●	●	●	●	●	●	2.93
Belgium	○	●	○	●	○	●	2.93
Spain	●	●	●	●	○	●	2.90
Germany	●	●	○	○	●	●	2.87
South Korea	●	●	●	○	●	●	2.84
France	●	●	○	○	○	●	2.82
Poland	●	○	●	●	●	●	2.81
Italy	○	○	●	○	●	●	2.79
Czech Republic	●	●	●	●	●	○	2.76
Chile	○	○	●	○	●	●	2.75
Greece	○	○	○	●	○	○	2.72
Philippines	○	○	●	○	●	○	2.67
South Africa	○	○	●	○	●	○	2.63
Mexico	○	○	●	●	○	○	2.53
Hungary	○	○	○	●	○	○	2.52
Malaysia	●	●	○	●	○	○	2.50
India	○	○	○	○	●	●	2.48
Colombia	○	○	●	●	●	○	2.45
Argentina	○	○	●	○	○	○	2.44
Thailand	●	○	○	●	○	○	2.43
Brazil	○	○	●	○	○	○	2.38
Russian Federation	●	○	○	●	○	○	2.22
Indonesia	○	○	○	●	○	○	2.20
Turkey	○	○	○	●	○	○	2.17
China	○	○	○	○	○	○	2.06



EDDB Score is comprised of Foundational Factors (World Bank Doing Business, Digital and Analog Foundations, Data Accessibility), and Platform Levers (Supply, Institutions, and Market Sophistication).
 Source: Digital Planet, The Fletcher School at Tufts University

PATTERNS ACROSS COUNTRIES

In this section, we present patterns and findings from two notable groups of countries: the strong performers and those with significant gaps to close.

PATTERNS ACROSS THE STRONG PERFORMERS

The US and UK are top performers across the board, driven by several strengths: market sophistication, supply and institutional boosters for the digital economy, high accessibility of data, along with strong performance in terms of translating the “ease” across all four platforms. The UK is, of course, expected to go through some significant changes post-Brexit. We discuss this scenario in the next section.

The consistency of performance by the US and UK can be contrasted with several other digital “Stand Out” countries from our Digital Evolution Index⁵³ or those in the D5 nations, comprising a group of the digitally most advanced governments we had studied earlier in the context of their journey towards “smart societies.”⁵⁴ As might be expected, these countries perform very well on *EDDB*; however, each of them has room for advancement to get to the US/UK levels of consistency. Consider examples of the key strengths and potential areas for improvement and the associated policy implications from three such countries, Singapore, South Korea and Estonia (the last two also being D5 nations):

- In Singapore, 3.6% of the population are freelancers,⁵⁵ yielding a high Online Freelance score. Correspondingly, its growth in e-commerce and as a sharing economy can be attributed to its digital foundations, and word of mouth popularity of sharing economy offerings.⁵⁶ However, Singapore’s restrictions on open data sharing and regulatory constraints on digital media businesses contribute to its weaker performance on that platform. Singapore also is not a signatory to the Open Government Partnership⁵⁷ which lowers its Data Accessibility score.
- South Korea does best in market sophistication measures, such as mobile broadband coverage, speeds,⁵⁸ and consumer sophistication; however, its digital media scores are adversely affected by instances of internet censorship.⁵⁹ It scores relatively low on Data Accessibility because of its data localization laws which restrict spatial and location information owing to national security concerns.⁶⁰ Also, strong labor unions and rigid regulations⁶¹ have ensured that ride-sharing and home sharing services remain either partially or fully banned in Korea.
- Estonia does particularly well in the sharing economy for several reasons. Its innovative institutions provide strong foundations. In addition, while some European countries have responded to the sharing economy with bans, Estonia has worked with companies, such as Airbnb and Uber, to come up with a new tax arrangement,⁶² allowing hosts and drivers to pay tax authorities seamlessly. Bolt, one of Uber’s most formidable competitors in Africa and Europe, was born in Estonia.⁶³ Estonia’s greatest opportunity for improvement is in easing the environment for e-commerce businesses that must operate at the intersection of the digital and the physical world. It has a low per capita usage of e-commerce and is negatively affected by cross-border shipping costs in the EU.

Among the EU nations, the Nordic countries, as a group, were among the early movers in their embrace of digital technology and are consistently highly evolved digitally, as measured by our Digital Evolution Index. Their performance on the *EDDB* is also strong for several reasons: Nordic consumers have embraced subscription-based models for digital news⁶⁴ and media access much faster than other countries; their appetite for subscription video on demand remains at an all-time high;⁶⁵ the region is home to some of the most savvy online shoppers—a third of all Nordic consumers engage in cross-border e-commerce on a monthly basis, primarily from websites in the UK, Germany, and China.⁶⁶ Finland, in particular, is a leader in the sharing economy; its success has been shaped by a combination of an open government and high levels of trust.⁶⁷

However, the Nordics have considerable variation among themselves in their *EDDB* performance primarily driven by differences in the levels of data accessibility. Several Nordic countries have strong data localization laws, which adversely affect their Data Accessibility scores. For example, in Denmark, the Danish Bookkeeping Act requires firms to store financial data of Danish citizens in either Denmark or another Nordic country for five years.

Some digitally advanced economies, primarily in the EU, such as Italy, Belgium, Portugal, and France, are leaving opportunities on the table by failing to translate their analog and digital foundational advantages into a hospitable environment for digital platforms and businesses. Lowering barriers, mostly of the institutional kind, is key to unlocking the value digital businesses can add to their economies.

PATTERNS ACROSS THOSE COUNTRIES WITH SIGNIFICANT GAPS TO CLOSE

China stands out as an anomaly and a contradiction: while it was the fastest-moving digital economy as measured by the momentum score of our Digital Evolution Index,⁶⁸ it performs rather poorly on *EDDB*. The reason is China's highly mercantilist approach to its digital economy.⁶⁹ Even though it has established a highly favorable environment for the dominant domestic digital players, China is a challenging market for new and international business builders because of multiple government restrictions tailored towards denying market access.⁷⁰ The "ease" in our evaluation takes the perspective of a potential digital business builder located anywhere. In addition to government barriers to entry, China's overall environment is a difficult one for a business that plans to establish itself in the market because of a host of protectionist digital economy laws and policies.⁷¹ These restrictions, combined with arguably the most stringent data localization laws and a general climate of data opacity and censorship, makes China effectively the world's biggest "intranet economy."⁷² As a result, despite the rapidly advancing and highly innovative digital ecosystem within China, its *EDDB* performance is markedly weaker.

We have also modeled the scenario where all countries adhere to a set of uniform global data accessibility norms to identify the impact on the ease of doing business in countries such as China that are penalized in our current model for restricting data mobility. We discuss this scenario in the next section.

As may be expected, beyond China, emerging markets in general exhibit significant opportunities

for improvement; each represents a different challenge that must be overcome, despite their “Break Out” status on our Digital Evolution Index.⁷³ Consider the examples of three key emerging market nations—India, Indonesia and Turkey—each with different opportunities for improvement on the *EDDB*:

- India’s strongest digital platform is that of online freelance, especially in software. Four in 10 freelance workers in software development and technology are based in India.⁷⁴ However, India is constrained by its digital and physical infrastructure, even as the number of Internet users with access to mobile broadband has been growing rapidly. In addition, frequent policy reversals, such as the recently introduced e-commerce rules, make the country a difficult digital environment to navigate, particularly for foreign players.⁷⁵ While India’s Aadhaar, the much-acclaimed biometric identification program, has created a digital identity to 1.2 billion Indians, its wider adoption and use in and by the private sector has been constrained by the Supreme Court of India. This means that the difficulty with authenticating users remains for digital businesses.⁷⁶
- Indonesia is home to Gojek, a widely admired ride-sharing decacorn.⁷⁷ The success of Gojek as leading sharing economy business despite the country’s infrastructural and institutional barriers underscores the opportunities for a digital business-builder who braves the odds. The Gojek case notwithstanding, the country has some of the most restrictive data localization laws, which creates challenges for digital businesses. Entrenched interests, primarily domestic industry groups, have been successful in keeping reforms at bay.⁷⁸
- Relative to other emerging market countries, Turkey has an evolved and fast-moving digital ecosystem. However, due to many business-building challenges across every platform, Turkey is near the bottom of our rankings. Consider three such challenges. The ride-sharing platform has faced multiple barriers, with Istanbul taxi drivers taking ride-sharing companies to court, and some ride-sharing drivers reporting increasing hostility from yellow cab drivers.⁷⁹ The online freelance platform has to contend with a limited available pool of freelancers and projects. A constraint that cuts across platforms has to do with a gender gap in payments; according to the World Bank, Turkey has “one of the largest gender gaps in financial inclusion in the world.”⁸⁰

A closing word on the above-mentioned countries and other break out nations such as Mexico, Brazil, Philippines, Colombia: most of them are leapfrogging their structural weaknesses through digital means for now but will soon bump up against the limits of growth if the gaps in their analog and digital foundations remain unaddressed.

THE STATE OF DATA ACCESSIBILITY

Cross-border data access and exchange are key drivers of economic growth and innovation. As we noted earlier in this report, global data flows have been a vital source of global growth for most of this decade and are the sine qua non for the sustained growth of digital businesses and the global digital economy. With data-fueled applications of artificial intelligence projected to generate \$13 trillion in economic activity by 2030,⁸¹ the creation and unfettered dissemination of data around the globe will continue to remain one of the driving engines of the global economy.

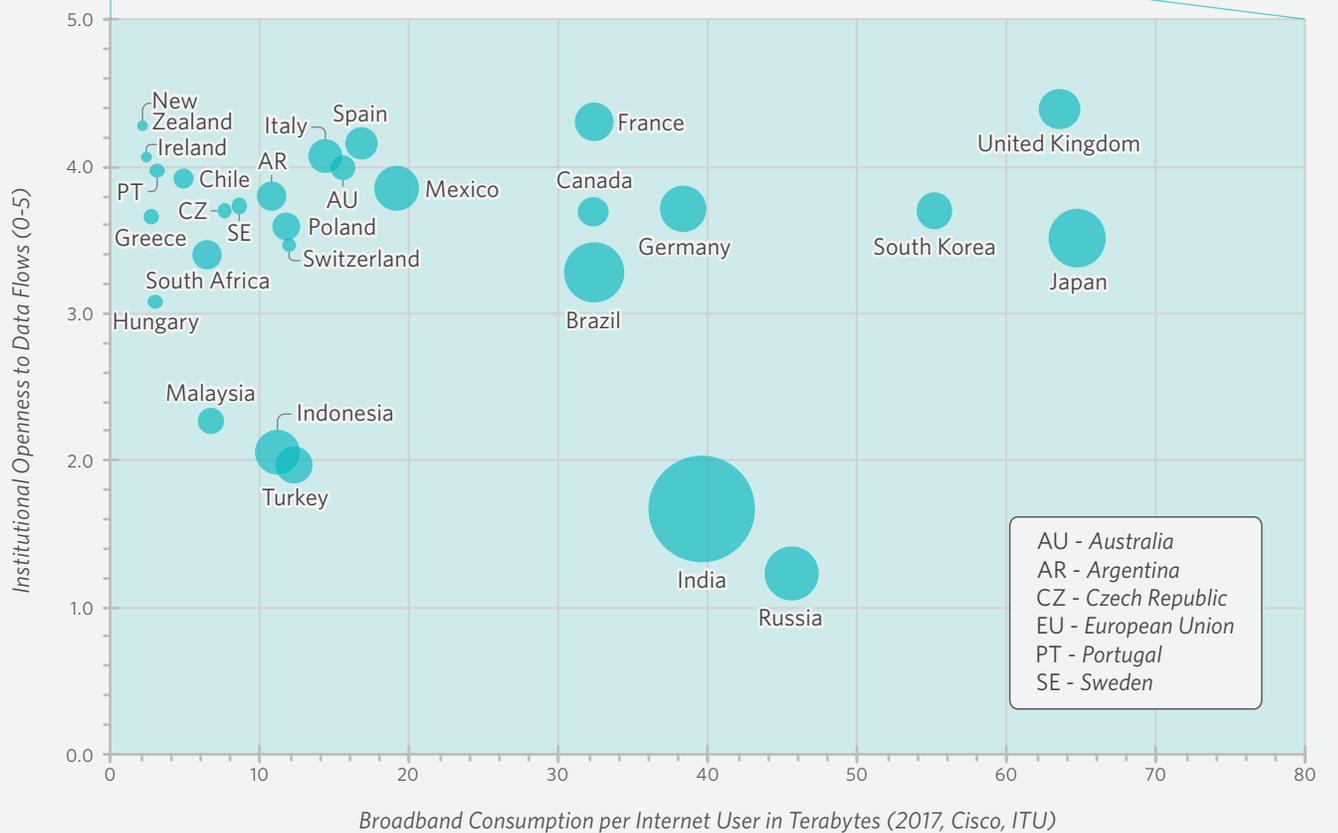
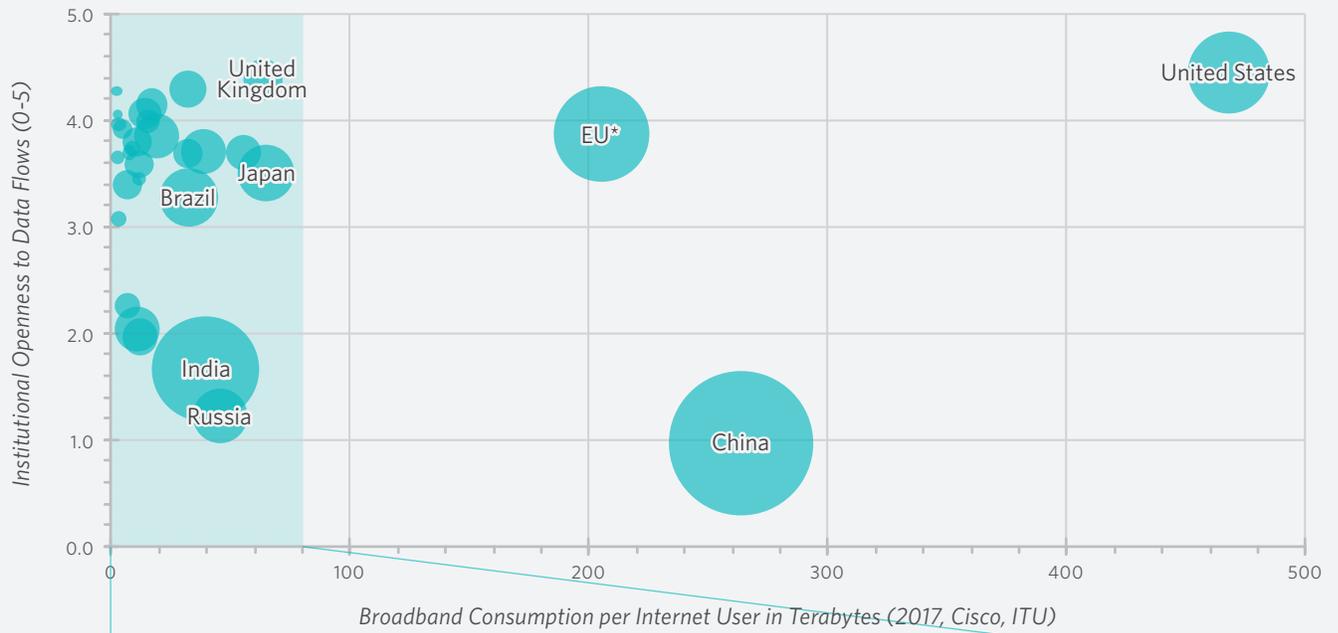
For this reason, our *EDDB* analysis includes a measure of data accessibility. The institutional openness to data flows in three key areas: protection and privacy, government sharing of data, and data localization policies. Given its cruciality to the global digital economy, data accessibility accounts for 25% of the overall country score.

To illustrate the state of data accessibility around the world, we arrayed the data accessibility score of each country against the absolute amount of broadband consumed by a country, a proxy for the size of raw data being generated. *Exhibit 12* below shows how deep and wide the pools of data are in each country and the ease of accessibility of said data.

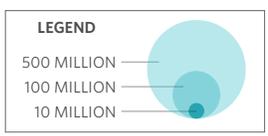
Of the 2.78 billion internet users covered in the *EDDB* (78% of internet users worldwide),⁸² 54% score less than 2.5 on data accessibility,⁸³ led primarily by China, which practices the most aggressive form of digital protectionism and “views data as an issue of sovereignty, and trade in data as a national-security matter.”⁸⁴ India, Indonesia, and Russia score poorly on this metric as well, given the recent spate of laws and regulations in these countries mandating stringent data localization requirements, motivated by similar sentiments as China.⁸⁵

Data localization laws and rules that raise barriers to data accessibility are not just a risk to one of the primary engines of global growth; they also hurt the competitiveness of the country in question. These barriers have the effect of imposing a regressive tax on digital businesses in country: they raise the costs of entry and of doing digital business especially for startups and SMEs,⁸⁶ encourage rent-seeking behavior among established domestic actors,⁸⁷ and reduce competition.⁸⁸

EXHIBIT 12: DATA ABUNDANCE VERSUS INSTITUTIONAL OPENNESS TO DATA FLOWS



AU - Australia
 AR - Argentina
 CZ - Czech Republic
 EU - European Union
 PT - Portugal
 SE - Sweden



*European Union represents the 18 European Union countries covered in the EDDB (including the United Kingdom. These 18 countries account for 90% of the EU's population and 96% of the EU's GDP.

AN EXPLORATION OF ALTERNATE SCENARIOS:

THE EASE OF
DOING DIGITAL
BUSINESS IF...

... ALL COUNTRIES ADHERED TO A SET OF UNIVERSAL SHARED NORMS ON DATA ACCESSIBILITY

On January 25, 2019, representatives of 76 World Trade Organization (WTO) members, accounting for 90% of global trade, announced plans to negotiate new rules around digital trade.⁸⁹ A new agreement may include regulations around cybersecurity and personal data protection, data localization rules, and make permanent a promise not to tax digital goods.

Pollyannaish as it may sound in the current global trading climate that is a circular firing squad of tit-for-tat tariffs, we think the scenario of an aspirational equilibrium state of universal shared norms on data accessibility—that is, free flows of data as a hygiene factor—is worth exploring for two reasons: to demonstrate to country governments the dividends of increasing the ease of doing digital business, and to identify countries that will rise to the top because of superior digital platform enablers.

To construct this scenario, we neutralized the impact of data accessibility in the model by giving all countries the same score on that metric. The resulting change in ranks is presented in *Exhibit 13* below. China, Russia, Malaysia, and Turkey all would benefit greatly by removing data accessibility blockers and bringing up their data access regimes to be on par with the best in class, whereas countries like Japan, Norway, and Australia would drop in ranks, given their relative weaknesses in some of its digital platforms if other countries were to match their levels of data accessibility.

EXHIBIT 13: RANKS WITH AND WITHOUT DATA ACCESSIBILITY				
Country	Rank with Data Accessibility	Rank without Data Accessibility	Change in Ranks	
China	39	26	↑	13
Russia	42	32	↑	10
Malaysia	36	29	↑	7
Turkey	40	34	↑	6
Singapore	13	7	↑	6
Sweden	11	6	↑	5
France	18	13	↑	5
Finland	10	5	↑	5
Germany	14	10	↑	4
Denmark	7	4	↑	3
India	38	35	↑	3
South Korea	24	21	↑	3
Indonesia	41	39	↑	2
UK	2	1	↑	1
Belgium	19	18	↑	1
Netherlands	3	3	→	0
Switzerland	8	8	→	0
Estonia	16	16	→	0
Austria	15	15	→	0
Ireland	17	17	→	0
Spain	20	20	→	0
Israel	23	23	→	0
Greece	28	28	→	0
Czech Republic	25	25	→	0
Portugal	21	22	↓	-1
USA	1	2	↓	-1
Poland	26	27	↓	-1
Canada	9	11	↓	-2
New Zealand	12	14	↓	-2
Hungary	29	31	↓	-2
Italy	22	24	↓	-2
Chile	27	30	↓	-3
South Africa	30	33	↓	-3
Thailand	33	37	↓	-4
Norway	4	9	↓	-5
Colombia	35	40	↓	-5
Argentina	37	42	↓	-5
Mexico	31	36	↓	-5
Australia	6	12	↓	-6
Brazil	32	38	↓	-6
Philippines	34	41	↓	-7
Japan	5	19	↓	-14

Source: Digital Planet, The Fletcher School at Tufts University

... THE UK WERE TO REALLY LEAVE THE EU

One thing is deemed as a certainty by most economists within the larger uncertainty of the holding pattern following the Brexit referendum in 2016: there will be negative economic consequences both for the UK and the EU irrespective of the mode of exit—hard/soft deal or no deal.⁹⁰

As one of us has written before, the impact to the homeostasis of the digital economy⁹¹ of the region will be acute with the fragmentation of innovation hubs, dispersal of talent, and disruptions to the digital single market agenda, with potential impediments to the fifth freedom⁹²—the free flows of data across the English Channel—and the seamless operations of UK-based digital platforms, especially e-commerce⁹³ and online freelance,⁹⁴ that cater to consumers and businesses across the EU. When one considers the interdependencies between the digital economies of the UK and the EU, the former doubtless has much to lose in any Brexit scenario, but the latter would be losing a genuine star⁹⁵ if barriers to UK-EU data flows were to be erected.

To model the impact of the UK leaving the EU on the EDDB of both sides of the English Channel, we relied on the projections by Latorre, Olekseyuk, and Yonezawa in their paper “Trade and FDI-Related Impacts of Brexit”⁹⁶ and on the meta-analysis published by the Peterson Institute⁹⁷ for estimates of loss to UK’s GDP and to that of EU member states, while acknowledging that the specific impact on individual platforms may vary.

The resulting impact of Brexit and the resulting changes in scores and ranks are presented in *Exhibits 14* and *15* below.

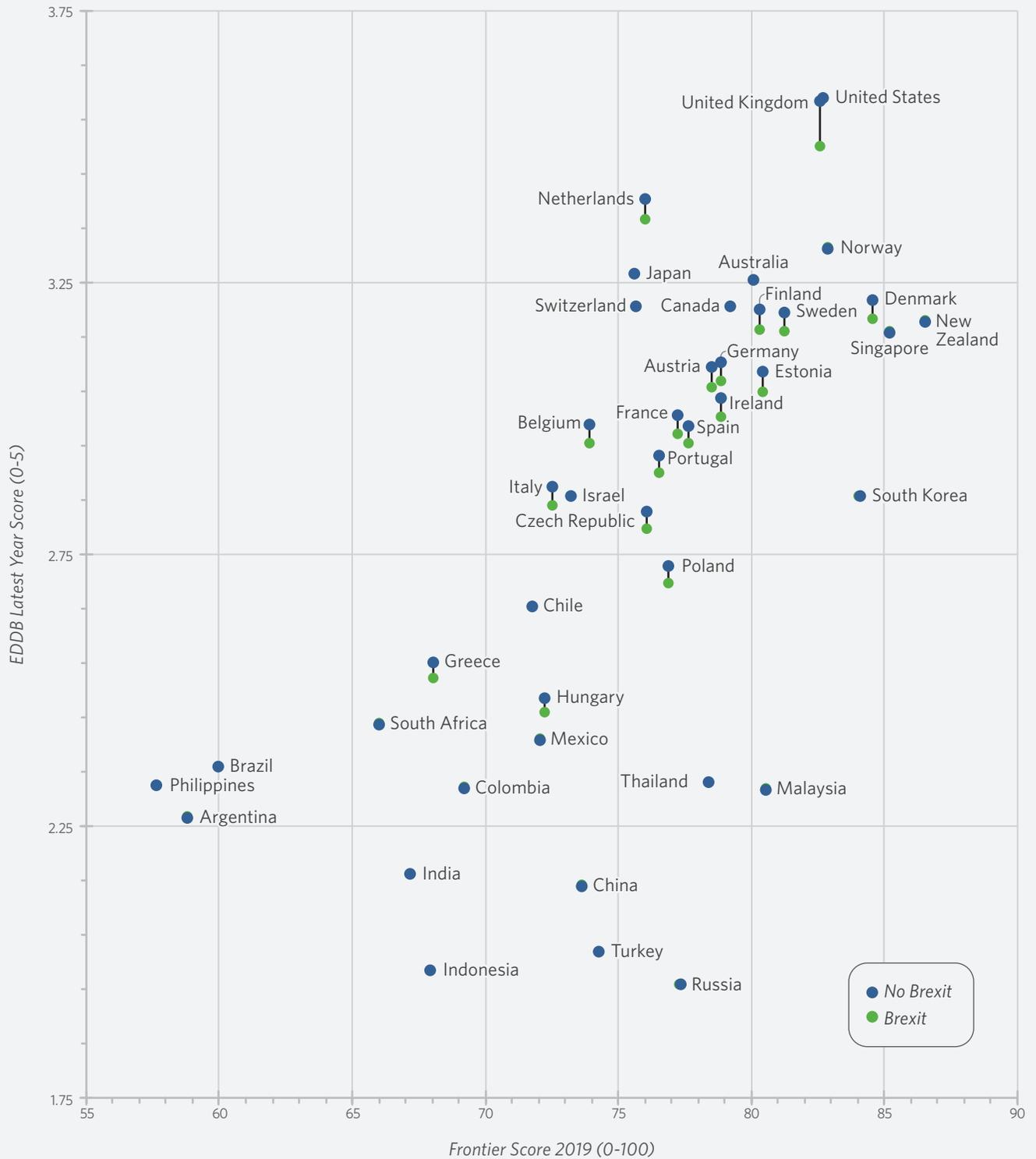
While the UK experiences a drop in its score in a post-exit scenario, it holds on to its rank at #2, albeit a relatively distant #2. The Nordics, given the high flows of digital trade between the UK and the north, experience a bigger drop in ranks and scores compared to other EU states.

EXHIBIT 14: RANKS WITH AND WITHOUT BREXIT

Country Name	EDDB Score	Brexit Score	Change in Rank
United States	3.59502	3.59502	→ 0
UK	3.58806	3.50374	→ 0
Netherlands	3.40931	3.36925	→ 0
Norway	3.31862	3.31862	→ 0
Japan	3.27148	3.27148	→ 0
Australia	3.2599	3.2599	→ 0
Denmark	3.22457	3.18668	↓ -3
Switzerland	3.21158	3.21158	↑ 2
Canada	3.21126	3.21126	↑ 2
Finland	3.20633	3.16866	↓ -3
Sweden	3.20152	3.16391	↓ -1
New Zealand	3.18358	3.18358	↑ 2
Singapore	3.16386	3.16386	↑ 1
Germany	3.1084	3.07188	→ 0
Austria	3.09886	3.06245	→ 0
Estonia	3.09042	3.05411	→ 0
Ireland	3.04316	3.0074	→ 0
France	3.01078	2.97541	→ 0
Belgium	2.99343	2.95826	→ 0
Spain	2.99254	2.95738	→ 0
Portugal	2.9377	2.90319	→ 0
Italy	2.87863	2.84481	↓ -2
Israel	2.86206	2.86206	↑ 1
South Korea	2.86168	2.86168	↑ 1
Czech Republic	2.83411	2.80081	→ 0
Poland	2.73274	2.70063	→ 0
Chile	2.65934	2.65934	→ 0
Greece	2.55691	2.52687	→ 0
Hungary	2.49182	2.46254	→ 0
South Africa	2.4432	2.4432	→ 0
Mexico	2.41399	2.41399	→ 0
Brazil	2.36444	2.36444	→ 0
Thailand	2.33595	2.33595	→ 0
Philippines	2.32893	2.32893	→ 0
Colombia	2.32524	2.32524	→ 0
Malaysia	2.32265	2.32265	→ 0
Argentina	2.2706	2.2706	→ 0
India	2.16673	2.16673	→ 0
China	2.14485	2.14485	→ 0
Turkey	2.0231	2.0231	→ 0
Indonesia	1.98973	1.98973	→ 0
Russia	1.96265	1.96265	→ 0

Source: Digital Planet, The Fletcher School at Tufts University

EXHIBIT 15: BREXIT SCENARIO



TAKEAWAYS: IMPLICATIONS FOR ACTION

The main takeaways and conclusions from our *EDDB* report are summarized below.

- First, unsurprisingly, digital regulations and public policy choices are key determinants of the ease of doing digital business. These can range from user privacy rules and internet freedoms to rules governing sharing economy and e-commerce companies or those protecting the rights of freelance workers.
- Second, infrastructural elements that are at the intersection of the digital with the physical world, from internet and mobile access to payments and fulfilment, are all key to performance on *EDDB*, just as they are key to traditional businesses.
- Third, since digital businesses are built on platforms that match users on either side of a transaction, the factors governing all users' capabilities are key to *EDDB*. Skills, user sophistication, and the willingness to engage with digital platforms are all material.
- Fourth, as *Exhibit 1* illustrates, greater ease for one kind of a digital platform in a country does not automatically translate into ease for every other kind of digital platform. Policymakers need a granular awareness of the factors that buoy and beset specific digital platforms. Focused actions directed towards identifying and eliminating platform-specific barriers along with eliminating barriers at the foundational level are key to digital business competitiveness.
- Lastly, and perhaps most importantly, data accessibility and mobility of data across-borders is central to the sustained growth of and innovation among digital businesses. Several countries have restrictions on data flows or onerous data localization laws in place.⁹⁸ Such laws have the effect of imposing a regressive tax on digital businesses: they raise the costs of entry and of doing digital business especially for especially for startups⁹⁹ and SMEs, encourage rent-seeking¹⁰⁰ behavior among established domestic actors, and reduce competition.¹⁰¹ Policymakers keen to foster robust and competitive digital economies would do well to measure and monitor their Gross Data Product or, as we call it, "the New GDP,"¹⁰² eliminate barriers to accessibility of data, and work towards shared norms for cross-border data flows.¹⁰³

METHODOLOGY

COUNTRY SELECTION

We selected countries using a combination of four criteria:

- Size of economy
- Size of population
- Data availability
- A combination of high digital advancement and/ or momentum as evidenced by our Digital Evolution Index¹⁰⁴

PLATFORM SELECTION

The *Ease of Doing Digital Business (EDDB)* scorecard is an evidence-based country-by-country snapshot (across 42 countries) of how easy it is for digital businesses to enter, operate, and either thrive in or exit the market. To create a composite picture of “digital businesses,” we consider four types of digital platforms—e-commerce platforms such as Alibaba, Amazon and eBay, digital media platforms such as YouTube and Hulu, sharing economy platforms Uber and Airbnb, and online freelance platforms such as Upwork and Toptal—as the leading indicators of digital business opportunities.

We chose these four platforms for our study because:

- these platforms represent the primary forms of digital businesses
- the associated business models are a direct outcome of the spread of the internet and related advancements in digital technologies;
- the platforms are broadly representative of the era of “digital globalization,” where data flows have been shaping and enabling “the movement of goods, services, finance, and people”¹⁰⁵ both within and across-borders and creating valuable data and information in the process.

DATA SELECTION

We sourced data from a combination of public, proprietary, and subscription data sets. Public datasets include many data points from sources such as World Bank, World Economic Forum and UN. Proprietary sources include data from our partners such as PCRI, Chartbeat and Akamai. Subscriber datasets include GSMA and Euromonitor Passport. Where no secondary data sources were available—for example: on the number of ride-share protests over the last five years across countries—we collected and coded data manually.

WEIGHTINGS

Indicator Weightings

Indicators are given weights depending on a variety of factors, such as:

- **Data quality:** Indicators that required more estimations, owing to patchy coverage across countries or years or both, were weighted lower than those with fewer estimations.

- **The strength of the data collection methods:** Since all our data are drawn from secondary sources, we studied the data gathering processes deployed by the sources of said data. We assigned greater weights to indicators that had more robust processes of data collection. Similarly, we assigned greater weights to observational data over survey data.
- **Centrality:** The importance of the indicator within its cluster/cluster within its component. Foundational measures, on which many other measures are dependent, were weighted more highly than those that had fewer multiplicative effects.

Indicators are weighted first using a robust process to minimize correlations and covariance within clusters, components, and at the driver level. After making considerations for these effects, the weightings are then determined based on rigorous social science reasoning. Where possible, we tested for interaction effects to ensure that we are capturing the correct measures and in the right ratios. Further, we subjected our weighting approach to a range of stress tests to minimize conceptual biases.

The weightings of the components and drivers are important aspects for determining the overall score. Minimizing covariance and ensuring that the weightings are representative of the real world are crucial to the accuracy of the index. Robust checks to make sure that components are not over-weighted or under-weighted is an essential part of this process. Furthermore, minimizing covariance guarantees that no component is either double-counted or over-emphasized in the model.

WEIGHTINGS OF PLATFORMS

Platforms are weighted based on their importance relative to the overall digital economy and their projected importance going forward.

Platform Levers (50% of total score)		Weight & Description	
E-commerce	20%	Online retailing and delivery platforms	
Digital Media	15%	Platforms distributing and delivering media and entertainment	
Sharing Economy	10%	Platforms facilitating the sharing of assets between private individuals and groups (example: rideshare, home-share etc.)	
Online Freelance	5%	Platforms connecting high skilled freelancers with employers, facilitating discovery to delivery of short-term projects	

E-commerce

The e-commerce market is, and will continue to be, the largest sector of the digital economy. According to Statista, in 2018 retail e-commerce sales were 2.842 trillion USD, with 2019 sales projections at 3.453 trillion USD, a 21.4% increase. With new digital payment systems, methods of delivery, and subscription business models abounding, e-commerce will continue to drive growth in both the digital and overall economy. Because of its existing and prospective influence as well as its ease of monetization, we gave e-commerce the largest weight of our four verticals: 20 percent of the *EDDB* score.

Digital Media

As access to mobile devices expands around the globe, online media consumption continues to grow rapidly. Consumers are shifting their consumption away from traditional forms of media towards digital form, spending more time each day on digital devices. Marketers and advertisers are taking notice, with more ad spend dedicated to online channels each year.¹⁰⁶ PwC estimates that the global entertainment and media market will reach 2.3 trillion USD by 2020.¹⁰⁷ Because of its large market share and strong growth, we assigned digital media the second largest weight of our verticals: 15 percent of the *EDDB* score.

Sharing Economy

The sharing economy's rapid growth led to the existence of thousands of different platforms around the globe. In 2009, there were only a small number of platforms (Airbnb launched in 2008, Uber in 2009).¹⁰⁸ A decade later, as the number, size and type of platforms expand, these platforms are facing increasing scrutiny and skepticism as they change the nature of communities and commerce. PwC estimates global revenues from the sharing economy to reach 335 billion USD by 2025.¹⁰⁹ The government of China expects the sharing economy to be worth 10 percent of China's GDP by 2020.¹¹⁰ We applied a weight of 10 percent to the sharing economy.

Online Freelance

Of the four verticals, the online freelance market size is one of the most challenging to measure, and varies widely depending on how one defines online freelance. With the rise of online education and hiring platforms that connect employers and workers from around the world, online freelance holds the potential to transform the nature of work by providing countries access to talent from around the world, posing solutions to global labor shortages and lack of employment opportunity. While the total market size of online freelance has not been measured, the World Bank found that the total market share of online freelancing platforms was \$4.8 billion in 2016 and is likely to grow to \$15-\$25 billion by 2020, a projected CAGR of 32-51 percent. Further, the 2018 edition of the Payoneer Freelancer Income Survey found that the global average hourly income for online freelancers was \$19, and that over 70% of online freelancers used online platforms like Upwork and Toptal to find work. In the *EDDB* we applied a modest weight—only 5 percent of the total score—to the online freelance vertical but given prospective market growth we believe it will be more influential in the future.

WEIGHTING OF FOUNDATIONAL FACTORS

Foundational Factors (50% of total score)		Weight & Description
Data Accessibility	25%	The extent to which data easily moves across and within borders, including the intensity of data flows and data restrictions. This is a measure of the free flow of data as well as government openness to sharing anonymized data publicly, and policies in place to safeguard user privacy.
Digital and Analog Foundations	15%	Indicators descriptive of foundations—i.e., the Demand, Supply, Institutions, and Innovation conditions—essential for all digital platforms.
World Bank Doing Business	10%	Doing Business Distance to Frontier measure for 2019, representing how far a country performs compared to the best possible

Data Accessibility

In order to quantify the free flows of data, we used a variety of metrics that provided measures of both restrictions around data and the amount of data flowing out of countries.

Restrictive policies create frictions around the movement of data, and our measurements did not take into account the positive and negative externalities of such frictions. For example, requiring citizens’ financial data to be stored within the country may provide greater protections for citizens or may enable restrictive government oversight.

Digital and Analog Foundations

Digital and analog foundations represent foundational factors common to all digital platforms. For example, having some sort of connected device is important for a digitally connected country. This is captured in digital and analog foundations.

In some cases, some indicators of digital and analog foundations are so essential to the functioning of a platform, or they are being used to answer a specific question related to that platform, that they are used in both digital and analog foundations and within the individual platform.

World Bank Doing Business

The World Bank’s *Doing Business* project is the inspiration and foundation for this project. To acknowledge the importance of the ability to do business, it is included at 10% of the overall *EDDB* score. Specifically, the Distance to Frontier (DTF) measure for 2019 is used.

COMPUTATION OF SCALED DATA SCORES

Indicators drawn from a variety of sources are scaled to a five-point scale for comparability, to arrive at a high score and a low score. Data scaling is executed by multiplying the data point of a given country by a scale factor. The scale factor is calculated by finding the ratio of the difference between the data point and the minimum value data point in the set and the overall range of the data. This ratio is then multiplied by a factor of 5. In this way, the maximum determined data point in a set will have an index value of 5, while the minimum value in the data set will have an index value of 0. The scaling formula we deployed:

$$\text{Scaled Value} = 5 * (\text{data value} - \text{minimum}) / (\text{maximum} - \text{minimum})$$

The maximum value data point in the set is determined by examining the maximum value data point in a given set excluding any extreme outliers. If there is an extreme outlier in the data set, a maximum value is set as the next highest data point value, and the outlier is given the maximum possible score of a 5.

One example of this is the data indicator that measures how long it takes to file taxes. In Brazil, the World Bank puts the time it takes to do taxes at 2,038 hours, a global outlier.¹¹¹ We set the maximum data point to be the next reasonable maximum in our data set. The minimum data point in the set is determined in the same manner as the maximum. Excluding outliers, the “minimum” point is the lowest value for a given indicator in the data set. Different data sets have very different ranges of values. In order to be able to compare and index the different pillars for each country, all data sets are scaled in the same manner. The favorableness of the scores is context dependent: that is, if the indicator in question is time taken to file taxes, a high score is undesirable, whereas if the indicator in question is international internet bandwidth per internet user, a high score is desirable

Z Calculation (inspired by z-scores): measures distance from average

If data value \geq mean: $z = (\text{data value} - \text{mean}) / (\text{maximum value} - \text{mean})$

If data value $<$ mean: $z = (\text{mean} - \text{data value}) / (\text{mean} - \text{minimum value})$

NORMALIZING SCORES

When using both the normalized and non-normalized version of an indicator, both are combined with equal weighting.

Where relevant, we have normalized by internet users, per capita or by GDP, in order to show relative strength of countries.

Calculating Scores

To determine scores, the component scores within each pillar or driver are calculated using a weighted average formula; clusters with lower weights have less impact on the overall mean of the

pillar or driver. The component scores are then averaged together to make up the final pillar or driver score. An arithmetic weighted average of the components provides us with the most accurate score and assures that the pillar or driver mean values reflect the way that the components are weighted in the index.

Calculating the Final Index Score and Ranking

The calculated final index score determines a country's overall ranking in the index. The country with the highest final index score will have a ranking of #1, while the country with the lowest final index score will be ranked at #42. Ranking the final index scores demonstrates a broader perspective on how countries are performing relative to their peers and serves as a basis for comparison, particularly at a regional level.

Estimating Missing Data Points

Given our reliance on secondary data to build the *Ease of Doing Digital Business*, we had to make estimations to compensate for missing and incomplete data. We created a logic and a systematic process for estimating missing data points. We followed a three-step process, in order of difficulty, which enabled us to ensure that our estimates are reliable.

1. The first step in our estimation process is for missing data points that do not require mathematical estimations but can be found by simple research or common knowledge. For every indicator that is estimated in this way, we explicitly recorded the justification for the estimated value. For example, although the data set did not include the literacy rate for Finland, we established through literature review and alternate data sources that it was justifiable to estimate this data point to be 100%.
2. If the missing value of the indicator for a given country was not clear and could not be determined through literature review, we deployed mathematical estimation. For an individual data point associated with a country-indicator pair in a given year, our first step was to ascertain whether the other years associated with this country/indicator pair also needed to be estimates, or whether data was available. If data was available for other years for said country/indicator pair, then our estimation was a simple interpolation approach.
3. For situations where the previous two methods did yield results, we needed a more rigorous mathematical estimation approach. In this case, we used Harvard economist Gary King's estimation software program Amelia 2.0, which estimates missing data by performing multiple imputations, as a general-purpose approach to missing values. The multiple imputations method has been shown to reduce bias and increase efficiency. The imputations we used are benchmarked based on country GDP per capita values, a standard operating procedure adopted by most indexes.

Quality Assurance Process

Throughout the weighting, scaling, and scoring processes, we adopted several quality assurance measures to ensure the validity and robustness of the index. By deploying different statistical tools throughout the process, including data cleaning, variance analysis, regression analysis, and simulations, we stress-tested the index scores at multiple levels to produce the most comprehensive and robust numbers possible.

Additionally, we consciously sought to include a broad number of indicators from across a variety of sources to limit the effect of any errors or biases in the data.

To test how final index scores compared to established indices in related areas, we compared the *Ease of Doing Digital Business* to the Digital Evolution Index, Global Competitiveness Index by the World Economic Forum, the Networked Readiness Index by the World Economic Forum, and the Global Innovation Index by the World Intellectual Property Organization. Scores trended similarly, with correlations varying between $r^2=0.86$ to $r^2=0.96$.

Any country's scores that jumped out as outliers in the index in the QA process were rigorously checked to make sure that the data in that country was accurate and robust. This mitigates the chances of systematic errors in the process.

Limitations and Future Endeavors

As with any indexing exercise, we have made a range of assumptions and simplifications in the creation of these models. While we have sought to build models that are wide ranging and comprehensive, we would like to add the caveats that their use should be guided with the understanding that models inherently simplify what they measure, they are dependent on the quality and accuracy of the data that is fed into them, and the assumptions we built into them are subject to biases and errors despite our best efforts. Despite our numerous stages of quality assurance, human error may have crept in. We invite anyone who spots an error to kindly contact us directly.

APPENDIX

GLOSSARY

COMMON TERMS ACROSS VERTICALS

Supply barriers and boosters: category measuring a country's capacity to supply to the given vertical market. Supply barriers are factors that hinder a country's willingness and ability to produce, while boosters support a country's willingness and ability to produce.

Connectivity: the extent to which people are covered by high-speed communication networks

Market sophistication: category containing factors that assess how attractive the market is to new entrants. Factors include education level, skills development, demographics, consumer preferences and behavior, and others.

Consumer sophistication: the extent to which the consumer base is willing and able to consume digital media

Institutional barriers and boosters: category that assesses a country's institutional environment around a given vertical. Institutional barriers are factors that pose obstacles to the establishment and functioning of the vertical market within a country, while institutional boosters provide ease to the establishment and functioning of the vertical market.

Digital protectionism: obstacles that hinder the flow of digital business and trade. Includes data localization and procurement policies intended to promote digital trust, security, and privacy.¹¹²

Platform economy: encompasses all economic activity that takes place via online platforms. The platform economy acts as the overall superset of the four verticals. Examples specific to each vertical include Amazon as a platform for e-commerce, Netflix as a platform for streaming digital media, Uber as a platform for ride-sharing in the sharing economy, and Upwork as a platform for online freelance.¹¹³

GIG ECONOMY: SHARING ECONOMY AND ONLINE FREELANCE

Gig economy: a marketplace for flexible, often short-term jobs where workers are hired as independent contractors or freelancers. Often called the "platform economy," gig economy work is often organized via online platforms, where companies post and workers receive payment for gig work opportunities. The nature of gig work varies widely in skill level and level of commitment.¹¹⁴

Sharing Economy: also called the "physical gig economy," the sector of the gig economy in which the service provided takes place in the same location as the client. The organization of labor may still take place on online platforms. Common examples include Uber and Lyft drivers, Airbnb hosts, or food delivery providers on DoorDash. In Ease of Doing Digital Business, the Sharing Economy vertical encompasses the physical gig economy.

Ride-sharing: a sector of the physical gig economy where the user of the service can share their location with a driver and request transportation services in real-time via a mobile app. Unlike taxi drivers, drivers in the ride-sharing industry only need a standard driver's license and their own car to provide ride-sharing services. Examples of ride-sharing companies are Uber and Lyft.

Home sharing: a sector of the physical gig economy where property owners can rent out their property to those looking for a place to stay for a period of time. Property can range in size and location from an extra bedroom in one's apartment to a house with a private beach.

Digital gig economy: the sector of the gig economy in which the service provided takes place online and in a different location than the client.

Crowd work: a subset of digital gig economy work where one task or project is divided among many individuals. This may come in the form of microwork, in which a task is broken down into small, low-skilled tasks such as data entry or filling out a survey and assigned to an individual. Because of its low skill level and anonymity, microwork typically generates low pay. Crowd work also includes contest-based work, where many workers complete a task such as designing a website, but only one worker is selected and paid. Contest-based workers have potential for high pay if selected, but the chance of selection is low.

Online freelance: a subset of the digital gig economy where a worker takes on a more skill-intensive project that often requires education or expertise. Online freelance typically involves more interaction with the client than in microwork and generates higher pay. Examples include software design, blog post writing, and marketing. In *Ease of Doing Digital Business*, the online freelance vertical encompasses online freelance.

DIGITAL MEDIA & ENTERTAINMENT

Digital media: any digitized content that can be broadcasted or published over the internet. Examples include digital images, digital videos, video games, digital publications of books and news articles, and social media.

Subscription supported content: digital content that is shared via a subscription business model, where consumers pay a periodic fee in exchange for access to content. Examples include streaming sites like Netflix and news websites such as The New York Times.

Availability of attention (also referred to as "consumer attention"): the focus and time spent by consumers on watching digital media. Media companies compete to attract consumer attention—by choosing to watch certain digital content, viewers are foregoing spending their time watching other content.

Flow of user-generated content: content that is produced and published online by individuals. Examples include blog posts and YouTube videos.

Local content access: the level of digital news and entertainment content is available in a country

Export flow of local content/ability to produce local content: the value of creative goods exported in millions of USD

Import flow of global content/access to global content: the value of creative goods imported into the country in millions of USD

Digital media usage: the extent to which people engage with social media

Media monetization: the extent to which it is possible to monetize entertainment and news

Institutional barriers to create local content: the extent to which there are systemic barriers that increase the difficulty of creating local content

Institutional enablers to create local content: the extent to which institutions promote local content through government spending on public broadcasting networks and intellectual property protections

Institutional barriers to access global content: the extent to which institutions enable (or hinder) the access to content from abroad, through using content blocking and internet shutdowns

Institutional censorship: the extent to which institutions censor content

E-COMMERCE

Fulfillment: the process of completing an online order. Encompasses the reception, packaging, shipping, and delivery of customer orders.

Transaction: the extent and quality of financial transaction means within a country

Ease of fulfillment: the extent to which consumers and businesses can reliably and affordably order and deliver goods

Ease of cross-border trade: the extent to which consumers and businesses can reliably and affordably order and deliver goods across-borders

Ease of market entry: the extent to which businesses can bring a product or service to a specific market

E-commerce usage: the extent to which people participate in e-commerce

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