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The No Collar Economy 2.0





Our Digital World

The No Collar Economy 2.0

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Bertelsmann FOUNDATION

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Foreword

^{Our} Digital World

This book stems fro a simple observation:

Around the world, humanity is navigating a digital revolution that is upending life.

And yet, despite the near universal impact of this revolution, the resulting increased connectivity is producing misconnections.

Via our phones we can access almost any fact accumulated over millennia, yet we accept our post-truth world as inevitable. We have the opportunity for real-time conversation with almost anyone anywhere, yet our politics trend towards insular ethnic nationalism.

Political and social unrest have not emerged from a vacuum. Rather, they stem from an encroaching economic anxiety, a realization that the rules of the game are changing, and the new rules are undefined. Traditional careers are disappearing, as are traditional pathways to economic stability. In some parts of the world, a university education may guarantee only debt. In others, subsistence agriculture is undermined by climate shifts and industrial farming.

The technology that powers these megatrends has become ubiquitous and deeply engrained in our lives. We may not like to think of ourselves as simple data points in an AI algorithm, and we may be uncomfortable with how much our devices know about us. But we depend on apps offering real-time traffic flows, we tacitly accept Netflix's movie choices, and we appreciate a tablet that can track down a stolen phone. Sure, we gripe. But we seem highly unlikely to curtail our use of these data-based creature comforts.

Perhaps our digital revolution is reminiscent of the proverbial frog in boiling water. The fable's premise holds that a frog initially placed in tepid water will not know to jump out as it is slowly brought to a boil. Although the overall shift in water temperature is extreme, the incremental nature of the change evades the attention of the unfortunate amphibian.

The digital impact on daily life in much of the world started tepidly, and it has now been brought to a boil.

The analogy is admittedly imperfect. While a frog in boiling water faces few possible positive outcomes, the digitization of daily life need not be bad. But to survive the transition, we cannot be oblivious to changing circumstances.

In 2017, the Bertelsmann Foundation North America published *The No Collar Economy*, the first text in this series. It was an optimistic book, reflecting the awe shared by many of the digital revolution's exponential change and the opportunity it brought. At the same time, the book underscored concerns that these advancements were not universally accessible.

Three years later, the exponentiality remains. The opportunity remains. To an extent, the optimism remains. But they compete with a creeping cynicism. Many are now far more cognizant of the concerns, the implications and the risks of rapid digitization. There is an increased demand for substantive dialogue regarding the changes in water temperature.

The central argument of this follow-up to The No Collar Economy is that this dialogue must be global in nature. The more we share, the more we learn from each other, and the better we will be able to transition into our digital world.

Together, we can achieve a far better outcome than if we are left to our own devices.

Executive Director

Irene Braam

Bertelsmann Foundation (North America), Inc.

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Latin America

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Dividing a book into broad regional chapters creates a number of methodological pratfalls. This volume is titled *Our Digital World*, yet many countries, and, in fact, broad regions are hardly mentioned at all. For example, the Asia chapter focuses on East and Southeast Asia—a sliver of the largest continent in the world. Our book discusses the impact of the digital revolution on Mexico, yet you won't find this text in the North America chapter, even though Mexico is, of course, a North American country. We instead review Mexico in the Latin America chapter—despite, Latin America being, yes, we know, not a continent. Sudan is considered in both the Middle East & North Africa chapter, as well as the Sub-Saharan African chapter. We know.

Part of our choices were strategic: Volume I of this series, The No Collar Economy, featured consideration of India, Kenya and Cuba, for example. These countries all have fascinating digital stories, but we saw little utility in rehashing that analysis. Part of our selections and omissions stem from simple space constraints: just because a country, app or trend is not discussed in this text does not imply that it is not pivotal in our digital revolution.

Yet, part of the regional imprecision stems from the very nature of the digital revolution itself. Digital developments skip so rapidly around the world, often paying little regard to borders, cultural barriers or linguistic differences, that regional distinctions—blunt, human-made constructs to begin with—have become increasingly blurred.

We still believe that there is much to be learned by viewing trends, best practices and challenges from different regions of the world, and by considering exponential change from global perspective, even if the regional chapters are both incomplete and imprecise.

> In the first No Collar Economy book, we described the opportunities and challenges of this new world, and how the exponential change inherent to the digital revolution can be confusing. Our natural abilities to recognize patterns are based on linear progression, and there is nothing linear about the current accelerated pace of change.

Lose the tie and find the hot spot!

Read No Collar Economy Volume I here



bfna.staging.wpengine.com/ wp-content/uploads/2017/11/ Bertelsmann-Foundation The-No-Collar-Economy-LQ.pdf

Or you could iust watch the movie ;)



ul9uyxA

youtube.com/ watch?v=y0p_

Our Digital World

Our Digita Vor d

Lead authors Samuel George & Felipe Buitrago



<Chapter>

"Most people overestimate what they can do in one yean and underestimate what they can do in ten."

BILL GATES

If you are reading this, chances are that



and most places you visit daily are well covered by 4G networks and wifi hotspots.

You also likely believe you are well informed about the issues that matter most in the world, such as climate change, human rights, equal economic opportunities and eliminating corruption in public affairs.

well... we have an inconvenient status update...

Loading...



OVG. This. Right. Here.

Wellı to be fairı someone thinks you are fake news.

And that someone is probably not alone.

Digita World

True, access to the #facts are readily available at the tap of a finger. And you're right! Of course, you're right! Look at all those thumbsup on that last Facebook post!

The machines are making us angry.

Our online fissures run so deep—our information silos so mutually exclusive—that is seems but a matter of time for confrontation to escalate.

Surely it was dumb luck or an exaggeration or part of a plot to confuse.

whenever news that supports "the other side" arises, we deny its validity?

whenever an expert from "the other side" is quoted, we easily find all sorts of ad hominem attacks to discredit their expertise?

whenever confronted with arguments from "the other side" we jump to a well-worn arsenal of counterarguments?

Have you noticed that...

Yet no matter which side of

an argument you are on, not matter how sick the burn was, whoever is on the other side is feeling equally certain.

Our Digital World

World t's ok! You are not alone!

We chat in real time with friends on the other side of

suspicion of foreigners.

the world, yet our politics are marked by a deep-seated

But neither is the person at the other end of the Twitter feud.

The question is why internet debates devolve so quickly into name calling, empty attacks and trolling? We don't treat each other that way in person. What is it about this relatively new environment that makes us so cynical, so snarky, so... aggrieved?

Across the globe, humanity experiences the shocking impact of our digital revolution. Social media, new media—it was supposed to bring us closer together, to connect us. Yet we seem more disillusioned than ever.

We battle strangers online, but we don't know our neighbors.

As more countries close ranks behind nationalist policies we lose sight of the fact that across the planet we are all going through this momentous change together.

Fake news swings elections in Africa.

Populism takes hold in Brazil & India.

The gig economy changes the way people work in Latin America.

Automation sheds jobs in the United States.

revolution.

The digital eye in the sky surveils citizens in East Asia.

Activists connect digitally in the Middle East.

European policymakers struggle to balance privacy against entrepreneurial activity.

It's a global

Hotspot: Earth

Number of Internet Users by Country, 2017

Source: World Bank, World Development Indicators & UN World Population Prospects.



^{Our} Digital World





^{Our} Digital World

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One Day in Our Digital Word **23 billion**

text messages sent

1.59 billion

people log on to Facebook

vears of video uploaded to YouTube

30 million

Tinder matches

5.6 billion 15 million

Google searches

Over 1 billion

people active on WhatsApp

165 million

hours of Netflix streaming

40 thousand

songs uploaded to Spotify

Half a billion

tweets sent

1 billion

videos viewed on TikTok

Half a billion

apps downloaded

Half a billion

dollars in Amazon sales

Sources: Zephoria Digital Marketing, zephoria.com/top-15-valuable-facebook-statistics | SMSeagle, techjury net/stats-about/sms-marketing-statistics | Tubefilter, www.tubefilter.com/2019/05/07/number-hours-videoploaded-to-youtube-per-minute | Business of Apps, www.businessofapps.com/data/app-statistics | Website Hosting Ratings, www.websitehostingrating.com/about | Oberlo, www.oberlo.com/blog/tiktok-statistics | SEO Tribunal, seotribunal.com/blog/google-stats-and-facts | DMR, expandedramblings.com/index.php/tinderstatistics | DWR, https://expandedramblings.com/index.php/whatsapp-statistics | Mobile Syrup. com/2019/05/01/40000-songs-uploaded-spotify-every-day | Variety, variety.com/2018/digital/news/snap-posts-q2-revenue-beat-but-daily-users-down-for-first-time-1202898312 | Paste Magazine, www.pastemagazine.com/ articles/2019/04/people-watch-165-million-hours-of-netflix-per-day.html | Learning Hub, learn.g2.com | The WordStream Blog, www.wordstream.com/blog/ws/2017/04/20/instagram-statistics.

See also: Visual Capitalist, www.visualcapitalist.com/what-happens-in-an-internet-minute-in-2019 | Ridestar, www.ridester.com/how-many-uber-drivers-are-there/amp | DMR, expandedramblings.com/index.php/reddit-stats.

Image edited from MousePath on 2010-01-21 by Niels Heidenreich on Flickr.



Our Digita World

3 billion snaps on Snapchat



300 million stories on Instagram

58 million votes on Reddit

Creative disruption is one thing, but we've moved beyond that.

This is disruptions disrupting the disruptions.

It's Uber drivers replacing taxi drivers, only to look in the review mirror and see the prospect of driverless cars creeping up behind them. It creates uncertainty about the future, and uncertainty provokes fear. And fear can lead us to dark places.

It has happened before.

Many of the isms that reverberate to this day stem from upheavals in the 19th and early 20th centuries. Broad shifts in the global economy coincided with the introduction of electricity, radio, film, television and, ultimately, mass information. Following the Great Depression, public opinion was dominated by those able to tell audiovisual stories. In the downward spiral towards World War II, belligerent countries weaponized media to undermine democracy and spread fear, hate and propaganda.

Here we are in the wake of the Great Recession.

> Dramatic technological shifts. Economic anxiety. New media.

Nationalist populism.

Now that's a pattern we should be able to recognize.

But what's behind it?

After all, finger pointing is certainly not abnormal in politics.

What's unusual about periods of intense change is that people are willing to believe a lot of nonsense.

> People feel cornered and threatened, and they need something to latch onto.

Many "safe" and "solid" things that we knew to be true are fading away...our tenuous foothold in this world is crumbling beneath us. Here's another status update:

The digital revolution is here to stay.

So how can we work together globally to revolution safely?

It won't be easy.

Technological change takes the elevator,

and government adaptation takes the stairs...

while carrying a duffle bag full of heavy and outdated regulations.

Fake news gets halfway around the world before the truth has a chance to put on its pants

...and our complex reality doesn't fit in a 280-character tweet.

Even the very people driving change are often surprised by its consequences.

Google engineers are consumed by bringing that self-driving car to market before Uber, not by considering the global impact of the new technology.

This book argues that the No Collar Economy is a global phenomenon and that the impact of the digital revolution can't and shouldn't be discussed in a vacuum.

> To understand the skills former coal miners need to help secure West Virginia's future, we need to talk about the impact of automation in Southeast China.

^{Our} Digital World

Our Digita World

ost common tweet length only 33 characters,¹ 80% of ets come from 10% of all ccounts² and at least 15% of accounts are likely bo

Yet the medium has a massive impact on decisions across almost all sectors in society.



^{Our} Digital World

This is Our Digital World.

And its history has yet to be written. However, we'd do well to consider an old Cherokee story of two wolves:

A Cherokee elder is teaching his grandson about life.

"A fight is going on inside me,"

he says to the boy.

"It is a terrible fight, and it is between two wolves. One is evil. He is anger, envy, sorrow, regret, greed, arrogance, self-pity, guilt, resentment, inferiority, lies, false pride, superiority and ego."

He continues,

"The other is good. He is joy, peace, love, hope, serenity, humility, kindness, benevolence, empathy, generosity, truth, compassion and faith. The same fight is going on inside you and inside every other person, too." The grandson thinks about it for a minute and then asks his grandfather,

Our

Digital World



The grandfather simply replies,

"The one you feed."

Which wolf are you feeding?

</Chapter>

Lead authors Emily Benson & Samuel George



Digital World Theory holds that many of the West's traditional political cleavages were born in Europe as the outgrowths of national and industrial revolutions.

Church vs. state, capital vs. labor, center vs. periphery, urban vs. rural

The contours of these divisions gave rise to the political parties, norms and cultures that define the modern tug-of-war that is democratic politics.

Thus, it seems only fitting that the latest cleavages, brought by globalization and powered by the digital revolution, have hit Europe at a particularly precarious moment.

The European Union (EU), an integration pact now featuring 27 countries, has brought unprecedented peace to a historically violent region. But the technocratic project is ill-suited for the backlash to globalization.

From Warsaw, to Rome to London, populist movements chip away at EU legitimacy, and anger at a perceived democratic deficit in Brussels has spurred tangible democratic backsliding in countries such as Poland and Hungary.

The timing of Europe's identity crisis is unfortunate, as the continent simultaneously seeks to clarify its role in our digital world.

Despite possessing strong human capital and infrastructurethe region boasts **L**. million^C professional developers, compared to 4.3 million in the US¹-Europe has not matched the US in the development of tech champions such as Apple, Google, or Facebook. Meanwhile, as a significantly developed region, Europe cannot lean on tech for rapid catch-up growth, as can parts of Asia.

The EU's emphasis on consumer protection and privacy is laudable but does the rigidity of the resulting bureaucracy create an artificial ceiling on the continent's potential?

It is telling that Europe's digital natives-millennials and those in Generation Zface chronic underemployment in the EU's periphery.²



= 100.000 developers

Professional developers

तितेतेतेतेतेतेतेतेतेतेतेतेतेतेतेतेते Europe 6.1 million

United States 4.3 million



The combination of strong skills and limited opportunity can break bad.

In Eastern Europe, a small but impactful subsect of the digitally savvy have weaponized their talents, building sophisticated malware and hacking operations that hijack the digital content of businesses, individuals and governments around the world.³
That said, the No Collar Economy offers tremendous opportunity for Europe. The continent's tech industry is expanding five times faster than the rest of its economy in terms of gross value added, and the tech workforce grew 4% in 2018, dwarfing overall EU employment growth of 1.1%.⁴
Overall, the European Commission estimates that a cohesive digital market in Europe could contribute €415 billion each year to the European economy and create upwards of four million new jobs.⁵



pain 32.2%

27.1%

Youth unemployment

rate in EU member

states (2019)

Source: Statista

the that pro-

ikimedia Commons.





The EU may also take stronger steps to prevent digital monopolies.

> From across the pond, the EU observes American firms dominating digital markets, and Europeans have increasing angst regarding consolidation, concentration, and potential monopolistic power in tech.

The concerns are amplified as major US firms set up shop in Europe, hiring the top local talent. There's good development happening in Europe, but a lot of it is being done for Google, for example.

Th EU Commissioner for a Digital Europe will focus on data strategy AI₁ regulating digital platforms and fair digital taxation.

Image by Markus Spiske on Unsplash.

But it could take years for their conclusions to yield policy, let alone implementation, thus undercutting the efficacy of any recommendations.

Privacy Between You and (a)I

"Move fast and break things!" In Facebook's early years, Mark Zuckerberg's company operated under this motto⁶ which perhaps summarizes the general approach to digitalization in the United States.

Creative recklessness has benefits, both in terms of innovation and material reward. But it has important drawbacks, as American citizens are only slowly coming to terms with the actual price of services such as Google and Facebook that had marketed themselves as "free." Europe has not allowed its firms to move so fast, and, for better or worse, the region has not broken so many things. A major theme of European digital regulation is preemption, which places a policy emphasis on minimizing the risks of new technologies as opposed to maximizing growth.

Indeed, in the *Forbes* list of the Top 100 Digital Companies, the highest-ranking

30 European firm is Deutsche Telekom, checking

in at nineteenth.⁷ For such a large and educated population with an ambitious digital single market plan, it is surprising that the EU is unable to place a firm in the top ten. Part of the emphasis on privacy stems from recent history. Following decades of intrusive government surveillance during the Cold War, many Europeans are more defensive of their personal information than their American counterparts who seem ready to tap away their inheritance for a couple of rounds of Candy Crush.

Sut the European reluctance has realworld consequences in the digital economy. For example, only 64% of Germans use smart phones. Germany also has very slow internet: A 2017 OECD study ranked the country 29 out of 34 industrialized economies in terms of internet speed, a serious problem for a country with pretentions of being a digital leader.⁸

ламент Parlam, nt Euper Michailidis on Shutterstor nt Parlament





You Down with **GDPR**?

Yeah You Know Me

This chapter began by questioning Europe's role in the No Collar Economy. One position the region seems keen on staking out is as "the world's foremost tech watchdog."⁹ In May of 2018, the EU's General Data Protection

Regulation (GDPR) went into effect. The premise of the legislation is that people should control their own data, and should feel reasonably secure that the companies that collect it do so legitimately, and that once they have it, they are being careful with it—or these firms will face legal consequences.¹⁰ The law stands as the world's most comprehensive data privacy framework and a model for other countries concerned about unchecked power growing in Silicon Valley.



KEEP CALM AND COMPLY WITH GDPR

Europe



Rocking with the **Big Boys**

Much has been made about Europe's inability to develop "unicorns", or startups valued at over/US\$1 billion.

But, in Spotify, the Swedish music streaming app, Europe boasts an ace of base that has managed run with the apps born in the USA.

Siri? Thank un next.

Hey Alexa? It must have been love, but it's over now.

Ok Google? Didn't we almost have it all?!

Despite facing off against Apple, Amazon, and Google streaming services, Spotify remains the global leader in streaming with around 250 million users, including 113m paid subscribers.¹¹

> But maintaining this position will be difficult. Spotify's rivals are major hardware developers as well as music streamers, and they have the capacity to integrate their software into phones, tablets, smart speakers and computers. For Amazon, it's not all about the Benjamins, at least not directly. The firm packages its music service with Amazon Prime, and its primary

goal is to lock costumers into the Amazon ecosystem; it does not need to maximize profits on music streaming.¹² Apparently, the strategy is effective: Prime Music increased its subscribers by 70% from 2018 through 2019.¹³ Meanwhile, in 2019, Apple Music surpassed Spotify in terms of subscribers in the US,¹⁴ a critical market measurement.

Spotify may be half way there, but if the behemoths turn up the heat, it could be living on a prayer.

Pandora n

Million

))

Google

Million

Play

Amazon Music



Paid suscriptions by platform, 2019.

Source: Visual Capitalist, 15 The Verge, 16 Engadget, 17 and Forbes

Government?

There's an app for that

In the digital era, adaptability and speed are critical in formulating policy responses, which presents governments with an agility challenge. Since a high degree of flexibility is necessary to respond to rapid digital changes, some of the world's most conservative institutions, such as governments, have been forced to adjust, and their success varies.

Every two years, the United Nations publishes the e-government development index (EDGI) report, which ranks eGovernment development levels of UN Member States. This report primarily studies to what degree government services are available digitally. In the latest EDGI report, published in 2018, five of the top ten digital governments worldwide were European, with Denmark coming in first.¹⁹

Another measurement of how well countries perform in their digitalization efforts is the European Commission's eGovernment Benchmark Rankings, which ranks improvement in accessibility and

usability of digital public services throughout the EU. The most recent results found that Malta, Estonia, Austria, Latvia, and Denmark were the highest scoring countries, while others such as Switzerland and Croatia lagged behind.²⁰ A majority of member states fall into a middle category, in which 50 to 75% of government services are available online.

The UN rankings indicate that Europe far outpaces the US in digital accessibility of government resources.

eGovernment Development Index Top 10 Countries Country

Cou	Index	
1.	Denmark	0.9150
2.	Australia	0.9053
3.	Republic of Korea	0.9010
4.	United Kingdom	0.8999
5.	Sweden	0.8882
6.	Finland	0.8815
7.	Singapore	0.8812
8.	New Zealand	0.8806
9.	France	0.8790
10.	Japan	0.8783

Source: United Nations





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European Union
Malta
Portugal
Denmark
Norway
Austria
Lithuania
Estonia
Latvia
Sweden
Spain
Ireland
Finland
France
Iceland
Belgium
Germany
Netherlan
Italy
Turkey
United Kin
Slovenia
Czech Rep
Poland
Bulgaria
Switzerlan
Cyprus
Hungary
Luxembou
Slovakia
Monteneg
Greece
Bosnia and Herze
Greece
Romania

Denmark Norway Austria Lithuania Estonia Latvia Sweden Spain Ireland

2

Europe

Netherlands

United Kingdom

Czech Republic

Switzerland

Luxembourg

Montenegro

Bosnia and Herzegovina



Making headlines

The Baltics

"Latvia has always been in the middle," explains Inga Springe, a Latvian investigative journalist. "Most of the time we have been under someone."

In 1940, the small Baltic country was invaded and occupied by the Soviet Union. In 1941, German forces took the state from the USSR. and Latvia fell under Nazi command through 1944 when the Red Army again wrestled back control. Latvia would spend the following 46 years under occupation as part of the Soviet Union. <



In the decades following World War II, Soviet leadership attempted to "Russify" Latvia: Moscow sent thousands of Latvians to Siberia, murdered thousands more, then moved hundreds of thousands of ethnic Russians into Latvian territory. As a result, today roughly a quarter of Latvia's population is ethnic-Russian, plus roughly another 8% ethnically of other Soviet-bloc countries.²¹

> This demographic mix creates a complicated political challenge for the country, which joined the European Union in 2004. Latvia's ethnic-Russian population has now lived in the country for generations, and many consider themselves Latvian, even if they continue to speak Russian as a first language. </

Yet many ethnic-Latvians have not forgotten the brutality of the Soviet years, and are acutely aware of recent Russian aggression in Ukraine, which has occurred under the guise of repatriating ethnic Russians living in Crimea. If it could happen in Ukraine, some worried, it could happen in Latvia.

"Part of society has this feeling that we are stuck between Russia and the European Union," Springe explains, "that we are still not rulers in our own land."

It is a combustible situation, with the lingering threat of a digital spark. Latvia sits as a ripe target for Russian digital misinformation,

and many Latvians have long suspected Russian manipulation. Inga Springe was able to prove it. Working her way through previously-sealed Russian court documents, she uncovered damning proof of a Moscowled digital campaign to spread fake news throughout the Baltics.

Springe gives a sly smile and says, "We were able to see how the sausage is made."

Inga Springe reveals Skype conversations between Kremlin agents and the "independent" Baltic news website Baltnews. </

MOSCOW Сань откликнись плз! (Alexander, reply please!) Плександь найдись ПЛЗ! (Alexander, please show up!) BALTNEWS Есть обязон, (I have a task for you.) Каждый день отрабатывать три темы из пяти предложенных. (Every day you need to report on three of the

five topics that we suggest.)

"On a daily basis, they were receiving orders from Moscow about what they should write about," Springe explains.

MOSCOW

У нас есть задача размещения 5 опросов по Европе

(We have a command to publish five surveys about Europe.)

сделанных европейской компаней по заказу флагмана.

(On the order of the flagship.)

Размещать надо в день по материалну

(Be available - we will be in touch soon.)

— S.G.

a split

Тут.

(Here.)



The topics sent from Moscow were clearly intended to inflame passions in the Baltics. They included anti-European Union articles, anti-immigration pieces, and posts highlighting divisions in the US. > As time passed, the daily list would arrive with an additional instruction.

MOSCOW

Mandatory!!!

The interreference helps sustain ethnic divisions that become most prominent during elections, when ethnic Russians routinely vote for ethnic Russian candidates, while ethnic Latvians stick with ethnic Latvian candidates—a division that Springe worries may only benefit Vladimir Putin in the end.



40

Cyber warfare The European Testing Grounds

The world has become increasingly attuned to the ability of digital delinquents to use fake news to sway popular opinion and electoral outcomes. But lurking in the shadows is a far graver threat: cyberwarfare.

A well placed cyberattack can leave millions without power, while causing billions, maybe trillions, of dollars in damage—not to mention chaos in the streets and loss of life.²² Cyberattacks can permanently disable entire networks, shredding public and financial records, and "bricking" billions of dollars of infrastructure and intellectual content.

This is no abstract threat. Cyberweapons are real, they are rapidly improving, and they have been used. While powers major and small are building cyberwarfare capacity worldwide, it is Eastern Europe that has emerged as the laboratory for these tools. Just as global powers tested the weapons of World War II some years prior during smaller regional conflicts, analysts such as Andy Greenberg have laid out comprehensive evidence that Russia is testing cyberweapons in Ukraine, the Baltics, and Georgia. In cyberwar, the fear of the way the world will end is not with a bang but an email. The malware that set off a December 2015 attack in Ukraine had been buried in a simple phishing exercise—a phony email made to look as if it were from the Ukrainian Parliament.

The email had a word attachment, the type of banal file that billions of people share and open daily across the globe. But this one was not banal. Simply by opening the attachment, the malware activated and spread like an infectious virus, from computers to networks to "the highly specialized industrial control software that gives operators remote command over equipment like circuit breakers."²³



machine-quick efficiency."²⁴ national borders. dollars of losses.

Г

The impact of digital weapons is increasing exponentially. Greenberg notes that in earlier December 2014 attacks on Ukraine, hackers that penetrated the country's electrical grid had to remotely move through the power grid, switching circuit breakers with "phantom hands". In the December 2015 attack, the malware automated this process, "carrying out the attack with cruel,

These initial attacks—powerful but brief—could be considered warning shots compared to the next incursion. In the Summer of 2017, a new Kremlinbuilt virus struck Ukraine. This one, assisted by Eternal Blue, a program stolen from the United States' National Security Agency, moved with such ruthless efficiency that it could not be contained by

The program first ripped through Ukrainian banking, transit, hospital, and government systems, bringing the country to its knees in a matter of seconds. Then it went international.

Shis is the vulnerability of our digital world: our deep-seated connectivity can be weaponized against us. Greenberg highlights the impact on Maersk, a massive global shipping outfit responsible for a fifth of the world's shipping capacity. The company had one computer in Ukraine that got infected.²⁵ But one was enough. The virus coursed through the company's international network, leveling the giant for two weeks and causing hundreds of millions of

Finally, deep in crisis mode, Maersk found a single company computer in Ghana that hadn't happened to be online during the attack, and the company was able to stagger back to its feet.²⁶ This is but one example of the countless international firms that suffered during the Summer of 2017. What was the point of such a large-scale incursion? Greenberg posits that it may have been a cover-up: before detonating the virus, the hackers had months of access to Ukrainian networks. Destroying those networks also destroyed the evidence of the espionage.²⁷ The journalist cites another troubling hypothesis: Russia may be using Ukraine as a testing ground. "And the explosions that Russia has repeatedly set off in Ukraine are ones it has [already] planted... in the civil infrastructure of the United State."28

^{Our} Digital World The Bright Side

That's pretty scary, huh? But this chapter would be incomplete if we did not consider the countless promising startups budding around Europe that are pursuing cutting-edge solutions to pressing social problems.

More than 500 European tech companies founded since 2005 are tackling at least one of the UNs Sustainable Development Goals as part of their mission. This is how much they have spent in millions of dollars.

SDC 5 Zero Hunger



7 SDC P Clean Water and Sanitation



SDG 11 Sustainable Cities and Communities



ZDG 15 Responsible consumption and production



Climate Action

Source: Dealroom, 2019

2015

2016

For example, Berlin-based startup XAIN seeks to develop machine learning methods while respecting user privacy rights, a key riddle in the development of artificial intelligence. Machine learning requires access to a tremendous amount of data; data that people increasingly are reluctant to share.

XAIN is developing federated machine learning, a decentralized approach where training occurs on a user's device. The device than transmits the learnings—and not the personal data—to the company. This allows the model to benefit from large amounts of data without actually requiring centralized access to the data itself.

An added bonus? This model facilitates the collection of big data in a GDPR-compliant way. Meanwhile, in Switzerland, favorable tax rates and government openness to technology have attracted a substantial number of startups, most of them blockchain-focused, to the Swiss countryside, where it is even possible to pay government fees and taxes in bitcoin.²⁹ Startups in Switzerland range from FinTech firms operating like stock market traders to creative and unique startups that threaten to upend long-standing business models in various sectors. Some do both at once. Consider Everex.io, a company that specializes in remittances (the transfer

2017

of money from a migrant to their home country). The company's ambitious goal is to provide banking to the poorest two billion people in the world. Everex uses a basket of cryptocurrencies pegged to fiat currencies such as the Swiss franc and American dollar, effectively negating risk that is endemic to otherwise volatile cryptocurrencies. ^{sp>} Unlike companies such as Western Union that charge roughly 10% per transaction and can take several days to process, transfers via Everex are nearly instantaneous and free-ofcharge. Everex, for example, only charges 0.01% per transaction. Another benefit of Everex's blockchain is that it allows for micro-trades.

2018



The service is particularly useful for Europe's immigrant population. Imagine an immigrant son living in Europe. His mother back in his home village suddenly needs transportation to the nearest medical clinic. Within minutes, her son can send her €25. Given the urgency and small size of the transfer, Western Union would be ineffective. With Everex, the son in Europe can instantaneously transfer funds to his family, ensuring that his mother receives same-day medical care.

This concept illustrates a key component of the digital economy: while disruptive, digitalization in many cases simply represents a re-thinking of obsolescing legacy systems.



Silicon Canal?

Europe's Tech & Start-up Hubs

📕 Urban areas



^{Our} Digital World

Of horses and chariots



In 2004, political scientist Atul Kohli asked readers to imagine a chariot as a metaphor for economic development.

He envisioned the state and its entrepreneurs as two horses: when the broncos pull together, a state industrializes.



When they pull in opposite directions, the chariot stagnates.³⁰

European digital development may be a chariot with multiple horses: restless youth brimming with talent, a multinational integration project attempting to impose rules on a chaotic game, national governments with their owns concepts of modern statehood, and more.

Should these horse pull together, they are capable of sprinting alongside digital powerhouses from the East and West. But if they pull against each other, the chariot will sputter, and the region will squander it tremendous initial positioning in our digital world.

</Chapter>

Our Digital World

> All Eyes are on East Asia and East Asia is Watching Back

Lead authors Nicole Chi & Yixiang Xu



^{Our} Digital World

Welcome to the most popular place on Earth and on the internet. Asia is the world's largest and most populous continent, on- and offline.

Its digital economy is incredibly diverse, ranging from established high-tech centers to rapidly emerging markets to remote regions just now connecting to the digital world.

The first volume of The No Collar Economy focused on the awe-inspiring achievements from India's ambitious digital strategy, such as the implementation of Aadhaar, a digital database encompassing nearly all the country's 1.3 billion citizens.

This second volume hones in on the developments of east Asia.

Asia is home to 50.4% of all internet users.1

> Led by Japan, and followed closely by the four Asian Tigers-Hong Kong, Singapore, South Korea, and Taiwan-the region's early digital adaptors have developed areas of advanced technology and serve as examples for their neighbors. With prestigious knowledge hubshigh-tech capabilities and blazing internet speeds, Japan and the Tigers are leveraging technology to maintain strong positions in the global economy.



As for the dragon in the room, China has managed with astonishing speed to launch nine of the world's 20 largest tech companies.²

Finally, the countries of the Association of Southeast Asian Nations (ASEAN) comprise a region with tremendous untapped potential for digital transformation. Unfettered by legacy tech1 these nations have the potential to bypass earlier advancements and exploit the latest breakthroughs.

Internet Companies Ranked by Market Valuation (2018)

hina 🛨

USA 📩

Booking Holdings 👷 🂵 Apple 📩 Amazon 👉 2 Salesforce.com 👉 12 rosoft 👈 Baidu 🛨 13 /Alphabet Xiaomi 🛨 14 Uber 🛨 15 Alibaba 👈 Didi Chuxing 🛨 🕹 JD.com 🛨 17 Tencent 🛨 Netflix 🛨 Airbnb 👉 18 Ant Financial 👉 Meituan-Dianping 🛧 19 + PayPal 📌 Toutiao 🌟 20

Erom online shopping to the global race for AI domination. China's tremendous investments at the state and industry level have made it a technological powerhouse. However, as China's expertise advances, the world faces daunting challenges from its authoritarianism.





Source: China Internet Network Information Center and Internet World Stats, 2019

52

Brazil 149M

You've Got Mai « Monthly active users in millions »

The competition to be the world's digital mailman

^{Our} Digital World

WhatsApp

If you're sending digital messages, the odds are that Mark Zuckerberg can read them.

Facebook

Messenger

Facebook, which owns Messenger and Whatsfipp, hosts most of the world's digital conversations.

In Asia, however, Mr. Zuckerberg is far more likely to be in the dark.

Many of the continent's digital scribes do not use Zuckerberg products.

QQ Mobile

As part of its censorship policy, China blocks Facebook, Messenger and Whatsfipp,

We^{Chat}

Whether intended or not, the policy functions as a protector of China's homegrown apps.

Just as Japan used tariffs to defend its fledgling automobile industry in the 20th century, China's "Great Firewall" has created space for WeChat, Alibaba and other domestic companies to grow and establish dominant positions in their massive home market.³

India's Flipkart and Ola, which compete, respectively, against Amazon and Uber, have been pushing for similar domestic policies to protect themselves.⁴

Digital protectionism certainly played a part in WeChat's early success, but it has since secured

Most popular mobile messaging apps worldwide As of 2019, based on number of monthly active users (in millions) Source: Statista Skype Snapchat Viber Telegram its place as the world's most comprehensive social ecosystem. The app allows users to play games, pay bills, find

local hangouts, shop and even access public services using virtual ID cards.⁵

WeChat's level of integrated services for China's nearly 1.4 billion people is astounding.

Imagine Facebook Google, Amazon and Uber all rolled into one.[⊾]

Image by Del N on Flickr.

Facebook Amazor

Getting over **Bitcoin**?

In the ten years since its introduction, Bitcoin usage has grown rapidly. The cryptocurrency's popularity has had a knock-on effect, inspiring the creation of about 3,000 other digital currencies with a total market cap of US\$187 billion.⁷ This shocking rise has pushed proponents and critics alike to rethink the concept of money.

Cryptocurrency mining (the digital hunt) for new coins) and staking (the process of using blockchain to create and maintain a cryptocurrency wallet) are dominated by Asia, and exchanges there lead global cryptocurrency trading.⁸ The Japanese yen is the second-most traded fiat currency for bitcoin, and it briefly overtook the previously dominant US dollar in early 2019.⁹ The sector is not just the purview of the most digitally literate and risk prone: One-third of South Korean workers invested in cryptocurrencies in 2017, and they increased their crypto holdings by 64% in 2018.¹⁰



The popularity in Asia of these decentralized, non-government-backed currencies has forced the region's governments to react. They seek to minimize disruptive political impacts while encouraging financial innovation.

There are three general government regulatory positions regarding cryptocurrency:

- <1i>**1.** Fully legal and regulated by monetary authorities for payment and tax purposes, as in Japan and Hong Kong. These economic powerhouses seek first-mover advantages that will see their home exchanges bring in fresh capital and pioneer new business solutions to stay ahead of international competition.
- Legal as digital assets but prohibited as legal tender and restricted from banks and other financial institutions, as in Vietnam and Cambodia. </1:
- **3.** Effectively banned, as in China, where initial coin offerings are prohibited and trading platforms have been shut down.¹¹ Beijing views private cryptocurrencies as dangerous because they could escape bureaucratic oversight, and obscure the identities of investors and the purposes of their transactions.

For cryptocurrency to go mainstream in Asia, government policies need to safeguard the integrity of crypto exchanges and the legality of crypto assets, and provide a comprehensive assessment framework.

Blockchainmania

While Asian countries differ over cryptocurrency policies, they are united in their efforts for broad adoption of the underlying blockchain technology. Even China having banned cryptocurrencies and dismantled homegrown exchanges in 2017, declared blockchain as a national priority in its 13th Five-Year Plan.¹²

Blockchain is a distributed, open digital ledger that uses a peer-to-peer network to store records in a permanent and verifiable way. Blockchain's efficiency and security make the technology highly applicable to the fintech industry, particularly in developing Asian countries. Poor financial infrastructure, high fees, security concerns, and lack of consistency among traditional financial platforms have long constrained market development in many such nations. Blockchain offers a technical upgrade and a potentially trustworthy system. More than money is at stake. While blockchain is most viscerally associated with digital currencies and banking, its applications in Asia have extended well beyond fintech.

- **1.** A pilot project in Sumatra, Indonesia is testing a blockchain-based mobile voter platform that encourages community engagement and counters fraud.¹³ <11> **2.** The Indonesian startup Hara offers
- a blockchain platform for farmers to update valuable but hard-to-find

The ultimate impact of blockchain technology on Asia's economies is unknown, of course. But the region has a huge consumer market with high GDP growth rates and a young population eager to adopt new technologies. Blockchain's widespread implementation will still depend on building trust by informing participants of regulatory requirements, inherent risks and legal rights.

З



information on land ownership and crop prices in exchange for digital tokens, which can be exchanged for tools of the trade such as fertilizer.¹⁴ </1 <11> **3.** In Singapore, the Bluzelle platform offers decentralized "cloud services". Sellers can rent unused computer storage space, and buyers can save their data across many computers, limiting the exposure to hacking. **4.** The Thai national utility EGAT is set to

facilitate independent power generation. Property owners utilizing blockchain platforms will be able to trade electricity from their roof solar systems.

^{Our} Digital World The Al Doctor Will See You Now

Not just anyone can be a doctor! Before sitting for China's medical licensing exam, Xiaoyi's professors — developers at the Chinese company iFlytek — praised the student's ability to learn, reason and make judgements.¹⁵ Xiaoyi proved them correct. In November 2017 the pupil passed the exam. <

s a robot bass the rigorous robot to

Xiaoyi's dramatic performance lifted the curtain on China's efforts to employ AI in the healthcare industry. The endeavor is part of a global race in Al-assisted healthcare, which was worth US\$2.1 billion in 2018, nearly double its value a year earlier. By 2026, the sector could have a market cap of US\$19.25 billion.¹⁶

Last year, 144 Chinese companies worked to develop AI-enabled healthcare solutions that include medical imaging, surgical robots, Al-assisted diagnosis, disease prediction and drug discovery.¹⁷ These firms, which include large internet companies, medical device manufacturers and other technology startups are transforming healthcare in China.

Ping An Good Doctor's telephone booth-sized One-minute Clipic employs an Al-powered computing system to offer diagnosis and treatment plans for more than 100 common illnesses based on walk-in patients' inputs of medical history and symptoms.¹⁸ Tencent Shadow Chaser uses computer vision and AI analysis to diagnose 700 diseases that comprise 90% of the most common outpatient cases.¹⁹ And YITU Technology, a Shanghai-based AI startup that specializes in facial recognition systems, developed an Al-driven diagnostic and treatment platform that analyzes real-time chest CT imaging for detection of nodules and other lesions to help doctors diagnose and treat lung and breast cancers.²⁰

Faster and Better Healthcare Rapid development of medical AI can improve the quality and structure of China's healthcare industry nationwide. While the country's breakneck economic growth has greatly increased access to

medical resources in urban and coastal regions, its rural areas are still short of medical professionals. In those regions, there are even fewer doctors than the national average of 1.8 per thousand people, compared to the OECD average of 3.4.²¹ Emerging AI healthcare platforms promise to help address China's doctor shortage by providing preliminary screenings, assisted diagnoses and personalized health monitoring. By remotely connecting patients to doctors, and general practitioners to specialists, and compiling large patient databases, China's AI healthcare companies aim to offer faster results, improved data transmission and lower cost.

While an abundance of funding and strong government support has fueled fast development of AI healthcare in China, major challenges remain for full commercialization

of medical AI products. Ethical and safety concerns of misdiagnosis and patient injury need to be clearly addressed by legal requirements and administrative guidance. Access to medical records could conflict with Beijing's other priority to protect sensitive medical data. And, while first-mover companies in China's AI healthcare industry have grown rapidly at home thanks to big data and lax views on privacy, they could find themselves hamstrung in international markets by issues ranging from cross-border data trade to security reviews.

In the meantime, the AI doctor will continue its studies.

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Leapfrogging Innovation

Increased internet access has expanded economic growth by lowering the barriers of entry for millions of micro- and midsize enterprises, and increasing consumer access to goods.

And it's not just happening in cities.

In more traditional areas, it could improve income parity between genders.

35%

In Thailand, 85% of consumers living outside major metropolitan hubs use mobile devices for online purchases.²² 24 of Indonesia's 34 provinces saw online sales that exceeded the growth rate of the capital, Jakarta.²³ In Indonesia, female business owners reap 35% of online revenue – compared with only 15% offline.²⁴

However, uneven economic development and digitization characterizes Asia's No Collar Economy.

Only 17% of Cambodian adults have a bank account²⁵ although 96% of them own a mobile phone and 48% of them aged 15 to 65 own a smartphone.²⁶ This means that a savvy but unbanked Cambodian shopper may purchase a jacket from an Instagram store, reach out to the seller via Line to haggle and determine available sizes, and then decide on a meeting place so that she and the seller can finalize the purchase in-person with a cash transaction.





48%



What's love got to do with it?



Digital World

Love Commandos

Delhi_j India

The safe house was not easy to find. Even just getting the direction took weeks of back-and-forth messaging on Facebook, a conversation that finally rendered an address to an inconspicuous apartment in New Delhi's cacophonous center. Sanjoy Sachdev, the founder of Love Commandos, greets me and leads me up a series of dank, age-worn concrete stairs and into his grim, lightly furnished apartment.

Here, Love Commandos offers short-term housing to inter-caste and inter-religious couples who have been abandoned—or worse—by their families. They wanted to marry or had married for love, disregarding caste or religion, and their communities had rejected them. Three couples share the first room, each using as beds small mats stretched out in different corners. In one corner, a man quietly answers my questions in elegant English, as his wife's eyes gaze off in the distance.

था कि राव सेव जी के सब्दाहाला बाहिलक 121म मोहल्ला ब्लीनिक

"We've been in love for the last three years," the man explains. "It was all good on my family's side, but when it came to her family, things got bitter. They didn't want us to be together because I was not Reddy (a caste). They threatened me with harm to her. They were threatening to do an honor killing of my wife, their own daughter." The couple fled to Sanjoy's house, many hours away from their home state.

Across the room, a young interreligious couple—Hindu and Muslim—sit quietly holding hands, having just escaped significant peril to stay together. "They can be killed anytime, anywhere," Sanjoy tells me emphatically. The apartment has a unique air. It is dark, hot and overcrowded, yet imbued with love and hope.

What links Sanjoy's safe house to the No Collar Economy?

India has taken important strides towards minimizing the importance of caste, but the ancient system of hierarchy remains intact. For those of lower castes, the designation given at birth can still heavily influence education and labor opportunities, and social and economic mobility. If these couples belonged to previous generations, they would have had few options, with no place to flee and no money or contacts to start anew.

sp> But it's different in today's digital world. Since 2010, outcast couples have found and contacted Sanjoy via Facebook. He now manages a network of more than 500 safehouses across India,²⁷ making Love Commandos but a small example of the internet's ability to provide escape routes and opportunities for those stymied by social tradition.

— S.G.

AGR







Smart Cities...



Or Smart Surveillance?

Imagine a camera on every lamppost and sensors in every home, gathering data and pinging it back to the powers that be. Maybe the cameras monitor traffic. Maybe they monitor who's hitting the bar. Perhaps they're doing both. Around the world, governments are expanding mass surveillance of their citizens while rolling out flashy "smartcity" initiatives that promise to improve quality of life and to prepare cities for the future, and China is leading the charge towards this alternative to an open internet. </

The country has already limited internet anonymity, a hallmark (for better or worse) of global online culture. Cybercafés check photo identification, record user activities, and even use facial recognition for user registration, processes that follow instructions from law enforcement.²⁸ This lack of anonymity may prevent cybercrimes, but it also removes a potential forum for challenging the government. </r

> Other initiatives seem to be plot lines from an episode of Black Mirror, the Netflix series. Since 2014, Beijing has piloted social credit systems that use digital data to reward or punish an individual's behavior. Sesame Credit, an Alibaba subsidiary, calculates a user's social credit score based on friends, spending history and other types of consumer activity. Buying diapers, deemed a "responsible" behavior, raises one's score; buying videogames lowers it.²⁹ In Rongcheng City in Shandong

province, surveillance cameras allow the social credit system to award points for positive community behavior such as cleaning public spaces, and dock points for negative behavior such as littering. Those with high credit scores receive on- and offline perks such as special offers on Alibaba or having rental car deposits waived.³⁰

> Many of these examples could be pitched as smart-city initiatives. And isn't that all the rage now? Cities from Houston to Hanoi vie for smartcity status as they try to attract the investment, jobs and people that smart technology provides. But how can they ensure responsible usage of this urban intelligence, especially when it appears to offer tangible benefits?

Registered internet use may help authorities crack down on cyberbullying. And the streets of Rongcheng may be safer because drivers stop for pedestrians lest they risk a hit to their social credit score. But such surveillance entails alarming social consequences, particularly for minorities and activists. China bans those with subpar social credit scores from using air and ground transportation, which has severe implications for democracy, especially when an offense can range from unpaid fines to writing articles critical of the government. In Xinjiang, a region in northwestern China, facial recognition and personal verification technology is used to track 2.6 million Uyghur Muslims. It's a No Collar strategy for minority repression.

Atlanta

Shenzhen Guangzhou Singapore 5hangha Lluber Chongqing Beijing

Abu Dhabì,

London





The Most **Surveilled Cities** in the World

Chongqing 168.0 Shenzhen 159.1

Shanghai 113.5

Tianjin **92.9**

Jinan **73.8**

London 68.4

Wuhan 60.5

Guangzhou 52.8

Beijing 39.9

Atlanta 15.6

Singapore

Abu Dhabi

15.3

13.8

Cities with the most surveillance cameras per 1,000 habitants (2019)

Source: Statista

East Asia's Future

^{Our} Digital World

Riding the wave



With the leading high-tech sectors of Japan, South Korea, Taiwan and Singapore, and China's mammoth investments in technological innovation, East Asia has the potential to break new ground in AI, 5G, smart cities and more.

> Meanwhile, southeast Asia will contend with two of the core struggles of today's age.

First, how will states protect (or traffic) their citizens' data?

The ten-member states of ASEAN have a growing population that has already exceeded 620 million. Investment from China, Japan, and the US in infrastructure projects already reflects efforts to profit from the region's expansion.

These investments, though beneficial for development, give foreign actors access to huge amounts of personal, government and financial data, increasing the risk of espionage and hacking.³¹

> Second, how will the internet be governed?

As China pioneers its own model, governments in southeast Asia and beyond will need to decide between promoting an open internet or one subject to censorship and surveillance. China has already held trainings and seminars on internet regulation for representatives of 36 countries, thereby attempting to spread Beijing's policies. The strategy appears to be working: Vietnam, Uganda and Tanzania have passed laws that mimic Chinese cybersecurity legislation, demonstrating China's leadership in digital surveillance.³²

In the tug of war between East and West, digital rules and capacities will play a vital role.

</Chapter>

Our Digital World

100 Middle East & North Africa

Lead author Sarah Alaoui

The World's Oldest Civilizations Incorporate the Latest Tech

<Chapter>

World Scholars have long imagined the power of digital tools to forward democratization.

In late 2010, with the onset of the Arab Spring, the citizens of the Middle East and North Africa appeared poised to prove that theory accurate.

For decades, many countries of the region had remained firmly under the thumb of authoritarian regimes. Citizens may have tired of corruption and economic stagnation, but they had little opportunity to challenge oppressive governments in the public sphere.

Deep penetration of digital technology in the region changed that. The protests, which began in Tunisia and spread through Egypt, Libya, Yemen and Bahrain, relied on social media to organize, share images and video, and raise awareness both domestically and beyond.

Hundreds of thousands took to the street, tweeting, facebooking, blogging and livestreaming every step. It was a viral moment, and momentum increased exponentially...

The authoritarian regime in Tunisia fell in January 2011.

> Eqypt's dictatorship followed a month later...

...just as Syrian protests picked up steam.

It was the "Twitter Uprising"

It was the "Facebook Revolution"

It was...

...well, in the end it was far more complex and ambiguous than the initial narrative of digitallyinspired democratization.

Tunisia maintains its hard-earned democracy but uprisings in neighboring countries have been suppressed, have resulted in infernal civil wars, or have yielded new regimes no better than the ones they replaced.

As in the rest of the world, the Middle East and North Africa grapples with the impact of digitalization: the feeling of new, limitless opportunities and the reality that revolution be it technological or political—can have unintended consequences.

One thing is certain

The region's citizens and governments leap into the digital revolution at an exceptionally volatile moment.

> MENA's cities may be ancient, but the population is young:

Nearly half of its people are under the age of 25.²

National populations are increasingly educated but, in many cases, also increasingly underemployed or unemployed.

At the same time, swaths of the region remain embroiled in conflict and face political turbulence, in some cases due to spillover effects of crises in neighboring countries.


Digital **Democracy**

Open Data and Transparency in Tunisia

Case Study: Tunisia

Tunisians cleared a significant hurdle towards increased transparency nearly a decade ago when they removed their autocratic leader, Zine El Abidine Ben-Ali, who had spent more than 20 years in power. That, however, may have been the easy part. A more difficult challenge is the ongoing transition process towards the creation of a new social contract between the government and its people. This is no easy feat. But with digital technology, Tunisians have leveraged a valuable tool in a battle against corruption and opaque governance.⁵ The country's civil society has made progress in promoting open data and transparency, exemplifying how citizens can use technology to check governmental actions.

Many scholars and analysts point to the role that social media played in organizing and facilitating communication among protestors during Tunisia's 2011 revolution. Now, more than eight years later, technology continues to shape the country's political development. As a transition to democracy continues to unfold, Tunisians are harnessing digital tools to consolidate the fragile gains made following Ben-Ali's fall. Much of this activity is led by civil society actors using open data and transparency tools.

Following the revolution, Amira Yahyaoui, a young Tunisian activist from a politically active family, launched *Marsad* ("Observatory"), a watchdog website. The platform monitored the activities of the National Constituent

Television Online news family and Where young Arabs get Friends their news Source: Arab Youth Survey, 2019 2015 2019 Radio Magazines

Media

Social

Assembly, the country's parliament.⁶ In pivotal moments after the revolution and as the political transition got underway, Yahyaoui and her team wanted to ensure that Tunisians had front-row seats to the legislative process. The team attended parliamentary sessions, photographing and videoing all votes to ensure transparency in a country whose political tradition was marred by secrecy. They later published the content on their website.⁷ </1

Marsad compiled photos and biographies of elected officials, as well as their voting records and political tendencies. The site publicized attendance information, calling attention to truant deputies and promoting



MARSAD

mailes

Focuses on Assembly

meetings and

proceedings.





Dedicated to making municipal information public and accessible, and includes a transparency index to illustrate how municipalities compare to one another in terms of data availability.¹¹

accountability.⁸ The site also provided a portal for citizens to submit questions to officials and it published the responses. Following *Marsad*'s success, Yahyaoui launched Al Bawsala ("The Compass") a year later, in 2012. The non-profit organization focuses on monitoring, advocacy and citizen empowerment to push government transparency and on helping Tunisians stay connected to local and national politics.9 Yahyaoui may have started a trend. In 2017, the Tunisian Association of Public Auditors (ATCP) and the Financial Services Volunteer Corps (FSVC) launched *Cabrane* (Tunisian slang for 'foreman'), another website designed to foster transparency and the country's first tool

72

ш The Middle Fast and

73



Provides citizens with simplified information about government budgets and spending.

to monitor public infrastructure projects. The platform features a detailed, interactive map of nationwide public projects in sectors ranging from education to healthcare.¹⁰ Users can track the progress of projects and see if they have been delayed or cancelled. There is also an option to add existing projects and suggest new ones. Cabrane allows photo uploads to illustrate project development and provides a forum for citizens to offer feedback that the website transmits directly to relevant ministries. As North Africa's only democracy, Tunisia could serve as a model for constituents elsewhere in the region who wish to use technology to increase open data, transparency and accountability in their countries.



Social media use is rising, with Saudi Arabia exhibiting the world's highest annual growth rate of users, and use in countries such as Jordan and Lebanon increasing exponentially.¹²

4 The Middle East and North Africa



Case Study: Jordan

New Gigs in the **Gig Economy**

Jordan's No-Collar Jobs

Underemployment and unemployment remain major challenges throughout the Middle East, especially as education levels rise. Like much of the region, Jordan has a young population that exacerbates those problems. Around 63% of Jordanians are under the age of 30,¹³ and many of them have a lot of time on their hands. Roughly 39% of those between the ages of 15 and 29 neither work nor are in Bahrain education or training programs.¹⁴ For young women this figure is three times as high.¹⁵ Unemployment within the general population also reflects a gender gap. The rates are 16.3% for men and 27.1% for women.¹⁶ Several social and economic barriers impede women's labor participation in Jordan, particularly in rural parts of the country.¹⁷ Societal pressures push women towards traditional gender roles such as household and childcare responsibilities, and women have difficulty accessing finance.¹⁸ Overcoming these gender-based barriers could increase

Jordan's GDP by 45%.¹⁹ The No Collar Economy can help alleviate unemployment, and create an entry point for women into the workforce.

Across the Middle East, many women run small businesses from their homes, making handicrafts or cooking meals to sell locally. Social media platforms and mobile applications such as Facebook, Instagram and WhatsApp

help increase sales for those with smartphones 76

A11 Educated Up and Nowhere to Go

Formal qualifications held by MENA's core workingage (25-54) population

« Share of population (%) »

Source: World Economic Forum, 2016

and internet access. In Jordan, gig economy apps have made the process easier and more efficient for female, small business owners and their client base.

Qatar

Morocco

Tunisia

Algeria

Mauritania

Kuwait

Yemen

Jordan

Saudi Arabia

Turkey

United Arab Emirates

Egypt

The Bilforon ("in the oven" in Arabic) app, for example, connects home cooks with clients. The platform also provides users with training in quality assurance, product packaging, presentation, and customer service.²⁰ To date, the application is used by more than 150 cooks, 97% of whom are

women, and the vast majority of them earn more than US\$1,000 per month.²¹ Another Jordanian application, *Mravti* ("My Mirror"), connects beauty stylists with customers seeking makeup and hair services.²² The platform helps businesswomen manage their schedules, choose their clients, and provide female customers with services in the comfort of their homes. These applications can also help some of the half million Syrian and Iragi refugees living in Jordan find employment,

Secondary Primar

Unemployment

Qualification

Tertiary

level

^{Our} Digital World



as many of them face difficult legal barriers to the workforce and must often resort to dangerous jobs for their livelihood. While not a perfect solution for prolonged job security, many such applications can also help address vouth unemployment, one gig at a time. Other digital platforms, however, focus on long-term job prospects for Jordan's young people by teaching them marketable skills. One company, HelloCode, launched an online program to teach coding skills to children as young as six years old.²³ Another initiative, Eureka Tech Academy, is dedicated to teaching technological, engineering and entrepreneurial skills to students between the ages of six and 16. Eureka is believed to be the first institution of its kind in the region.²⁴

^{Our} Digital World

Government

Case Study: United Arab Emirates

The United Arab Emirates' Push for Digital Development

Citizens of MENA countries have played a significant, indispensable role in driving digital trends in the region. In some countries, such as the UAE, governments have also positioned themselves as champions of digital technologies. <

In 2017, the UAE launched its

Strategy for the Fourth Industrial Revolution,²⁵

a plan to invest in future technologies across all sectors.

> The plan aims to use physical, digital and biological technologies to address challenges ranging from improving personalized medicine to boosting food, water and economic security, to using 3D printing and robotic construction.²⁶

As part of the strategy, the UAE government launched the Center for the Fourth Industrial Revolution in Dubai.²⁷ The Center, the first of its kind in the region, will serve as a hub for preparing policies and brainstorming solutions to some of the problems outlined in the UAE's strategy. </



The UAE has largely focused its efforts to join the fourth industrial revolution on artificial intelligence (AI), even designating a minister of state for artificial intelligence. Plans to incorporate Al into government strategy include using robots to address teacher shortages, increasing the availability and use of autonomous cars in Dubai to tackle traffic accidents, and enhancing customer service delivery through the use of chatbots.²⁸ These initiatives fall under the national Al program, otherwise known as Building a Responsive Artificial Intelligence Nation, or BRAIN.²⁹

Official government figures predict that this program will add roughly

US\$182 billion

to the economy while saving the government

US\$3 billion.º

The government has also convened a UAE Council for Artificial Intelligence, comprised of officials from many industries, to advance the country's AI goals and "create an AI-friendly ecosystem".³¹

While the AI strategy is a nationwide initiative, much of the planning is being driven by Dubai. The emirate has its own AI roadmap as part of its ambition to become the "smartest city in the world".³² Initiatives include a paperless plan to move all internal and customergovernment transactions online by 2021, an AI lab in partnership with IBM to help familiarize people with the technology, and a mobile application consolidating smart services among 22 government entities.³³ Another major part of Dubai's Al strategy is integrating blockchain technology across all sectors to increase public sector efficiency and further enhance the country's leadership in this field. The government estimates that adopting blockchain can save the emirate 25.1 million man-hours, or US\$1.5 billion, per year.³⁴

While the UAE's ambitious planning and endless strategizing may raise eyebrows and questions regarding the feasibility of its execution, the government is a regional leader in AI. The UAE has invested the same energy in ensuring its future workforce is well equipped to succeed in the fourth industrial revolution. As the country moves towards its target of a 0% oil-to-GDP ratio in the next fifty years, new skills in STEM (science, technology, engineering and math) fields will become especially important for a seamless transition to jobs in non-oil sectors.³⁵ This explains the government's many initiatives focused on training and developing skills valued in the private sector. Unlike in much of the region where there is a shortage of jobs, the UAE's challenge is instilling the right skills in its graduates, many of whom still aim for government over private sector employment.³⁶









Logged off

Mardin Turkey

In October 2016, acid rain from the battle of Mosul drifted through northern Iraq to Turkey's tumultuous southeast. A fog of war literally engulfed the area, one of the world's most politically complex. The region has long been home to ethnic Kurds, and the tragedy of Syria and Iraq is nearby.

Just across Turkey's southern border, in Iraq and Syria, Kurdish forces spearheaded an international effort to beat back ISIS advances. The success of the Kurdish troops in cities such as Kobani and Manbij reinvigorated their long-held dreams of establishing a Kurdish state. The missions also provided potentially viral moments: Kurdish men and woman emerging from battle, victorious over a globally abhorred enemy.

Sep But the successes represented a threat for Turkish President Recep Tayyip Erdoğan. Having survived a coup attempt earlier in 2016, Erdoğan was seeking to consolidate power at the expense of his country's democratic institutions. His efforts included a heavy-handed military campaign in Turkey's Kurdish zone, a move geared towards crushing momentum for autonomy.³⁷ For Erdoğan, a spike in Kurdish nationalism was intolerable.

Erdoğan intensified his campaign of repression over the course of that September and October. Among other actions, he had the Kurdish mayor of Diyarbakir, the regional capital, arrested, a provocative move that risked a widespread backlash³⁸

Thus, it was unlikely a coincidence that, for days following the arrest, the internet mysteriously blacked out across the southeast. Businesses and banks that relied on digital connections ground to a halt.

Erdoğan intentionally destabilized a region of his country that bordered two chaotic civil wars, but by limiting internet access, he prevented any digital mobilization, and the region remained largely quiet.

Support Days after the arrest in Divarbakir, I visited Ahmet Türk, the Kurdish mayor of the ancient city of Mardin. "Erdoğan wants a homogeneous society with a monolithic voice," he said in an interview. "We've come to a point where it is unacceptable for three or four Kurds to meet publicly."

The digital blackout fits a broader strategy that Erdoğan has employed to curtail the internet's potential as a catalyst for civilsociety mobilization. The tactics differ, but the end goal is the same. Sometimes the government uses intimidation: In 2014 a former-Miss Turkey model was arrested for retweeting a joke at the President's expense.³⁹ Sometimes it's technical interference: In 2017, the Commission for Human Rights of the Council of Europe demonstrated evidence that Ankara throttled internet bandwidth during domestic crises.⁴⁰ Sometimes, the machination is legal: in 2018 the government enacted legislation subjecting internet streaming services to the same rules and scrutiny as television broadcasters.⁴¹ And sometimes, as was the case in Divarbakir in the fall of 2016, the internet simply disappears entirely. </

Sep Erdoğan's strong-man-rule rests atop the rubble of his country's democratic institutions that once stood as a model for the Middle East. The downfall represents a rarity— the collapse of democracy in a relatively wealthy nation.⁴² That Erdoğan stifles digital connections to accomplish his goals underscores the political power of technology in the region. It's a power that allows three or four people to connect and rapidly expand to include entire communities.
Sep I left Mardin with a plane ticket scribbled on a piece of paper. The internet was still inaccessible. Within a month, Mayor Türk had been arrested.





Digital Revolution

^{Our} Digital World

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Digitization index

	Overall	Demand	Supply		
		Consumer	Business	Government	ICT supply and innovatio
United Arab Emirates					
Qatar					
Bahrain					
Saudi Arabia					
Jordan					
Oman					
Kuwait					
Egypt					
Lebanon					
Middle Fast					
HIGHLE EUST					
Lou		Digitizat	ion		High

Source: McKinsey & Company, 2016

These country snapshots provide but a glimpse into the overwhelming impact that the digital revolution has had, and will continue to have, on the region.

These trends will continue to shape the relationship between society and government, and influence how challenges are addressed and solutions are delivered. While some countries slowly integrate new technologies into policy implementation, others move at a breakneck pace to catch up with the rest of the world.

In both cases, it is imperative that skills are developed now, through training and education, to ensure that the region's countries are better equipped to address future digital trends.

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Sabarar

Our

Digital World

> **Lead author** Mary Langan

How Tech is Reshaping sub-Saharan Economies

Africa

<Chapt

Digital technology ^{Our} Digital World

is leaving its mark across sub-Saharan Africa and on its

1.1 billion residents.1

Between October 2018 and April 2019 alone, over nine million people in the region gained internet access for the first time. This torrid growth shows no signs of abating: More and more are plugging into the global marketplace of business and ideas by the day.²

The face and future of sub-Saharan Africa's economies, politics, and youthful societies are deeply intertwined with the progression of digital technology. Fully 45% of the region's population is under the age of fifteen, and each year between 2015 and 2035 there will be a half million more 15-year olds than the year before.³ 330 million young Africans will enter the job market over the next two decades.⁴ The integration of digital technology into everyday life is as essential to growth, stability and continued development as it is inevitable.

As the region rapidly goes digital, what does the No Collar Economy mean for sub-Saharan economies, democracies and social services?



100%

40%

30% 20%

10% 0%

Adults with a mobile money account (%)

> Source: Global Findev Database

> > Digital tech is leveling the playing field for small farmers who remain critical to sub-Saharan African economies.

> > > Both government and private-sector innovations are having an impact, and more people are banked than ever before.

Mobile banking opens new avenues to loans, savings instruments and investment opportunities,

Bankonit 0001000

and the change is going viral.

The Agro Impact

Agricultural output per hectare of land

Mobile tools can help improve the region's agricultural productivity.

More than 60% of total employment in sub-Saharan Africa is related to farming, and this doesn't even account for workers in downstream food-oriented jobs. A full 30% of the continent's GDP stems from agricultural activities⁵, and small farms provide more than 80% of the continent's production.⁶ The average farm's size is only 1.6 hectares, far less than the US average of 179 hectares, making farms historically unattractive investments for commercial lenders.⁷ And there are further challenges: Productivity in the sector lags that of the world's other regions, while rapid population growth and climate change pose additional challenges.⁸

Digital technology, however, is mitigating these disadvantages by expanding farmers' access to capital and other resources. Entrepreneurs are finding receptive markets for programs such as Hello Tractor, which allows tractor-owning farmers to connect with those looking to rent one. The program is active in six countries (particularly so in Nigeria). Another mobile platform, 2KUZE, allows small farmers to connect directly with buyers and agents to secure the highest prices and to receive payments via smartphones.⁹ As digital tools become more affordable, opportunities for increased efficiency expand exponentially. With more reliable internet, small farmers have access to new suppliers, markets and customers, and they can plan and invest in their futures with more confidence. Startups are now helping farmers analyze soil types to apply fertilizer more precisely, advising on the irrigation needs of individual plants, providing tailored advice to avoid erosion, and using drones and satellite imagery to monitor tree crops and potential pests.¹⁰

These resources pair with digital tools that develop credit scoring for smallholders, connect farmers to credit and provide pricing data.¹¹ The integration of such technology into agronomists' daily lives gives disadvantaged farmers, who lack detailed knowledge of current market prices, the means to coordinate and improve their economies of scale, while cutting out costly middlemen. The technology allows for direct conversations between producers and consumers. In many cases, this conversation is new.¹² $_{}$

2009. 239

PODD.

Asia

With entrepreneurs pushing new horizons, national agricultural authorities are incorporating digital technology into government planning. In 2014, for example, Ethiopia's Agricultural Transformation Agency launched a text-messaging service and automated calls to relay up-to-date agronomic information to half a million users. The agency is also developing the Ethiopian Soil Information System, or EthioSIS, a digital map analyzing the

country's soils down to a resolution of 100 square kilometers. These two systems will eventually merge, transmitting cutting-edge, highly tailored information to millions of farmers.¹³ </7 Meanwhile, Nigeria, with 89% cellphone penetration, launched in 2012 its eWallet program, which delivers seed and fertilizer vouchers directly to farmers via smartphone. In its first year alone, the program enabled 1.7 million farmers to buy US\$10 million worth of seeds and US\$100 million worth of fertilizers, and to produce an additional 8.1 million metric tons of food.¹⁴ As of 2016, the eWallet program had 15 million subscribers, including several million female farmers,¹⁵ and it reaches twice as many farmers as the previous distribution system at one-sixth of the cost.¹⁶



Mobile Money When the Phone is a Bank

There are now five times more mobile money agents than commercial banks in the developing world.¹⁷

Half the world's mobile money services are in sub-Saharan Africa,¹⁸ and mobile money continues to expand rapidly there. The region is the only one in which the share of adults with a mobile money account exceeds 10%. In 2014, it reached 12%, compared to a global average of 2%. As of 2017, more than one in five adults had such an account.¹⁹ They were initially concentrated in East Africa but are now found throughout the continent. In fact, at least 30% of adults in no fewer than 15 countries now have a mobile money account.²⁰

Kenya remains the global leader in mobile money. More than 73% of adults there have an account, followed by Uganda and Zimbabwe, where about 50% of adults do. Sub-Saharan Africa is also home to all ten countries in which more adults have a mobile money account than have a traditional bank account: Burkina Faso, Chad, Côte d'Ivoire, Gabon, Kenya, Mali, Senegal, Tanzania, Uganda and Zimbabwe.²¹ As more people open accounts, volume and frequency of transactions are increasing. In 2017, the total value of mobile money

Guinea Bissau transactions grew by 14.4% to reach US\$19.9 billion. An average day saw more than US\$54.5 million transferred through 3.2 million transactions.²²

N S

Mobile money providers are also collaborating with governments to digitalize personto-government (P2G) payment streams. This can increase transparency, convenience, security and revenue. In Kenya, the National Transportation Safety Authority nearly doubled its income between 2015 and 2016 (from US\$1.1 million to US\$2 million per month) while saving more than US\$18 million by using online applications for services such as driving tests and licenses.²³

Mobile money providers also offer new ways for previously unbanked Africans to save. In sub-Saharan Africa, up to 65 million unbanked adults save semi-formally which includes participation in savings groups, or entrusting a local leader outside of the family to safeguard funds. Moving routine cash payments and savings into mobile accounts could reduce the number of unbanked adults by as much as 23% in Nigeria and 32% in Ethiopia, and allow these new consumers to be linked to other useful products and resources.²⁴



Sub-Saharar

A Social **Impact** ^{Our} Digital World

DIGITAL PENETRATION

There are more than 444 million

mobile subscribers in sub-Saharan Africa (44% penetration rate as of 2017)

More than 75%

of the population has access to a SIM connection

By 2025, more than lion people are expected to have SIM connections²⁵

250 million smartphone connections

Sub-Saharan

Mobile broadband networks cover around two-thirds of the population

TECH HUBS

There were

active tech hubs across the region as of 2018, up from 239 in 2016

Nearly half the hubs

are located in Ghana, Kenya, Nigeria and South Africa²⁶

Fintech (21%), solar (21%), e-Commerce (19%) and ed-Tech account for the highest shares of investment

Source: GSM Association, 2018

32.6 million

primary-school age children and **25.7 million** adolescents

in the region do not attend school.²⁷

In rural areas with fewer teachers, education and literacy programs are **increasingly integrating** digital technology into their programming.

The Spanish NGO Worldreader supports schools and libraries in

14 African countries, reaching more than **100,000** children by providing them with e-readers wifi

and free access to thousands of **e-books**•²⁸

Eneza, an online education service, uses

SMS technology

to provide students in Ghana, Kenya, Tanzania and Zimbabwe with access to **quizzes connected** to national curricula.²⁹ HEALTHCARE

Sub-Saharan Africa accounts for **130/6**of the world's population, yet bears

24%

of the global disease burden with only

of the world's doctors.

of the world's health expenditure is spent in sub-Saharan Africa.³⁰

Digital technology

In Tanzania, the Healthy Pregnancy Healthy Baby service allows **mobile-phone** owners to have **free access via** SMS More than **1.8 million** users have received more than **115 million** messages

through the service since it was launched in 2012.³¹

In Uganda, around **27,000**

government health workers are using the **mTRAC** health system to report on medicine availability across the country.

In Ghana, the Novartis Foundation's

telemedicine System connects

frontline health workers with doctors and hospitals several hours away.³²

In Rwanda and Tanzania. 1 drones A company₁ Zipline₁ fires Zip drones into are being used to provide the sky at up to 75mph. lifesaving medical services to rural, remote areas. A WhatsApp message alerts the doctor just before the Žip arrives. A single drone can deliver more than 100 vaccines or up to five pints of blood.

Pints of blood

Vaccines

The **Biscate** Connection

Maputo, Mozambique

"I was born into a family of carpenters. My grandfather was a carpenter. My father is a carpenter still now. My brother is a carpenter. And I am a carpenter, too."

Antonio Macandala reflects on his life from his small cinderblock house in an underdeveloped suburb of Maputo, Mozambigue. "I've made everything in this house," he says, pointing to wooden furniture in the kitchen area. "I made this table. Made it out of recycled materials. Everything here, I've made, even my own bed."

Macandala/is resourceful, he's well trained, and he is part of Mozambique's massive informal economy. "There are only about 700,000 formal jobs in Mozambique," explains Federico Silva, a leading software developer in

the country. "And we have 27 million people, so you can imagine how many people are working informally."

> A critical bottleneck for informal workers is the inability to grow a business beyond a small base of clients. A typical carpenter relies on a small network of friends, family and word of mouth. In the past, the best those looking for new clients could do was post makeshift advertisements on trees.

Silva and his business partner, Tiago Borges Coelho, believe digital technology could break this bottleneck. Their company, UX Information Technologies, built the *Biscate* platform, which functions as an app on smartphones. *Biscate*, or "small job" in Portuguese, allows workers to create profiles for their skillsets and matches them with potential customers. It's like Uber for the informal economy, and it's a major upgrade over posting a sign on a tree.

"So you get on the app and you select the profession that you need," Silva explains. "Let's say you need a carpenter. You select that, and then your location, and you find a list of carpenters within a geographic range. And you find ratings from other costumers."

Macandala has benefited from the platform, and on this day he's in luck. He's been matched with someone looking for a carpenter to fix a broken chair. On the trip from his house

to downtown Maputo, he explains how the platform has helped him. "Most Biscate jobs are simple enough. Like this one, to come and fix a broken chair. This will take me about an hour. But sometimes I find a bigger job, and that's very nice. A big job brings more money!"

Federica Ricaldi monitors the program for the World Bank. She acknowledges that it would be better to have workers in the formal economy, but she's still a fan of the app because it offers work. "People are finding more jobs through these platforms, and overall demand for this type of services could increase." But you don't have to be a World Bank specialist to recognize a satisfied costumer. In downtown Maputo, Macandala's client flops comfortably into his repaired chair. "I've been postponing getting this fixed. Finally I decided to do it through *Biscate*, and it was really quick. It was actually way more affordable than I thought it would be. And now I have a fixed chair!" <

— S.G.

The **bolitical bolitical angle**

Social media and internet connectivity have created space for political discussion, and it could also improve government accountability and service delivery.

But there are also downsides, ones that have arisen around the world:

and government interventions to repress citizens.

#SomeoneTellCNN

For centuries, African communities have been isrepresented in the foreign press, with little recourse to correct the story. But in 2013, when CNN aired a reductive political report on the Kenyan elections featuring camouflaged men stereotype, but not the norm-Kenyans mocked the news conglomerate on twitter with the hashtag #SomeoneTellCNN. As Nanjala Nyabola writes this "exemplifies the role of digital spaces in creating a networked public sphere that permits the creation of a locally driven counter-narrative."34

Africans living in countries in the sub-Saharan region are savvy media consumers who recognize they may be exposed to fake news regularly.³⁵ They don't have high levels of trust in the media, and they reserve the least amount of trust for social media. National media fairs somewhat better, and global media is the lone bastion of a moderate level of confidence. Yet despite the mistrust, Africans in the region opt in to all forms of media, including social, as reflected in the more than 200 million registered Facebook users on the continent, at least 120 million of which reside in sub-Saharan Africa.³⁶

Electioneering

As in much of the world, big data in the wrong hands can undermine the integrity of electoral systems in sub-Saharan Africa. The region's voters are exposed to intense, targeted advertising across media platforms. Kenya's 2013 presidential election was arguably sub-Saharan Africa's first in which candidates invested significant sums of money into social media to shape voters' behavior and conversations. The strategy did not always attract the most savory of players. For example, the incumbent president's campaign featured a cameo from Cambridge Analytica, which would subsequently provide services for Leave.EU, a pro-Brexit group. </r

In Kenya, Cambridge Analytica employed tactics such as messaging misleading or inaccurate information tailored to voters' online behavior.37

Since 2013, such investment in online campaigns has become routine, and transparency laws have not always kept pace. As new media platforms and ever higher levels of smartphone ownership open up new avenues for campaigning, the opportunity to use divisive and deceptive messaging also rises. Given the precarious fault lines around religion and ethnicity in much of sub-Saharan Africa, such content could have far-reaching consequences and lead to the deepening or widening of existing social divisions.³⁸

Nigeria's 2015 presidential election was Africa's second large-scale social media election, and Cambridge Analytica again played a role. In this case, however, the company used "graphically violent imagery to portray a candidate as a supporter of Sharia law who would brutally suppress dissenters and negotiate with militant Islamists".³⁹ While Cambridge Analytica closed its doors in 2018, new offshoots and other firms are establishing themselves in the largely unregulated sub-Saharan market for political advertising. Meanwhile, social media remains fertile ground for influencing public opinion.

> Increased connectivity lowers the barriers to stakeholder coordination in times of crisis. Consequently, when government is the source of crisis, political leaders increasingly turn to shutting down the internet to stifle coordination via social media. In just the first few months of 2019, leaders in Cameroon, the Democratic Republic of Congo, Congo Brazzaville, Chad, Sudan and Uganda have all at least briefly pulled their countries offline. In 2018 there were 21 documented shutdowns across the region.⁴⁰ In some cases the government blocked the entire internet, which subsequently brought national economies to a halt. Economists forecast, for an African country with an average level of connectivity, a loss of at least 1.9% of daily GDP for every 24 hours internet services are unavailable.41

More targeted blocking of the internet focuses on social media sites. In early 2019, as protests swelled against the rising costs of fuel, the Zimbabwean government blocked such sites, claiming the platforms were "used to coordinate the violence".42 Meanwhile, the Ugandan government explained its 2016 shutdowns as a security measure during the presidential election and ahead of the swearing in ceremony.⁴³ A third technique, bandwidth throttling, forces telecom operators and internet service providers to lower the quality of services. This makes the internet too slow to use effectively.⁴⁴ Despite these efforts, however, shutdowns haven't stopped demonstrations, as citizens turn to virtual private networks (VPNs) and other new platforms to get around the blackouts. The increasing ubiguity of social media and internet in people's daily lives suggests that these current strategies of repression will be difficult to implement in the future. And this could herald even greater reliance on social media for organizing protests.

Political Space

Snapshot: Sudan

^{Our} Digital World

The Sudanese **Protests**

Sudan is home to 40 million people, some 13 million of whom use the internet and more than 28 million of whom own mobile phones.46

In December 2018, spiraling costs of living and deteriorating economic conditions sparked street protests that rolled through the country and lasted for months. Media coverage was strictly controlled by security forces, and one popular newspaper printed partial or full blank pages to replace censored stories. To get around the information void, the Sudanese turned to social media to share and receive information, and to coordinate activities.

Khartoum responded by repeatedly blocking social media, with one outage lasting 68 days, from December 2018 into February 2019.

Users of the three main telecommunications operators in the country — Zain, MTN and Sudani - said access to Facebook, Twitter and WhatsApp was possible only through VPNs.⁴⁷ In the first week of April 2019, NetBlocks, a digital monitoring organization, reported that national internet operators had again cut off access to the three platforms and, for the first time, the instant messaging app Telegram.⁴⁸

But even this did not stop protests. On April 11, the Sudanese military heeded the protesters' call and forced longstanding President Omar Al-Bashir from power. The general who replaced him, however, has yet to satisfy public demands. It remains to be seen how much the protestors will be able to discuss their next move on Facebook.⁴⁹

</Chapter>

Our

Digital World

Lead author Samuel George

Image by UN Photo/Albert Gonzalez Farran on Wikimedia Common:

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1.02

World The No Collar Economy was born in the USA.

It is no surprise, then, that four decades after Steve Jobs and Steve Wozniak hammered out the first Apple computer in a Los Altos garage, the country remains at the forefront of technological change brewing a potent cocktail of the best and the worst that the digital revolution has to offer.

On the bright side, most Americans are walking around with far more computing power in their pockets than it took to land a man on the moon in 1969.1

Whether you need to find your way to the store, deposit a check, buy baseball tickets or find a date there's an app for that. And based on machine learning and algorithms, it probably knows what you want even before you finish searching for it.

The digital revolution has provided a much-needed shot of caffeine to an economy searching for an identity in a post-industrial malaise - the digital sector averaged 9.9% annual real valueadded growth from 1998 through 2017, significantly outpacing the broader economy's two to three percent growth rate.²

But there is a price to pay.

The No Collar Economy is also the No Contract Economy: Intuit, the owner of TurboTax, a tax preparation software, expects more than 40% of Americans to be at least part-time self-employed in the gig economy by 2020.3

Those apps - engineered to be addictive - appear to be making Americans lonelier.4

And digital technology seems inexorably linked to the cheapening of American political institutions and discourse.

North America did start this fire; and it's been burning as the world's been turning.

And in the long run, the United States will lead the world in either harnessing that power for good or using it to burn the place down.

Boom Times

Digital Economy Current-Dollar Value Added and Share of Gross Domestic Product

ce: US Bureau of Economic Analysis

Value added (billions of dollars, left axis)

Share of total gross domestic product (% right axis)

Philadelphia has professional sports.

> To an unusual extent, the people in the City of Brotherly Love fiercely identify with their sports teams, and none is more central to the city's psyche than the Philadelphia Eagles of the National Football League.

In the autumn of 2019, the Eagles prepared for what looked to be a promising season, and the fans were excited. Yet the team stumbled out of the gate. A mixture of poor play and bad luck led to a series of gruesome defeats, and frustration in the grandstands simmered. During one of these unfortunate Sundays, the television camera homed in on a single irate fan, red-faced, veins on his neck bulging. In crystal-clear high definition — with the addition of slow motion, no less — the nationally televised broadcast showed the

man cursing the hapless team, the officiating crew and the gods of football that had so wronged him.

It was funny, a truly human moment for a man who believed himself lost in the Greek chorus. But in our digital world, the notion of the Greek chorus has shifted. The fan's outburst quickly became fodder for an internet audience with a rapacious appetite for people embarrassing themselves. Within hours the world knew the fan's name. They knew where he worked and where he lived. Lip-reading experts had transcribed his words. And all of this had been published on a medium — the internet — that never forgets.

In the blink of an eye, viral attention had moved on to the next person in the next city who had beclowned themselves. But in its wake, it left an indelible digital footprint. For the rest of that Eagles fan's life, anyone who searched his name — be it a potential employer, romantic interest or business partner — would immediately find countless slow-motion video close-ups of his footballinduced meltdown. The man risks forever being defined by an unflattering instant. A defining trait of being human is making boneheaded mistakes. We have yet to reconcile that reality with new technology that records, catalogs and preserves those mistakes. Especially in developed regions

such as North America, a generation of

consequences?

The answer is easy - our species has digitized at blinding speed without coming to terms with its own inescapable impulsive fallibility.

digital natives have their entire lives thusly documented — especially the formidable teenage and young adult years, when the human tendency toward stupidity peaks. > As a society, how should we interpret these digital artifacts? Does the teenager in the MAGA hat who directed a tomahawk chop at a Native American on the National Mall — a profoundly offensive act — ever get to stop being that teenager acting out for his friends? </ How far will we go to weaponize this digital content? Over the last year the fake news

website Breitbart News has uncovered offensive tweets by prominent staff members of The New York Times, most written years ago when the authors were in college.

why on earth would these young, talented and ambitious people publicly broadcast blatantly offensive content without realizing that it could someday have professional

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- 20	2	3	4	2	9	-	80 2 65
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- 80	2	~	4	5	9	-	8 8 5
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- 80	2	3	4	10	0	-	00 % 0 7
0 % -	2	~	4	5	9	1	00 % 0 0
- 30	2	~	4	ŝ	9	-	00 % 00
- 30	~	~	4	5	8	-	0 8 00
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Learn to Code

In January 2019, the trolling rump of America's far-right used the internet to taunt recently fired journalists, suggesting that the laid-off scribes "Learn to Code!"

The trolling was a shot at US "elites" whon the trolls thoughtn tend to dismiss the concerns of blue-collar workers whose jobs are disappearingn with airy suggestions that manufacturers switch to other fields with more growth potential in the digital era.

But what happens when we stop trolling and make a good-faith effort to adapt?

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The Curious Case of Billyjack Buzzard

West Virginia, United States

In the rolling emerald hills of southern West Virginia, Billyjack Buzzard came from six

generations of coal miners. Ever since he was a kid listening to his grandfather's stories, he knew he wanted to make it seven.

Billyjack entered the mines at the age of 20 and worked underground for the better part of the next decade. During boom times he earned more than US\$100,000 a year, working precisely the kind of blue-collar jobs that could provide his family a sustainable living, with the opportunity for upward mobility.

-> His was also precisely the kind of bluecollar job that is vanishing across the United States. In 1970, employment based on manual labor (such as manufacturing, construction and mining) that often did not require education beyond a high school degree accounted for more than 31% of non-farm employment in the United States.⁵ Today, that figure sits below 14%.

Meanwhile — Billyjack's boom years notwithstanding — real wages for those with no more than a high school diploma dropped 12% during that period, while white-collar workers' paychecks swelled by 14%.⁶ What caused this rout on American middleclass jobs? Some blame international trade,

arguing that manufacturers left Wayne County for the cheaper labor costs in Chongqing.⁷ Others point to automation as the culprit.⁸ The truth lies somewhere inbetween, and the reality is digital advances have exacerbated the impact of both trends.

In the case of global trade, digital technologies dramatically boosted productivity for suppliers to the world market, increasing importers' marginal savings from an order of cents to dollars. In other words, if foreign-made televisions were initially *somewhat* cheaper than their American-made counterparts, via digital advancement, they became *significantly* cheaper.

In addition, digital technologies reduced the costs of trade, from transportation to marketing. In effect, the digital revolution supercharged the effects of free trade that had been theorized for centuries. But along with the exaggerated gains of free trade's winners came the pain suffered by free trade's losers. <

• Of course, productivity increased because of automation. And in the coming years, machines are expected to move beyond

simply building stuff. McKinsey & Company estimates that half of what people do for a living today is already automatable.⁹ The consultancy forecasts that by 2030, more than 30% of current work activities will, in fact, be performed by machines.¹⁰

Back in southern West Virginia, automation is becoming more central to coal mining. While the primary causes of coal's decline are the arrival of cheaper natural gas alternatives and environmental concerns, increasingly automated rock crushers and shovel swings have replaced humans in the excavation of the black rock.¹¹ Coal production in the United States dropped 40% over the last decade, while two-thirds of US coal-mining jobs have disappeared since 1985.¹²

Billyjack lost his job in 2015. Shortly

afterward he lost his truck and his house, and before he knew it, he had to move his family back into his parents' home. With pressure mounting alongside unpaid bills, he confronted the same harrowing question faced by millions of Americans: "What in the world am I supposed to do now?" <

In a sense, trade theory also predicted this labor market shift. If the digital age helps China exploit its comparative advantage in manual labor, the United States should in theory be able to do the same with skilled labor. But this back-of-the-envelope economic assumption begs two questions: 1) Can the No Collar Economy create enough job opportunities in massive, advanced countries like the United States, and 2) Can the US adequately train its population to succeed in those jobs?

In Billyjack's case, his lack of computer skills made competing for a new job outside of the mines seem almost impossible.

At a low point in his life, Billyjack Buzzard decided to take a risk. He rolled up his sleeves and put on his work boots and enrolled in... a computer coding class, one of the coding boot camps that have popped up across Rust Belt America.

Specifically, Billyjack joined Mined Minds, a free program geared to ex-coal miners that promised to teach the skills needed to compete in the 21st-century digital economy. States like Kentucky, Pennsylvania and West Virginia are welcoming these programs, betting that their citizens can not only work digital jobs, but they can do them for cheaper than programmers in San Francisco or New York.

> Website design can certainly be done remotely, so why pay Silicon Valley when you can get a deal in Silicon Holler?

And lo and behold, Billyjack was really good at it. Within a year he finished the Mined Minds boot camp and emerged as the most advanced student in the class. But where were all the jobs the program had promised? The work orders from out of town never materialized, and the local Family Dollar, the pizza joint, in the end they didn't have too many tech needs.

The Mined Minds boot camp held on to Billyjack, its star pupil, paying him as a teacher

Movie time! Scan here to see the documentary

for a while, but soon enough the camp itself ran out of money and had to close shop. </ The New York Times reported the collapse of Mined Minds as if the boot camp were a scam that promised employment opportunities that it ultimately could not deliver.¹⁴ Certainly, the program's leaders made questionable spending decisions that fatally undermined it.

However, in the time I spent observing the program while filming the documentary The *Fight for West Virginia*, I saw students doing their best to develop skills, and teachers doing their level best to teach.

Over the course of a four-month program, the students learned to build a website capable, for example, of receiving customized pizza orders. Given the students' starting level, this was a noteworthy accomplishment. But in the hypercompetitive and absurdly advanced world of programming, the boot camp struggled to mold the students into coding contributors to the No Collar Economy.¹⁵ The program primarily cannibalized its own budget as Mined Minds hired its own graduates who couldn't find jobs elsewhere. <

Rather than being a scam, perhaps Mined Minds simply couldn't solve the pressing riddle of how to create mass employment in the new digital economy.

But if we can't solve this riddle, our society faces a deepening bifurcation where a small percentage of digital wunderkinds live like kings, while the rest make ends meet serving the winners, often via the gig economy. By 2018, Uber had nearly 1 million drivers in the United States,¹⁶ while Upwork estimates that a majority of American workers will be gigoriented freelancers by 2027.¹⁷

- Barring major reforms to gig-based salaries and the US health-care system, this is no more sustainable than coal-powered electricity. </

27%

1976 1 3%

0.5% Mining jobs are

1976

0.3%

and Bureau of Labor Statistics

Bovernment F by Comment Section

The current period of unparalleled global connection has coincided with a stark increase in nativist politics and expressions of racism in the United States.

Reply • Share • Report

The Brookings Institution notes "an anomalous spike in hate crimes concentrated in counties where Trump won by larger margins."¹⁸

Reply • Share • Report

The language of public discourse has become alarmingly dehumanized. Cable news refers to undocumented migrants as "invaders",¹⁹ while politicians speak of immigration as an infestation.²⁰

Reply • Share • Report

How did this happen? Part of the deterioration of our discourse stems from the anonymity of the internet. The comment section, the eggprofile Twitter accounts and the no-name chat boards have provided a public forum for people to express abhorrent views while masking their identities. These individuals may have long harbored such sentiments, but often they had the good sense to keep these thoughts to themselves. The internet provides a venue for collective action and for seeing just how many other people share these views. It also offers a safe place to hone the methods of online mobilization. The harassment techniques employed during "gamergate" have since been refined to attack an endless array of targets in America's culture wars.²¹

The language normalized in the comment section and in fringe online publications influences more-popular media outlets and, eventually, public discourse. Political dialogue once considered out of bounds becomes acceptable as holders of these views feel emboldened that they are the majority, that they speak for a great number of Americans who are cowed into a "politically correct" silence. A US congressman asks, "White nationalist, white supremacist... how did that language become offensive?"²²

Reply • Share • Report

And, completing the circle, the proclamations of the president of the United States come to closely resemble, well, the comment section.

Reply • Share • Report

111111111

Digital And Now, a Message from the President of the United States

So interesting to see "Progressive" Democrat Congresswomen, who originally came from countries whose governments are a complete and total catastrophe, the worst, most corrupt and inept anywhere in the world (if they even have a functioning government at all), now loudly....

8:27 AM - Jul 14, 2019 - Twitter for iPhone 47.7K Retweets 208.1K Likes

0 tη. 0 1

Donald J. Trump 🤣 @realDonaldTrump - Jul 14 Replying to @realf .and viciously telling the people of the United States, the greatest and most powerful Nation on earth, how our government is to be run. Why don't they go back and help fix the totally broken and crime infested places from which they came. Then come back and show us how..

Q 32.5K tl 38.5K ♡ 183.8K ₫

Donald J. Trump 🔮 @realDonaldTrump - Jul 14it is done. These places need your help badly, you can't leave fast enough. I'm sure that Nancy Pelosi would be very happy to quickly work out free travel arrangements!

Q 33.6K t⊒ 36.5K ♡ 185.8K ₫

On June 10th, the United States will impose a 5% Tariff on all goods coming into our Country from Mexico, until such time as illegal migrants coming through Mexico, and into our Country, STOP. The Tariff will gradually increase until the Illegal Immigration problem is remedied,...

7:30 PM - May 30, 2019 - Twitter for iPhone

Mexico is doing NOTHING to help stop the flow of illegal immigrants to our Country. They are all talk and no action. Likewise, Honduras, Guatemala and El Salvador have taken our money for years, and do Nothing. The Dems don't care, such BAD laws. May close the Southern Borderl

6:24 AM - Mar 28, 2019 - Twitter for iPhone

28.4K Retweets 121.1K Likes

Donald J. Trump @ @realDonaldTrump

Mexico should move the flag waving Migrants, many of whom are stone cold criminals, back to their countries. Do it by plane, do it by bus, do it anyway you want, but they are NOT coming into the U.S.A. We will close the Border permanently if need be. Congress, fund the WALL!

6:19 AM - Nov 26, 2018 - Twitter for iPhone

Conald J. Trump

Puerto Rico is one of the most corrupt places on earth. Their political system is broken and their politicians are either Incompetent or Corrupt. Congress approved Billions of Dollars last time, more than anyplace else has ever gotten, and it is sent to Crooked Pols. No good!.... 10:45 AM - Aug 28, 2019 - Twitter for iPhone

Donald J. Trump

It's very sad that Nancy Pelosi and her sidekick, Cryin' Chuck Schumer, want to protect illegal immigrants far more than the citizens of our country. The United States cannot stand for this. We wants safety and security at our borders!

1:05 PM - Jun 23, 2018 - Twitter for iPhone

Donald J. Trump 🤣 @realDonaldT... · 49m 🗸 Despite the constant negative press covfefe

Donald J. Trump

Donald J. Trump Do you believe it? The Obama Administration agreed to take thousands of illegal immigrants from Australia. Why? I will study this dumb deal! 10:55 PM - Feb 1, 2017 - Twitter for Android

Puerto Rico got 91 Billion Dollars for the hurricane, more money than has ever been gotten for a hurricane before, & all their local politicians do is complain & ask for more money. The pols are grossly incompetent, spend the money foolishly or corruptly, & only take from USA 7:33 AM - Apr 2, 2019 - Twitter for iPhone

34.6K

 \sim

22.3K Retweets 92.3K Likes

Fake News is truly the ENEMY OF THE PEOPLE!

10:24 PM · Jan 18, 2019 · Twitter for iPhone

42.3K Retweets 163K Likes

Donald J. Trump Donald J. Trump 🥥 25 I told Rex Tillerson, our wonderful Secretary of State, that he is wasting his time trying to negotiate with Little ...Such poor leadership ability by the Mayor of San Juan, Rocket Man.. and others in Puerto Rico, who are not able to get their 10:30 AM · Oct 1, 2017 · Twitter for iPhon workers to help. They ... 7:26 AM - Sep 30, 2017 - Twitter for iPhone 13K Retweets 49.9K Likes 93 Donald J. Trump 🥝 Why is so much money sent to the Elijah Cummings district when it is considered the worst run and most dangerous anywhere in the United States. No human being would want to live there. Where is all this money @realDonaldTrump going? How much is stolen? Investigate this corrupt mess immediately! 7:24 AM - Jul 27, 2019 - Twitter for iPhone 44.3K Retweets 168.2K Likes Donald J. Trump 🥝 Really bad news! The Baltimore house of Elijah Cummings was robbed. Too bad! 7:58 AM - Aug 2, 2019 - Twitter for iPhone 22.7K Retweets 106.7K Likes 24.2K Retweets 126.4K Likes Donald J. Trump Congressman John Lewis should finally focus on the burning and crime infested inner-cities of the U.S. I can Donald J. Trump 🥹 use all the help I can get! 7:22 PM - Jan 14, 2017 - Twitter for Android Just heard Foreign Minister of North Korea speak at U.N. If he echoes thoughts of Little Rocket Man, they won't be 19.2K Retweets 85.2K Likes around much longer! 11:08 PM - Sep 23, 2017 - Twitter for iPhon 31.4K Retweets 120K Likes Donald J. Trump 🥏 25 Many Gang Members and some very bad people are mixed into the Caravan heading to our Southern Border. Please go back, you will not be admitted into the United States unless you go through the legal process. This is an invasion of our Country and our Military is waiting for you! 0:41 AM - Oct 29, 2018 - Twitter for iPhone Donald J. Trump 🤕 25 More troops being sent to the Southern Border to stop the attempted Invasion of Illegals, through large Caravans, into our Country. We have stopped the previous Caravans, and we will stop these also. With a Wall it would be soooo much easier and less expensive. Being Built! 9:52 AM - Jan 31, 2019 - Twitter for iPhone

Donald J. Trump 🕗 @realDonaldTr... · 8m 🗸 Now the press is trying to sell the fact that I wanted a Moot stuffed with alligators and snakes, with an electrified fence and sharp spikes on top, at our Southern Border. I may be tough on Border Security, but not that tough. The press has gone Crazy. Fake News!

PRESIDENTIAL HARASSMENT!

8:34 AM · Sep 28, 2019 · Twitter for iPhone

Donald J. Trump

Rex Tillerson, a man who is "dumb as a rock" and totally ill prepared and ill equipped to be Secretary of State, made up a story (he got fired) that I was out-prepared by Vladimir Putin at a meeting in Hamburg, Germany. I don't think Putin would agree. Look how the U.S. is doing!

8:29 AM - May 23, 2019 - Twitter for iPhone

16K Retweets 73.9K Likes

9 4,837 17 2,384 € 8,442 ∞

115

V

_{Our} Digital World "Ernest Hemingway, who may well be the greatest living American novelist and short-story writer, rarely comes to New York. He spends most of his time on a farm, the Finca Vigia, nine miles outside Havana, with his wife, a domestic staff of nine, fifty-two cats, sixteen dogs, a couple of hundred pigeons, and three cows.

I walked up the path to the fence and saw a plump dog, that had been a common visitor to the Finca Vigia before the war, galloping up a path to the main building, with a tiny cow of the same name standing by her side. There was a puddle of red gravy in the front yard, and Hemingway sat down in a lawn chair.

He was wearing a tweed suit, over a shiny sweater, and his black hair was brushed back. He had a red beard and wore his waistcoat in an overcoat with the body of a ship, three broad belts of colorful chain-link, a pair of capacious rectangular eyeglasses, and a silk tie. "Gouging my eye," he said, in Italian, saying that he had caused himself that terrible scar, "the surgeon said it wasn't that bad." When he was very young, he said, he started smoking but didn't find it very pleasant. The cigarette burns in his hands and wrists were so bad that he had to have his face covered."

Source: The New Yorker

The first paragraph above was written by a human in 1950. The next two were written by a computer in 2019.

OpenAl began as a nonprofit organization founded by tech heavy hitters Elon Musk, Sam Altman, Ilya Sutskever and Greg Brockman in 2015. Their concept was to build a team that could push the frontiers of machine learning while also considering the impact the technology will have on humanity. The

group began by poaching some of the top talent from companies such as Google and Facebook, and set out to create cutting-edge open-source Al.²³

> One of the outfit's signature projects, GPT-2, is a "large-scale unsupervised language model"²⁴ — in other words, a program that can

write its own text messages, articles, books and anything in between. The system is not based on algorithms written by humans that tell a computer what to do. This is machine learning: GPT-2 is teaching itself.

The process begins with the system crunching a tremendous amount of data. And, unlike back in college when we tried to cram in a semester's worth of psychology the night before the exam, the computer remembers everything from its binge studying. The OpenAl team fed its program 40 GB worth of Reddit content, amounting to more than 8 million articles.²⁵ Based on this voracious reading, the program taught itself the rules of grammar, the way words are used together and, given a sequence of words, how

to predict what words could come next.²⁶ Once GPT-2 had developed core writing skills, the program could be modified for certain situations. For example, it could read a few million Yelp reviews and quickly compose its own, reflecting the stylings and word choices of the world's amateur food critics (the chicken was mostly just OK).

So just how good a scribe is GPT-2? Could it, for example, compose an article worthy of *The New Yorker*, a high-brow American weekly? In 2019, writer John Seabrook fed the program 12 years' worth of the magazine's nonfiction archives, which the program devoured in about an hour. This would condition the system to write in the style of a New Yorker article. Next, Seabrook prompted the generator with the first paragraph of a *New Yorker* profile of Ernest Hemingway from 1950, a piece the computer hadn't yet had a chance to read.

The first paragraph on page 116 is that prompt. The following two paragraphs were composed by GPT-2, using, in its best estimate, the voice of The New Yorker.

> The results are disquieting. On the one hand, the surrealist images of puddles of red gravy make the reader side-eye the nearest computer, questioning just what the machine is daydreaming when no one is looking. However, the writing is also remarkably fluid. Given the speed of digital advancement, we can only

the coming years. </r>

Yet it is by no means clear that Musk, Altman, Sutskever, Brockman and the best talent Silicon Valley has to poach are also the best judges of what benefits humanity. They themselves seem spooked by the crossroads to which they have led us: Contradicting their initial aim of creating products for public use, OpenAI decided not to release the full GPT-2 system for general use.

expect the results to be refined exponentially in

There is something ominous about the two paragraphs reproduced here. They appear to announce that a computer capable of writing at the highest level is inevitable. Similarly, it could just be a matter of time until a GPT-2type program is capable of sending millions of tweets simultaneously, most with convincingly human word choices. In his article for The New Yorker on his experiment, Seabrook writes, "One can imagine machines like GPT-2... flooding the internet with so much writing that it would soon drown out human voices."27 Of equal concern, it could become very difficult for most people to distinguish between a text authored by a sentient person and one composed by a machine.

OpenAl ended its nonprofit status in early 2019. By shifting to a "capped-profit" model, the founders argued they could better raise the capital needed to compete in the machinelearning universe. OpenAI would not, they claimed, give up its goal of bringing a sense of humanity to AI development.²⁸ </_E

According to the creators, their program was simply too dangerous.²⁹

I'm not a robot

North America

Submit

THE IMPACT OF ALON THE US ECONOMY COULD BE MASSIVE - BUT WILL THE WINDFALL BE SHARED?

North America

BEVELOPED ASIA **US\$0.9 Trillion** 10.4% of GDP

^{Our} Digital World

Government by comment section

no-contract employment,

automated computer articles drowning out human writers...

It's easy to view 21st century life in North America with a deepening sense of dread.

It doesn't have to be that way.

Machines becoming better at being machines is not necessarily a bad thing. The advances give us, the people, the chance to reconnect with our humanity.

As Steve Jobs said back in 1980, "computers are bicycles for the mind."³¹ He was right.

Think about it.

Before the bicycle was devised just over 200 years ago by the German inventor Karl Drais, every village had at least one highly athletic kid running all over town sharing messages, packages and perhaps the odd dunkelweizen. It must have been a good gig — while it lasted.

But imagine that kid's shock at the advent of the bicycle. Suddenly, just about anyone could efficiently make deliveries.

The bicycle leveled the playing field for mobility. The digital revolution levels the playing field for creative agility.

0

But like the shocked messenger boy, we are stuck in an outdated mentality. We hold on to the traditional notions of human development for good reason: From literacy to vaccines to social security to labor rights, the old paradigm has vastly improved life from the short, nasty and brutish affair of yesteryear.

Policymakers are paralyzed around the world. Many acknowledge that business as usual is no longer getting the job done, but few are trying new tricks.

So how can we start thinking differently?

One major challenge in the United States is the concentration of employment in specific larger cities at the expense of medium-sized cities and towns across the country.

It's a domestic manifestation of "brain drain" by which the most talented and ambitious Americans leave home to work in finance in New York, in government in Washington, D.C., in tech in San Francisco or perhaps in entertainment in Los Angeles. This internal migration hurts both the magnet cities and the towns left behind. In the employment centers, the cost of living has shot out ahead of salaries: In all four of the cities mentioned above, the median cost of renting a one-bedroom apartment exceeds US\$2,200 (in the case of San Francisco, the figure is a whopping US\$3,600), well over twice the national median,³² even though the median family income in these cities is significantly less than twice the national average.³³ The exaggerated cost of living in magnet cities drives out anyone unable to compete

for the better-paid, highly skilled jobs. Eight of the 10 biggest US cities are actually shrinking for precisely this reason.³⁴ This trend serves to widen the distance between the highly educated, economically successful enclaves of the United States from the rest of the country, which in turn fuels the country's political polarization.

Sut the dynamic does not necessarily benefit those who continue to live in the cities, either. The real estate firm Unison estimates that it would take between three and four decades for most young professionals to save up a 20% down payment on a home in the nation's biggest cities.³⁵ These millennials are often better educated than their parents but have little hope of matching — let alone surpassing the previous generation's living standards.

📕 Urban areas

Meanwhile, property in America's midsized cities and towns can be had for a bargain. Gorgeous, centuries-old houses in the leafy suburbs of Philadelphia languish on the real-estate market, with asking prices dropping below half that of a small condo two hours south in the nation's capital. The problem is there are no jobs there: The towns and cities of the Rust Belt, the Midwest and the Southeast have been hollowed out by automation and international trade.³⁶

Maybe the No Collar Economy can help. But it would require breaking certain paradigms.

More and more work can now be done remotely, possibly challenging the chokehold certain cities have on employment opportunities if employers are willing to break away from the traditional office format. Moreover, employers themselves may decide that the costs of running an office in Manhattan aren't worth it, especially when far cheaper options exist, for example, two hours south in the suburbs of Philadelphia. In business, location may be everything, but in the digital age we are all essentially located next to one another, and the most important locations and storefronts are often online. would have the tremendous impact of creating high-earning jobs in the towns that had lost them in the backend of the 20th century. All three of these potential trends working remotely, office relocation and organic development — are feasible in our No Collar Economy and would deliver critical spillover effects in righting the imbalance between the megacities and the rest of the country. So why haven't they taken hold?

The answer is easy — the species that proved capable of shattering the confining box of the possible is still learning how to think outside of it. North America Catching babies

^{Our} Digital World

1.24

Unlike Agholor

Back in Philadelphia, the Eagles woes continued on Sunday, September 22, 2019 when the mercurial wide receiver Nelson Agholor dropped a couple of critical passes and not for the first time that month.

Much later that evening, a former fire fighter named Hakim Laws was walking the West Philly streets when he happened upon a house fire. From above in the building, a family cried for help. </r

Laws sprang into action. From below, he prepared to catch family members who had little choice but to jump as the fire consumed their apartment. First the father of the family threw his young daughter. Laws caught her cleanly. Next, the man dropped his wife. Laws caught her as well. Within minutes, Hakim Laws had

distinguished himself as a hero. The fire raged, but all the people had been saved. In the smoldering aftermath, local TV interviewed Laws on the scene. In the interview, he recounted his story:

Snapshot from "Philly fire witness goes

"The smoke was getting worse. I saw a guy hanging out the window, screaming that his kids were in there...He just started throwing babies out of the window," Laws explained. "And we were catching them," he continued...

"Unlike Agholor."

Laws deadpanned, paused and looked at the camera with an indelible expression of bemused condescending frustration. In his moment of glory, a moment of a lifetime, Hakim Laws had taken an aside to express his anger with the Eagles. It was, by many accounts, the most Philadelphia thing that has ever happened, and the city found it hilarious.

The local TV clip, which now lives forever on the internet, immediately went viral. First in the city, then the suburbs, and then across the country. By Monday afternoon #UnlikeAgholor was a top trending topic nationally on Twitter.

^{xp>} If impulsive fallibility is an intrinsic part of the human experience, so too are these spontaneous flashes of humor. As the digital revolution rearranges nearly every aspect of modern life, these small viral moments are reminders that the technology is supposed to work for us. That at its best, it can instantaneously transmit these uniquely human experiences. The technology can connect us. It can capture the sentiment of a city and share it with the world.

The machine isn't in on the joke. But it can help us share it.

</Chapter>

Our Digital World

The Future is Now

Dr. Theodore Kahn

Latin America is the region of the future... ¿Has the

The Ups and Downs of Development

future finally arrived?

1900

The old cliché on Brazil holds that it is the country of the future...

...and always will be.

It's a trite aphorism, but it fits the broader Latin American experience.

In many ways, Latin America seems to be at the forefront of innovation, eager to embrace the newest technologies and forge a path forward for the rest of the world.

Yet old ghosts always seem to hold it back.

Consider the steam revolution of the 19th century.

The rise of railways connected Latin America to the global economy, launching an export boom and attracting a wave of foreign workers and capital to its shores.

But much of the gains of this period accrued to wealthy landowners who held vast tracts of land and enjoyed access to foreign capital

1970

Inequality grew across the region, leading economic elites to take control of the state.

The economic imbalance also fueled cycles of political conflict and polarization that bedeviled the region for much of the 20th century.

1990

today.

By the early 20th century, Argentina was among the richest countries in the world, and Buenos Aires rivaled Paris for cosmopolitan sophistication. But this success would be short lived.

France

2018

Argentina

GDP Per Capita US\$ at 1990 PPPs

...and continue to mar its development

159

29% of Latin **Americans paid** a bribe to access public services in 2017.³

14 of the world's 30 most unequal countries are in Latin America.¹

> 59% of employed women work in the informal economy.²

Like the steam engine, digital transformation presents similar opportunities and risks.

As the region grapples with a new wave of technological change, one central question looms large:

Will digital technologies help Latin America finally overcome the longstanding challenges of inequality social exclusion and corruption as well as more recent ones such as climate change and organized crime?

Or will they simply reinforce these pernicious dynamics?

Welcome to Dataville

A population of five trillion gigabytes

Latin America is the world's most urbanized region; city dwellers are more than 80 percent of the population. This means that solving pressing problems such as social inclusion, sustainability and citizen security requires better governance for some of the most populous and expansive urban centers including Mexico City, Sao Paulo, Buenos Aires and Bogotá. Digital technologies offer a host of new tools for urban governance, from smart sensors that collect reams of data in real time, to powerful software to analyze it, to mobile apps, social media and other tools for rapid communication.

The application of digital tools to make cities function better is the essence of the "smart city" concept. Cities can be smart in different ways. Some strategies focus on improving the quality of urban life to attract new businesses and highly skilled workers. Other strategies aim to make cities sustainable by reducing carbon emissions through cleaner transportation options and better planning. Still others put safety first, employing a host of internet-enabled systems to monitor, prevent and respond quickly to crime, natural disasters and other risks. The approach can be both "top down", as in integrated control centers to monitor urban conditions, and "bottom up", as in mobile apps that allow citizens to report potholes and broken traffic lights in real time. All this, of course, depends on key enabling conditions. These include basic connectivity infrastructure such as broadband and wireless internet, and access to mobile devices among a critical mass of residents. Cities such as Medellín, Buenos Aires and Rio de Janeiro have been recognized internationally for their innovative use of new technologies to improve urban life.

159

Smarter than Your Average Barrio

low Latin American cities are taking advantage of technology

Medellín

Colombia's second city, has become an international reference for sustainable urban transportation combining a metron dedicated bus lanes a tramline and the Metrocable, an innovate gondola lift system integrated with the more traditional modes of transportation. The four gondola lines, which serve informal favelastyle settlements dotting the city's surrounding mountains, have helped integrate traditionally marginalized neighborhoods into Medellín's economy and inspired similar systems in Bogotán La Paz and Mexico City.

Mexico City traffic

- the world's worst by some metrics⁴ - can mean major delays for long haul truckers, and headaches for companies that rely on international supply chains. But the newfound ability to monitor jams in real time has dramatically assisted heavy goods deliveries.⁵

📕 Urban areas

z 🔿 o

Yet even the region's smartest cities risk leaving part of their populations behind if steps are not taken to ensure equal access to urban innovation is spread equally. Buenos Aires, Santiago and Montevideo, three Latin American cities that rank in the top 100 of the University of Navarra's IESE Cities in Motion Index, score highly on the "environment", "governance" and "urban planning" dimensions but are near the bottom of the pack on social cohesion, which encompasses income distribution, employment rates and opportunities for women.

The contours of this challenge are reflected in the conspicuous gap between the region's governments and their citizens on the World Bank's Digital Adoption Index, which measures the use of digital technologies by different actors. While governments are racing ahead to digitalize services, and collect and analyze data, the ability of the average citizen to engage with an increasingly high-tech public sector may be lagging.

In Buenos Aires,

Argentina, the city government has launched a number of smart city initiatives over the past decade including public Wi-Fin a vast network of data-collection sensors linked to an open data platform, and the creation of 3D maps to help register property in informal neighborhoods. In recent years, the city has established a burgeoning tech hub in a oncestruggling neighborhood, complete with LED street lighting, recovered parks and a new metro connection.

To close the gap, policymakers need to expand digital access through free Wi-Fi in public spaces, facilitate the spread of smartphones and invest in digital training for marginalized populations.

^{Our} Digital World

Rio de Janeiro,

Brazil, maintains an "operations center", a round-the-clock, dataintensive facility that brings together 30 municipal departments to monitor weather, traffic, safety, environmental risks, municipal services, and other issues. It alerts citizens to changing conditions in real time and responds rapidly to emergency situations. In addition to facilitating data flows between city officials and citizens the operations center has also helped break down information silos within the municipal government, improving coordination across agencies.

z 🔿 o The new 🚿 anti-corruption tool kit 1.0 -People Business

Big data, blockchain and algorithms

Corruption is a perennial scourge across Latin America. For evidence, look no further than the recent Odebrecht mega-scandal, or the region's dismal performance on the 2010 global Corruption Perceptions Index, where Latin American countries averaged a paltry score of 38 out of 100.6

Shis sad state of affairs has sparked anticorruption movements in many countries, nurtured by civil-society representatives and reformers in government, both of whom are increasingly aided by powerful new technological tools.

Within the public sector, technologies such as blockchain and big-data analytics help government auditors monitor public resources and pinpoint risks for corruption. These technologies are particularly useful in high-risk areas such as public procurement, where the sheer magnitude of transactions, number of actors involved and participation of numerous public agencies present a major challenge for government watchdogs. Blockchain is an emerging technology that can make public procurement systems more resilient to corruption by creating an unalterable digital ledger of transactions. It can lock in transaction records surrounding public procurement, prevent tampering, and even automatize the timing, amounts and

0.5 — Government Venezuel 0.0 Bolivia **Digital Adoption** by Sector in Latin Dominican Republic America in 2016 Source: World Bank Colombia Corruption Perceptions Ecuador Index Costa Rica Peru Source: CPI, 2018 Highly corrupt Panama 1 Less corrupt Guatemala El Salvador Mexico

conditions of contract payments. Blockchain can thus remove many of the vulnerabilities that corrupt officials and contractors exploit along the public procurement value chain. The digital records captured by blockchain ledgers can also help regulators build reliable databases of the ultimate owners, or "beneficial owners", of corporations, trusts, partnerships and other vehicles. This information, and its open publication, is crucial to prevent conflicts of interest. In addition to strengthening public sector defenses, digital technologies are empowering civil society in the fight against corruption. Mobile apps, data visualization tools and social media give journalists, NGOs, social activists and everyday citizens new power to publicly

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denounce corruption, spread awareness of the problem and be part of the solution. The power of technology to mobilize society against corruption has been on ample display across the region, from Brazil's massive street protests in 2013 to Mexico's recent social media-powered movement to create a National Anti-corruption System. To really move the dial on corruption, however, technology-enabled movements will have to coalesce into stable institutionalized checks on power that have the backing of political and economic elites. There is no guarantee that this will come about. The 2015 protest movement that toppled Guatemalan president Otto Pérez Molina serves as a warning. His successor, limmy Morales, came under investigation for campaign finance violations and summarily kicked a UN anticorruption commission out of the country in the beginning of 2019.

^{Our} Digital World

In Brazil, the Observatory of Public Spending, a unit of the national comptroller's office, is using algorithms and machine learning to root out corruption risks. These tools have allowed auditors to scour US\$5 trillion of public spending and identify schemes, such as slicing up contracts into several smaller components to circumvent multiplebidder requirements, that would be tough to systematically detect with traditional analytics. These strategies helped the auditors flag more than 7,500 suspicious contracts in 2015, amounting to US\$104 million in shady deals.⁷

Uruguay

Turning trade upside down

International trade and investment have been constant forces shaping Latin America's development, for better and for worse. While trade booms such as the 2000s commodities super cycle have brought huge dividends, concerns about the region's place in the global division of labor persist. More often than not, Latin American economies continue to specialize in raw materials such as minerals, oil and agricultural commodities, and fail to add much value to their exports. But digital technologies are now changing how goods and services are produced and how they are traded across borders. The results could dramatically alter the region's role in the global economy.

Latin America's status as an agricultural powerhouse is due in large part to its abundance of fertile farmland such as Argentina's vast plains. But technology is even influencing how crops are grown. Data-intensive techniques such as vertical farming and precision agriculture mean that comparative advantage in the agricultural sector is less about total acreage and more about software and advanced engineering. This is a double-edged sword for the region. There are increasing opportunities for technological innovation — and associated economic spillovers — in industries where Latin America is already an established player. But there are also more competitors vying for a share of the pie.

At the same time, innovations in manufacturing, such as industrial robots and 3D printing, are driving the automation of production. For Mexico and some Central American economies that have built globally competitive manufacturing industries on the basis of low labor costs, these innovations could threaten their positions in global value chains.

Some analysts think the future of manufacturing will feature software programmers using 3D printers to create "small batch", bespoke products rather than largescale factories churning out standardized cars, computers and sneakers.⁸ In this scenario, it makes economic sense for large multinationals to make products in their home markets, usually the US or Europe, where they are closer to consumers and the software engineers who could be future factory workers. This "reshoring" - the relocation of industrial production back to rich countries — may already be taking place. In the long run, reshoring could lead to decreased manufacturing in Latin America. These are, of course, trends, not foregone conclusions. A recent survey of industry experts found that only a slight majority (52%) believes innovations such as artificial intelligence and 3D printing will lead to reshoring. Even so, the general movement towards automation means manufacturing will not be the driver of employment and development that it was during the 20th century. The share of manufacturing employment in developing countries is peaking at levels far below those of the US, Europe and the Asian Tigers, a trend that economist Dani Rodrik has identified as "premature deindustrialization."⁹

Unfulfilled Potential

^{Our} Digital World

Business-to-customer cross-border e-commerce, 2020 projection Q

Source: Inter-American Development Bank, 2019

= US≑ l billion

Only 59% of Latin Americans are online, and only 51% have a bank account. In OECD countries the comparative figures area respectively, 87% and 94%.10

By 2020, Latin America is projected to see US\$53 billion worth of business-to-customer cross-border e-commerce. This may sound like a lot, but it would represent a mere 5.3% of the global total and a far cry from Asia's whopping US\$476 billion.¹¹

The upside is that the service sector could emerge as Latin America's new driver of export-led growth even if services are generally considered harder to trade across borders. Some services, such as health care

or personal care (haircuts are the classic example), require face-to-face provision. Others, such as legal and accounting services, involve regulations that make crossborder provision difficult. Transmission is yet another challenge. In sectors ranging from entertainment to business consulting, delivering services has usually been more complicated than shipping widgets from point A to point B.

New technologies such as online services marketplaces, digital payments and machine translation are, however, making it easier than ever to export services. This could be a boon for a region full of well-educated, tech-savvy professionals with relatively low labor costs. Technology could even make it possible for a doctor in Medellín to treat patients in Minneapolis through advanced robotics and virtual reality, a phenomenon economist Richard Baldwin calls "tele-migration."¹²

Meanwhile, only 41% of Latin American firms have a website compared with 78% of those in OECD countries. Major investments in digital infrastructure and internet literacy could close this gap.¹³

Latin America already exports health services to the US and Europe, but the current model requires patients to travel to the region, thus limiting the potential market. Taking distance out of the equation could lead to an explosion of this trade. To realize this potential, the region has much work to do. Digital trade in services depends on a number of underlying infrastructures. Access to the internet is crucial but so is an old-fashioned bank account, which remains necessary to take part in most digital transactions. Latin America lags on these fronts, and its crossborder e-commerce, which is essentially international trade conducted online, remains underdeveloped.

Mapping Villa 31

Buenos Aires, Argentina

Villa 31 is so close. Perhaps Argentina's most notorious informal barrio, Villa 31 spills out over downtown Buenos Aires' historic train station. From the roofs of the district's colorful cinderblock dwellings, the modern skyscrapers of the Puerto Madero area seem close enough to reach with a free kick of a football. The tony Recoleta neighborhood is visible on the horizon, and the palaces of the San Martin Plaza are just around the corner. <

And yet, Villa 31 remains so far. Despite the barrio's long history dating back nearly a century, land rights there remain informal. Access to basic utilities such as water and electricity can be spotty and is often jerryrigged by residents living off the formal Buenos Aires power grid. Critical public services such as trash collection, law enforcement and firefighting often overlook the neighborhood. Difficulties navigating its byzantine streets are blamed. In 2015, a 13-year-old boy fell into a cesspit. When an ambulance finally arrived 40 minutes later, it was too late to save him.¹⁴

> Villa 31 is precisely the kind of neighborhood most at risk by digital transformation. While geographically close to the country's financial heart, it could become increasingly disconnected, with a digital gulf far greater than the physical distance.

Argentina's dual track approach to digitization was underscored by Villa 31's absence on Google Maps. Even as digital maps became more detailed, Villa 31 continued to appear as a vast empty space, a faceless and nameless desert on an otherwise crowded urban landscape. "The neighborhood would appear as gray blocks, as if no one lived there,"

explained Pablo Vitale, a political scientist with the Civil Association for Equality and Justice. < ▶ For Vitale, the lack of a digital identity was more than just an affront for a longstanding community. According to his analysis, it was also one reason Villa 31 was so poorly served by city services. "For the ambulances, the police and the trash collectors, it was very difficult for them to get into the neighborhood, and to locate themselves in the neighborhood," he stated. <

» Vitale decided to do something about it. Working with Google and local residents, a team set out to map the area digitally. Ariel Guaypare, a community leader and lifelong resident of the Villa, led the charge. "I put the big Google globe camera on my back, and I walked the streets. People would see me and ask: What's this guy doing? Is he some kind of Martian?" Within a few days Vitale and Guaypare used the bizarre camera and GPS technology to gather the necessary data for Google to update its map of Buenos Aires with Villa 31's streets.

"The ambulances, the firefighters, the police... they all seem to show up a little quicker," observed Patricia, a local resident. Beyond these and everything."

— S.G.

critical and practical matters, the mapping of the neighborhood is a point of pride. "There I am! Right here," said Elda, an older woman as she pointed to her street on the Google Maps app. "I'm proud to see our streets with the names

In the No Collar Economy, a digital presence may prove as important as physical presence. As major breakthroughs continue to occur in online technology, those who remain offline will be left further and further behind. Vitale and Guaypare's efforts will not overcome all the challenges. But these little steps leave big digital footprints.

Labor markets and **informality**

New Competition

The World Bank recently estimated that 67% of employment in 11 Latin American countries is vulnerable to automation, compared with 57% in OECD countries.¹⁵

Between 7% and 14% of all *activities* currently performed by Latin American workers could be fully displaced by 2030, even if no new automation technologies emerge.¹⁶

The digital transformation of trade is intricately linked to the future of the region's labor markets. Here again, there are risks and opportunities. The potential for individuals and entrepreneurs to market their services online to clients across town or across the globe makes freelancing a viable path for a generation of young, educated and tech-savvy Latin Americans. These opportunities are appealing for many young people who would have trouble finding fulltime employment in a traditional firm or want a flexible schedule while they study. For the low-skilled, mobile apps are creating new and more reliable opportunities for flexible work, whether driving for Uber or delivering groceries with Rappi. These options generally provide better earnings than more precarious

alternatives such as hawking goods on the street or cleaning windshields at busy intersections. In some ways, they provide a pressure valve for the informal labor forces across the region. But what happens when automated vehicles and drones arrive on the scene? More worrying still, the region's better jobs - full-time employment in formal firms tend to be those most exposed to automation. Factory jobs, which still feature prominently in many governments' development strategies, could be threatened by technology-driven reshoring. While the region's relatively low wages (in particular those in Central America, Mexico and parts of the Caribbean) could shield Latin America from immediate automation pressures, this safeguard comes at the cost of downward wage pressure.

The effects of automation are already evident in the decline over the past couple decades in the share of "middle-skill" employment in many Latin American labor markets. Such employment includes routine office work and most manufacturing jobs, and the number of these jobs has fallen in Central America, Bolivia and Peru by an average of one to two percentage points a year since the mid-1990s.¹⁷

Faced with this scenario, an increasing number of Latin Americans will have to sink or swim in the gig economy. The result could be a further segmentation of the region's labor markets and worsening inequality. If automation were to take away the option of app-based, lowskilled employment, displaced workers would likely and other r jobs that ha defense ag highly skille of the gig e of the bene developme employmen To avoid region's lab have to rev skills trainin brought gro a quantum equitable a needed to o digitalized j

would likely resort to informal vending and other more precarious, low-quality jobs that have traditionally been the last defense against unemployment. Even for highly skilled workers, the consolidation of the gig economy could mean the end of the benefits, stability and professional development that often comes with full-time employment contracts.

To avoid automation's hollowing out the region's labor markets, governments will have to revamp education systems and skills training. While the last two decades brought great strides in education coverage, a quantum leap in quality and, in particular, equitable access to high-quality education is needed to ensure that those entering the digitalized job market have the right skills.

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Getting Smarte On Crime

Santiago block by block

Source: Edited from Landsat 8 images by NASA

> Focused deterrence policing, new technologies

Community-

based strategies

Latin America has the dubious distinction as the world's most violent region. A full 43 of the world's 50 most violent cities can be found between the Rio Grande and Tierra del Fuego. Brazil has 14 of them, Mexico has 15 and Venezuela has six.¹⁸ Sadly, the overall situation in the region has not changed much over the years, though some cities and countries have greatly improved their security. Not surprisingly, public security consistently ranks among the most important concerns of the region's voters.

The typical instinct for politicians in the face of rising violence is to apply *mano dura*. These are tough-on-crime policies, such as longer sentences and sending the military into the streets, that usually make the problem worse. Digital technologies, however, offer smarter strategies to fight crime and, if used appropriately, could go a long way towards making the region's law enforcement institutions more efficient and effective.

But police forces throughout Latin America are often woefully understaffed, poorly equipped and burdened with long beats. This is especially true at the local level, where effective policing is critical. For that, technologies such as georeferencing and digital sensors can map crime patterns down to the block level. This data, combined with other factors ranging from weather conditions to social media activity, combines with computer algorithms and other advanced data analysis techniques to generate predictions of where and when specific crimes are most likely to occur.

These tools could potentially be abused. but they can also make the most of scarce resources. They have given rise to an entirely new approach to policing — predictive policing — that aims guite literally to prevent crimes before they happen. This strategy has been rolled out in police departments in different parts of Latin America (not to mention in various Hollywood movies). Chile, for example, pioneered a predictive policing strategy in 2017 based on software developed by engineers at the Universidad de Chile. Each day, officers in Santiago and other major cities consult maps indicating block by block where crimes can be expected to occur. Early iterations of the software predicted crime patterns with 35% to 40% accuracy.¹⁹ In 2019, Bogotá announced a major predictive policing initiative based on big data, which the city will develop in conjunction with local researchers and a firm specializing in applied mathematics.

Social prevention

> For decades, Latin American countries have attacked crime with a mano dura – and it isn't working. Even as the region makes inroads against poverty, crime remains stubbornly high. Perhaps big data can help.



"A central ingredient of successful state and citybased interventions is the development of reliable, real-time and accurate data and analysis."20



Situation

Source: Muggah

Political scientist Robert Muggah Snapshot: Mexico

^{Our} Digital World

1.44

¡Hasta mañana!



It is hard to deny the powerful, positive effects that new technologies have had across Latin America.

But will they amount to sustainable, transformative change that allows the region to surmount longstanding challenges of inequality, violence, corruption and social exclusion?

Real transformation will require more than technology in isolation.

The recent presidential campaigns in Brazil, Colombia and Mexico demonstrated the power of social media in particular to exacerbate existing divisions. But it is not only social media. The rise of informal, app-enabled employment threatens to undermine collective action among workers that helped secure major social and economic gains in the 20th century. Brazil's Workers Party evolved from a resurgent organized labor movement in the late 1970s and ended up implementing policies that brought millions of Brazilians out of poverty in the 21st century.

Can we foresee Uber drivers and Rappi deliverers playing a similar role in the future?

> Andres Manuel Lopez Obrador used social media to spark an outsider campaign that won him the Presidency of Mexico in 2018.

</Chapter>

Our Digital Future

Our

Digital World

> Lead author Samuel George



Our Digital Future

I recently found myself watching cartoons on TV with a friend and his three-year-old daughter.



At one point, the child stood, trundled over to the TV and ran her fingers across the screen in an attempt to manipulate the content. She looked back at us in shock when the TV screen did not respond to her touch.

Ten years ago, no child would have swiped a TV screen. Yet it was a completely natural impulse for this toddler. Some of us are still shocked today when we touch a screen, and it reacts. For the youngest generation, it is a shock when they touch a screen and it doesn't.

Especially in richer countries, many saw Generation Z (born in the mid- to late 1990s) as the first "digitally native" generation. But even the world in which these young people grew up is significantly different from today's. My nieces and nephews, all well under the age of ten, can do a lot without swiping at all. They have a strong working relationship with Alexa, Amazon's voiceenabled digital assistant. One of the most remarkable aspects of the digital revolution is how quickly and seamlessly humans incorporate its new tools. This book does not propose that this is a mistake. Nor does it propose a slower absorption process. That would be a fool's errand. Whether we like it or not, technology and the blinding speed of technological change have become facts of life, so deeply engrained that they have already established a three-year-old's expectations of how the world works. There is no going back.

This book looks instead at what is being ingrained and the potential for global collaboration on avoiding sub-optimal outcomes of this process.



_{Our} Digital World In the introduction, we posit that digital developments in one part of the world are relevant to all others.

As we survey our digital world, certain trends, dynamics and schisms repeatedly appear:

Across the globe, governments wrestle with the impact of new technologies.

Some fear it, limiting and censoring access to digital tools.

Some misuse it, weaponizing information and software to inflict chaos.

> Some push their citizens towards full digital literacy.

> > Some try to fight against the erosion of privacy.

The line between innovation and overreach blurs.

The same tech can be used for a "Smart **City Initiative"...** or to fortify a surveillance state.

We see the forces of creative destruction at work across national economies.

In developed countries, the hard-won labor protections of the traditional economy have yet to be established in the gig economy.

> The pursuit of convenience and profit has reoriented people's relationships with machines.

Astounding AI advances render obsolete an ever increasing number of traditional jobs.

> Meanwhile, app-based employment raises the question of just who is working for whom.

An Uber driver may like to think that they don't have a boss, but arguably they do. It's the smart phone strapped onto the dashboard.

Increased economic participation for women in the Middle East.

Decreased crime in Latin America.

And financial inclusion in Africa.

But we've also seen dreams deferred, such as the rise and fall of the Arab Spring.

> Throughout this book, we've observed that impacts that initially appear local or regional are actually global.

Digital tools have acted as a springboard for the rise of nationalist populism not just in the United States and western Europe, but also in India, Brazil and various former Soviet states. 149

Our Digita

Meanwhile, in the developing world, we see glimpses of new opportunity. Our Digital World

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And fake news now threatens elections everywhere.

It has become cliché to say we live in

a post-truth world.

Apollo 11 Crew During Training Exercise by NASA on Wikimedia Commons.

Simply by flipping the TV channel or changing the URL on the internet one can find entirely different representations of reality.

But to accept this is a cop out. **Ours is not a post-truth** world.

But it will become one if we abandon our responsibilities as humans

if we accept that technology cannot be controlled, understood and harnessed to help us rather than to confuse us.

And for good reason.

Liberation Technology?

The Internet & the Spread of Democracy

While digital tools threaten to undermine longstanding democracies, some believe that those same tools can play a critical role in pushing authoritarian regimes towards democratization.

Extant literature underscores the internet's ability to create a participatory culture¹ as anyone with access can view, share and produce content. The ability of digital tools to provide a voice to any individual has led some scholars to observe "a powerful link between technological advance and democratization".² Political scientist Larry Diamond refers to these digital tools as "liberation technology",³ empowering individuals to "facilitate independent communication and mobilization, strengthening an emergent civil society".⁴

Others caution against assuming that the digital revolution can have a causal impact on instigating democratic transitions.⁵ They note that authoritarian governments have demonstrated the capacity and will to a) block potentially offending social media networks and search engines; and b) identify and prosecute online "offenders", generating an online environment of self-censorship based on fear. In Cuba, for example, where the internet has only recently been made available, users assume the government monitors their activity.⁶ This is unconfirmed, but the prevailing belief influences digital activity.

Digital tools may be "little first-amendment machines",⁷ but they may also be emerging as an opiate of the masses. By itself, a few million "thumbs-up" on a *cause de jour* social media post will not generate change and could even undermine any groundswell if the effort is simply armchair activism. Digital philosopher Evgeny Morozov calls this "slacktivism: a feelgood online activism that has zero political or social impact".⁸ This slacktivism might even play into the hands of authoritarian regimes, keeping protesters off the street. < > New frontlines for this dynamic continue to emerge. Protests in Hong Kong in 2019 represent the latest major test of the importance of digital tools in the pushback against authoritarianism. The imagery of the protests, drawing on inspiration from Japanese anime to American cinematography "laced with anger, cynicism and wit" represent a truly 21st century popular movement geared towards viral appeal, according to journalist Jiayang Fan.⁹

As the digital revolution threatens to undermine some liberal democracies, the same technology can still to increase freedoms where authoritarianism holds strong.

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^{Our} Digital World



The advent of the digital age has created unprecedented access to lightning-fast, real-time, easy, free and unlimited access to information and information-based services.

> It's a potent cocktail. It can be used, it can be abused, and it can be addictive.

Broad swaths of the world are currently experiencing a "high" of expectations.

Everything seems possible:

Gender equality? Sure. Create a website, compare incomes and shame firms into closing the pay gap.

> Financial equality? Easy. Reach a billion people though mobile phones and give them access to peer-to-peer microloans to support themselves.

Access to education? Simple. Upload the best courses from the best universities and teachers for a MOOC₁ and let anyone get an online degree for free.

These are all real and positive results of our digital world.

But they are just first steps.

And when people realize these initial efforts are not cure-alls, the impact can be demoralizing.

The digital craze is upending our political, social and economic landscape, and constant disruptions seem to be followed by cumulative withdrawals from a disappearing old world and unmet promises of an immature new one-

Son here is one simple recommendation to help get over digital addiction:

Get involved Stay involved



Image by Greg Rakozy on Unsplas

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Extensive digital connectivity has created a false sense of association. As daily life becomes increasingly digitized, we observe a commensurate detachment from our physical surroundings.

From voting to organized sports to PTA membership, manifestations of civil society have dropped precipitously in recent decades.¹⁰

Civil society connections are particularly valuable when they are horizontal in nature, meaning that participants engage on relatively equal footing. Even if it is just the local choir club, participants learn to cooperate, collaborate, and problem solve, perhaps even with — gasp — someone from the other political party.

The resulting network of relationships can help form a notion of "we" instead of "I".¹¹ We are today far more likely to build relationships within digital silos that do not rely on problem solving or cooperation.



Having hundreds of social media contacts, from which we constantly receive stylized updates may be practical, but a thousand digital *****'s are no substitute for a friend's hug.

By becoming mindful about being there for family, friends, colleagues and even strangers, we activate more dynamic responses to their needs.

It's OK to send that \clubsuit , but we also need to visit that newly graduated relative, to hug that friend experiencing loss, or help that dude with the busted Buick change the tire.

You can still take a pic and IG it afterwards.







All the links were checked & valiated for the last time on October 9 2017.

] Our Digital World

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