Connectography: Mapping the Future of Global Civilization

Parag Khanna
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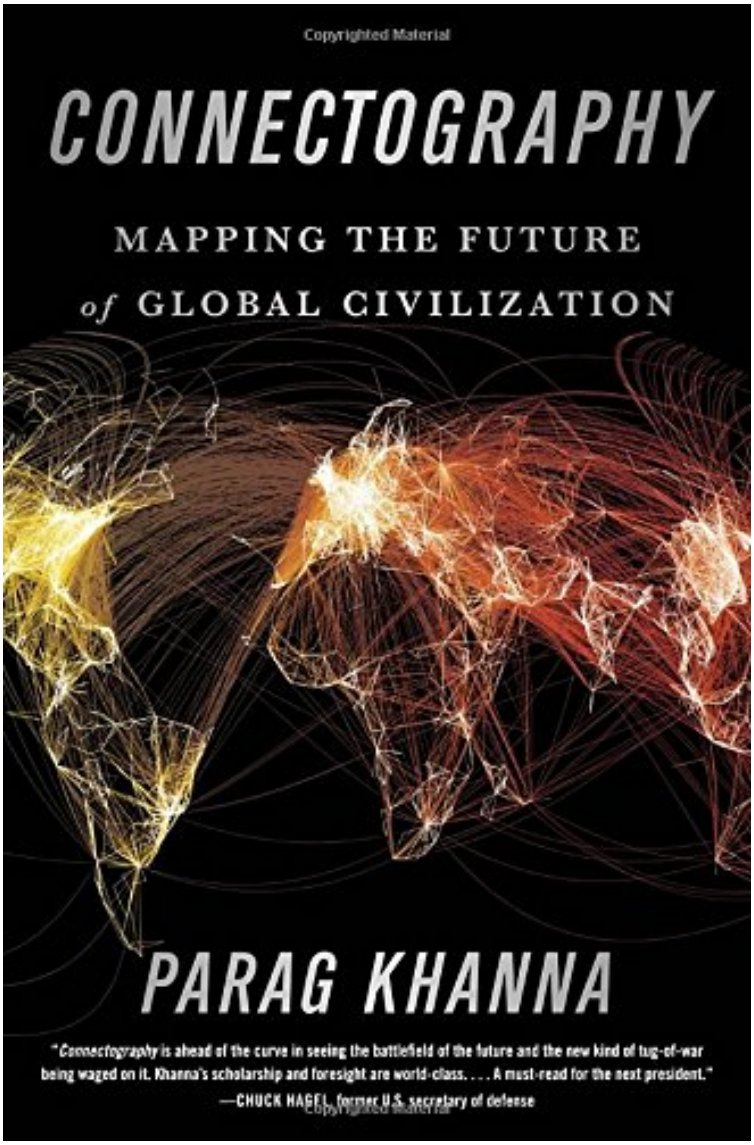

#67619 in Books Khanna Parag 2016-04-19 2016-04-19Original language:EnglishPDF # 1 9.60 x 1.50 x 6.50l, 1.24 #File Name: 0812988558496 pagesConnectography Mapping the Future of Global Civilization | File size: 63.Mb

Parag Khanna : Connectography: Mapping the Future of Global Civilization before purchasing it in order to gage whether or not it would be worth my time, and all praised Connectography: Mapping the Future of Global Civilization:

112 of 116 people found the following review helpful. 6-Star Utterly Brilliant Survey and StrategyBy Robert David STEELE VivasThe author of this book has done something no one else has done I say this as the reviewer of over

2,000 non-fiction books at across 98 categories. For the first time, in one book, we have a very clear map of what is happening where in the way of economic and social development; a startlingly diplomatic but no less crushing indictment of nation-state and militaries; and a truly inspiring game plan for what we should all be demanding from countries, cities, commonwealths, communities, and companies, in the way of future investments guided by a strategy for creating a prosperous world at peace.This is a nuanced deeply stimulating book that makes it clear that Chinas grand strategy of building infrastructure has beaten the US strategy of threatening everyone with a dysfunctional military that crushes hope and destroys wealth everywhere it goes; that connectivity (cell phones, the Internet, roads, high-speed rail, tunnels, bridges, and ferries) is the accelerator for wealth creation by the five billion poor that most Western states and corporations ignore; and it provides to me more surprises, more factoids I did not know, more insights than any five to ten other books I have read over time.At one point it occurred to me that in some ways the author is our generations successor to Alvin Toffler, Peter Drucker, and Robert Kaplan, combined. I really am deeply impressed, in part because the authors insights come from years of crisscrossing the world and touch reality in a hands-on manner not achieved by any diplomatic, intelligence, commercial, media, or academic network in existence today; and in part because the book comes with 38 glorious color maps that are each alone worth the price of the book [an appendix points to 38 web sites that supplement the book and are a discovery journey of their own].This is the best book the deepest and the most useful the author has produced to date. This is a book that should be read by every prime minister, president, senator, organizational chief and by those who aspire to such positions. Many people publish content few publish context this book has both.I have over ten pages of notes below are just 4 quotes and 10 insights from among the hundred or so I took notes on and strongly recommend this books for all libraries, all war colleges, all university overview courses on civilization and its malcontents.QUOTE (175): Americas nominal power is unsurpassed, but subtract for deterrence, distance, and competence, and its effective power is less formidable than appears on paper.QUOTE (199): Eurasia represents two-thirds of the worlds population, economy, and trade, and that is before it genuinely fuses together into a connected mega-continent through voluminous durable infrastructures that will smooth and speed commerce.QUOTE (225): No amount of soft power can substitute for cutting a fair deal.QUOTE (287): Guangzhous first lesson is the importance of administrative harmony. The second lesson from the delta regions evolution is leveraging openness.INSIGHTS:3/4 of the worlds population lacks basic infrastructure and utilities this is the center of gravity going forward.China has 2,000 commercial maritime vessels compared to 200 for the USA at the same time that Chinese high-speed rail is the 21st century alternative to air and road travel around the world.China also has multiple sucking chest wounds, including the loss of half its rivers such that its population has one fifth the per capita water compared to the rest of the world; buildings that last fifteen years instead of thirty-five.Devolution (smaller sovereignty/control zones) is inherently both democratic and efficient we are migrating from sovereign space to admin space, in which hybrid governance where all non-government players have equal voice and vote) removes friction and increases flow.Global warming is good for Canada, Greenland, Iceland, Norway, and Russia the Arctic is the next frontier, and ideally will be kept demilitarized - a priority championed by Norway.Iran is the most connected nation in the Middle East.Muslim violence in the Middle East is politically fostered and neither inherent in Islam nor ideological.Russia, for lack of infrastructure, is losing swaths of its previously controlled territory, citizens, and resources to Europe in the East and China in the West; Brazil, India, Indonesia, Nigeria, and Russia are all under-performing for lack of investment in infrastructure (communications and transportation).Special Economic Zones (SEZ) represent the unbundling and remixing of territory and resources, the relative demise of the nation-state in the face of superior agility at the city-state level.Systemic change happens every couple of centuries we are on the cusp of a global systemic revolution that will change every paradigm from economics to governance to lifestyle.I have one caveat about this book, easily corrected in future printings and translations. The book comes with the most incomplete index I have ever encountered in a book of this quality and depth. If the book as a whole is a six-star work, the index is at best a 2 and barely so.Readers interested in going into depth on any particular threat or policy (e.g. poverty as a threat or water as a policy) can find my 2000+ summary reviews online sorted by category at Phi Beta Iota Public Intelligence Blog.Below are ten books I recommend as supporting complements to this great work.Transforming the Dream: Ecologism and the Shaping of an Alternative American VisionThe Big Disconnect: Why The Internet Hasn't Transformed Politics (Yet)Governing the Commons: The Evolution of Institutions for Collective Action (Political Economy of Institutions and Decisions)The Lessons of HistoryHomeland Earth : A Manifesto for the New Millennium (Advances in Systems Theory, Complexity and the Human Sciences)A User's Guide to the Crisis of Civilization: And How to Save ItWorld 3.0: Global Prosperity and How to Achieve ItGrand Strategies: Literature, Statecraft, and World OrderGod and Science: Coming Full Circle?Ideas and Integrities: A Spontaneous Autobiographical DisclosureROBERT David STEELE VivasINTELLIGENCE for EARTH: Clarity, Diversity, Integrity, Sustainability26 of 29 people found the following review helpful. Connectivity, Devolution, and Aggregation?By Alan F. SewellMany of us who came of age in the late 20th Century see the world reaching a pivot point. The old 20th Century world of nation-states organized in camps of Free World, Socialist, and Third World Non-aligned now seems a quaint and archaic relic of a bygone era.But what will replace it? It the 1990s and early 2000s the vision of a globalized world based on free trade prosperity took root in the USA, Europe, Asia, and Latin America.

Standards of living in every country were supposed to soar when barriers to free trade between nations were removed. Then the free trade agreements were signed, and the global economy promptly collapsed into the Great Recession. Growth rates in most countries have stagnated since then, and living standards may actually be falling in many developed countries.So, what does the future hold? What will the world look like at mid-21st Century? Will the stagnation continue, or will the promised global prosperity finally emerge?Author Parag Khanna argues the case for global prosperity based on the connectivity of human migration, communication, and infrastructure:===The road map of this book follows several interconnected thrusts. First, connectivity has replaced division as the new paradigm of global organization. Human society is undergoing a fundamental transformation by which functional infrastructure tells us more about how the world works than political borders.Countries run by supply chains, cities that run themselves, communities that know no borders, and companies with more power than governments all are evidence of the shift toward a new kind of pluralistic world system.==He envisions a coming world of economically vibrant urban areas that forge trading ties with each other, while the national governments that sit on top of them atrophy by devolution of their political authority to the city-states. San Francisco and Beijing might find themselves to be more connected economically than either city finds itself connected with other cities in its own country. After all, San Franciscos real estate is being scooped up by Chinese investors, but San Francisco has about as much in common with Detroit as the Man in the Moon.===The true map of the world should feature not just states but megacities, highways, railways, pipelines, Internet cables, and other symbols of our emerging global network civilization. Second, devolution is the most powerful political force of our age: Everywhere empires are splintering and authority is dissipating away from central capitals toward provinces and cities that seek autonomy in their financial and diplomatic affairs.==But how far will that trend be allowed to continue? After all, it is NATIONAL governments that raise the taxes and issue the debt that pays for mega projects like globe-girdling bullet trains, continent-wide water management, airports, traditional highways, and internet connections. In fact, the debt generated by spending on infrastructure is a NATION-BUILDING event. George Washington got the ball rolling on Americas Constitutional Convention by calling upon the states of Virginia and Maryland to join together in building a Potomac Canal to link the Eastern Seaboard with the Ohio Valley Country. Canada exists because Britains North American colonies bankrupted themselves trying to build a transcontinental railroad as independent entities. So it would seem that infrastructure is more the friend of consolidation of national authority than of its devolution.Khanna speaks of the role of supply chains in connecting the world:==Supply chains and connectivity, not sovereignty and borders, are the organizing principles of humanity in the 21st century.==In reality, the governments of many countries rigorously control the supply chains coming into their countries in order to protect their domestic manufacturing.There is growing skepticism, especially in the USA, that free trade with these countries is mutually beneficial. The more the tariffs have been reduced, the more these countries have exported to the USA, without buying commensurate value of our products. The USA ran trade surpluses with Mexico until NAFTA was signed. The very next year the surplus turned into a soaring deficit as thousands of U.S. companies closed their USA factories and moved production to low-wage Mexico.Trade with Asia has also fallen far short of the promise that it would "turn the USA into an export powerhouse, thereby creating millions of high-wage jobs for American workers." The reality is that the USA imports more than four times as much from China as we export to them, and import more than twice as much from Japan as we export. U.S. exports to South Korea actually DECLINED after the USA / South Korea free trade was signed, while imports from South Korea soared.It seems that free trade with low-wage countries not only discourages them from producing in the USA, but also encourages American companies to relocate THEIR production out of the USA. If a certain candidate is elected President of the USA in a few months, the global supply chain may take a beating.Another passage links the building of global infrastructure to political devolution of power from nation states to local governments:===We are in only an early phase of re-engineering the planet to facilitate surging flows of people, commodities, goods, data, and capital.===But has the devolution away from central governments (occurring mainly in ancient European Kingdoms like Britain and Spain) really been spawned by desire to facilitate surging flows of people?" Or, has it been instigated by desire to protect the ethnicity and economic prospects of small, localized homogeneous populations from excessive foreign immigration coming across the open borders of large multi-ethnic nations?Thus, as appealing as Khannas vision of a mid-century prosperity network among international mega-cities is, it is also possible that we may be seeing a backlash return to the nation-state model of commerce --- including customs posts, tariffs, capital controls, and intensive national regulation of multinational business. Perhaps we will not know until a few more decades have passed whether the reality will live up to the optimistic vision that Khanna lays out here.2 of 2 people found the following review helpful. Informed by extensive travel and an amazing network of colleagues around the world (see Acknowledgments)By Dennis C. RobertsInformed by extensive travel and an amazing network of colleagues around the world (see Acknowledgments), Khanna describes a hopeful future where military superiority and wars will cease to be a threat, replaced by supply chain and trade agreements that world leaders dare not violate if they want to survive. Khanna, by contrast to many who deplore the mass urbanization unfolding around the world, sees cities as the way to deal with environmental degradation and income inequality.As the lines that connect us supersede the borders that divide us, functional geography is becoming more important than political geography. (7% through digital text)

Khanna predicts that nations will have little power in comparison to cities that broker supply chains and trade at will, carefully managing the flow (resources, goods, capital, technology, people, data, and ideas) and friction (borders, conflict, sanctions, distance, and regulation) within their purview. This world of evolving and permeable boundaries, is more effectively leveraged through engagement than containment.According to Khannas predictions, Connectivity is destiny and those individuals, businesses, and countries that do not embrace this reality are at risk. In his concluding paragraph, Khanna advocates, We need a more borderless world because we cant afford destructive territorial conflict, because correcting the mismatch of people and resources can unlock incredible human and economic potential, because so few states provide sufficient welfare for their citizens, and because so many billions have yet to fully benefit from globalization.

From the visionary bestselling author of The Second World and How to Run the World comes a bracing and authoritative guide to a future shaped less by national borders than by global supply chains, a world in which the most connected powersand peoplewill win.Connectivity is the most revolutionary force of the twenty-first century. Mankind is reengineering the planet, investing up to ten trillion dollars per year in transportation, energy, and communications infrastructure linking the worlds burgeoning megacities together. This has profound consequences for geopolitics, economics, demographics, the environment, and social identity. Connectivity, not geography, is our destiny. In Connectography, visionary strategist Parag Khanna travels from Ukraine to Iran, Mongolia to North Korea, Pakistan to Nigeria, and across the Arctic Circle and the South China Sea to explain the rapid and unprecedented changes affecting every part of the planet. He shows how militaries are deployed to protect supply chains as much as borders, and how nations are less at war over territory than engaged in tugs-of-war over pipelines, railways, shipping lanes, and Internet cables. The new arms race is to connect to the most marketsa race China is now winning, having launched a wave of infrastructure investments to unite Eurasia around its new Silk Roads. The United States can only regain ground by fusing with its neighbors into a super-continental North American Union of shared resources and prosperity. Connectography offers a unique and hopeful vision for the future. Khanna argues that new energy discoveries and technologies have eliminated the need for resource wars; ambitious transport corridors and power grids are unscrambling Africas fraught colonial borders; even the Arab world is evolving a more peaceful map as it builds resource and trade routes across its war-torn landscape. At the same time, thriving hubs such as Singapore and Dubai are injecting dynamism into young and heavily populated regions, cyber-communities empower commerce across vast distances, and the worlds ballooning financial assets are being wisely invested into building an inclusive global society. Beneath the chaos of a world that appears to be falling apart is a new foundation of connectivity pulling it together.Praise for ConnectographyIncredible . . . With the world rapidly changing and urbanizing, [Khannas] proposals might be the best way to confront a radically different future.The Washington PostClear and coherent . . . a well-researched account of how companies are weaving ever more complicated supply chains that pull the world together even as they squeeze out inefficiencies. . . . [He] has succeeded in demonstrating that the forces of globalization are winning.Adrian Woolridge, The Wall Street Journal Bold . . . With an eye for vivid details, Khanna has . . . produced an engaging geopolitical travelogue.Foreign AffairsFor those who fear that the world is becoming too inward-looking, Connectography is a refreshing, optimistic vision.The EconomistConnectivity has become a basic human right, and gives everyone on the planet the opportunity to provide for their family and contribute to our shared future. Connectography charts the future of this connected world.Marc Andreessen, general partner, Andreessen HorowitzKhannas scholarship and foresight are world-class. A must-read for the next president.Chuck Hagel, former U.S. secretary of defense

"This book is bad news for President Trump's chief advisor, SteveBannon, and his colleagues at Breitbart Media. Author Parag Khanna'smeticulous mapping of our planet's human-designed infrastructure cannotbe deconstructed, and neither can its administrative apparatus of global agreements and deal making---short of a nuclear holocaust..... InConnectography, Khanna traces his own extensive travels around thisplanet, basing his thesis that humanity's global connectiveinfrastructure now requires a new approach and a field of study beyondtraditional geopolitics and geo-economics..... Khanna's Connectographyis stunningly buttressed by 18 fascinating cartograms mapping this newworld.... I found Connectography invaluable and compelling reading. Itreminded me of Jane Jacobs' granular descriptions in her The Death andLife of Great American Cities (1961) and The Economy of Cities (1969).This book will dispel any ideas of closing borders, building walls toexclude immigrants or pursuing old goals of military superiority andspheres of geopolitical influence." -- Hazel Henderson, Seeking AlphaAbout the AuthorParag Khanna is a global strategist, world traveler, and bestselling author. He is a CNN Global Contributor and a Senior Research Fellow at the Lee Kuan Yew School of Public Policy at the National University of Singapore. Khanna is the co-author of Hybrid Reality: Thriving in the Emerging Human-Technology Civilization and author of How to Run the World: Charting a Course to the Next Renaissance and The Second World: Empires and Influence in the New Global Order. He has been a fellow at the New America Foundation and Brookings Institution, advised the U.S. National Intelligence Council, and worked in Iraq and Afghanistan as a senior geopolitical adviser to U.S. Special Operations Forces. He

holds undergraduate and graduate degrees from the School of Foreign Service at Georgetown University and a Ph.D. from the London School of Economics. He serves on numerous governmental and corporate advisory boards and is a councilor of the American Geographical Society, a trustee of the New Cities Foundation, and a Young Global Leader of the World Economic Forum.Excerpt. Reprinted by permission. All rights reserved.Chapter 1 From Borders to Bridges A Journey Around the World Lets take a journey around the worldwithout ever getting on a plane. If we get an early start in Edinburgh, Scotland, well arrive at London Euston station around noon, stroll quickly past the British Library, and have a quick lunch at the masterfully renovated Victorian-era St. Pancras station, from which well board the Eurostar train, travel under the Dover Strait to Paris, followed by a high-speed TGV to Munich and a German ICE to Budapest. An overnight train along the Danube River brings us to Bucharest, Romania, and another overnight along the Black Sea to Istanbul. Where once a creaky ferry was the fastest way to cross from Europe to Asia across the Bosporus Strait, today we can glide over one or the other suspension bridge or continue by train through the newly opened Marmaray tunnel and onward to Iran. We could also catch the revived Hejaz Railway through southeastern Turkey, stopping in Damascus and Amman before continuing to Medina or across Israel and the Sinai to Cairo, from which we might ultimately descend through Africa all the way to Cape Town on a sturdy upgrade of the Red Line British colonialists began in the late nineteenth century. From Tehran, well head eastward on a new Chinese-built railway through the rugged Asian steppe, cross Turkmenistan and Uzbekistan to Kazakhstans commercial hub of Almaty. Several times per week, we can cross into Chinas largest province of Xinjiang to its capital, Urumqi, and onward via Xian to Beijing. Back in Paris, we might have opted for an overnight sleeper to Moscow, from which we could catch the fabled Trans-Siberian Railway to Vladivostokand carry on to Pyongyang and Seoulor branch off a bit earlier toward Beijing, via either Manchuria or Mongolia. Either way, if we opt for the tropical route, well speed southward along the worlds most extensive high-speed rail network into mountainous Yunnan and its capital, Kunming. From there, we can cross directly into Laos and take in Vientiane before crossing into Thailand toward Bangkok, or take a coastal route along the South China Sea via Hanoi and Ho Chi Minh City in Vietnam and through Phnom Penh in Cambodia to Bangkok. Now the options narrow with the geography: we speed on down the Malay Peninsula to Kuala Lumpur and Singapore, the southernmost point on mainland Asia. But water hasnt stopped us so far, so lets continue by train through a tunnel under the strategic Strait of Malacca onto Indonesias largest island of Sumatra, then over the Sunda Strait bridge to reach the capital, Jakarta, on Java, the worlds most populous island with more than 150 million people. Just a bit farther and were on the beaches of Bali, from which we can catch a cruise ship to Australia. If we choose the fastest routes and dont miss any connections, we will have traversed the entire Eurasian landmassScotland to Singapore, and then somein about a week. And yet were only halfway done. Instead of the Antipodes, from Beijing we should actually head north through Vladivostok and eastern Siberia. If you fancy sushi, we could take a bridge to Sakhalin Island and pass through a 45-kilometer tunnel to Japans northernmost Hokkaido Island, passing seamlessly southward across Japans major islands on high-speed Shinkansen trains. When we reach Kyushu, well loop back through a 120-kilometer undersea tunnel to Busan, zipping northward through the Korean peninsula back toward Siberia to continue our next 13,000-kilometer segment that takes us parallel to the volcanic Kamchatka Peninsula and through a 200-kilometer tunnel under the Bering Strait that emerges in Alaska and takes us to Fairbanks. From there, of course, its straight south to Juneau and Vancouver, Seattle and Portland, San Francisco and Los Angeles. California, Texas, Illinois, and New York all want more Acela Express high-speed rail (though its planned to hit only about two hundred kilometers per hour, about half as fast as the Japanese). Still, well make it from Pacific to Atlantic across the Lower 48 in two days. All thats left is to catch a zippy but smooth hovercraft to London, followed by any of the more than twenty daily trains headed to Edinburgh. A journey around the worldas promised. One could fly almost seamlessly along this itinerary, drive much of it too except for the oceans, and indeed eventually do it the old-fashioned way on iron railroads. Many of these routes already exist, and all of them will in due course. The more connections there are, the more options we have. Geography is destiny, one of the most famous adages about the world, is becoming obsolete. Centuries-old arguments about how climate and culture condemn some societies to fail, or how small countries are forever trapped and subject to the whims of larger ones, are being overturned. Thanks to global transportation, communications, and energy infrastructureshighways, railways, airports, pipelines, electricity grids, Internet cables, and morethe future has a new maxim: Connectivity is destiny. Seeing the world through the lens of connectivity generates new visions of how we organize ourselves as a species. Global infrastructures are morphing our world system from divisions to connections and from nations to nodes. Infrastructure is like a nervous system connecting all parts of the planetary body; capital and code are the blood cells flowing through it. More connectivity creates a world beyond states, a global society greater than the sum of its parts. Much as the world evolved from vertically integrated empires to horizontally interdependent states, now it is graduating toward a global network civilization whose map of connective corridors will supersede traditional maps of national borders. Each continental zone is already becoming an internally integrated mega-region (North America, South America, Europe, Africa, Arabia, South Asia, East Asia) with increasingly free trade coupled with intense connectivity across their thriving city-states. At the same time, maps of connectivity are also better at revealing geopolitical dynamics among superpowers, city-states, stateless companies, and virtual communities of all kinds as they compete to capture

resources, markets, and mind share. We are moving into an era where cities will matter more than states and supply chains will be a more important source of power than militarieswhose main purpose will be to protect supply chains rather than borders. Competitive connectivity is the arms race of the twenty-first century. Connectivity is nothing less than our path to collective salvation. Competition over connectivity is by its nature less violent than international border conflicts, providing an escape hatch from historical cycles of great power conflict. Furthermore, connectivity has made previously unimaginable progress possible as resources and technologies move much more easily to where they are needed, while people can more quickly relocate to escape natural disasters or to cities for economic opportunity. Better connectivity allows societies to diversify where their imports come from and where their exports go. Connectivity is therefore how we make the most of our geography. The grand story of human civilization is more than just tragic cycles of war and peace or economic booms and busts. The arc of history is long, but it bends toward connectivity. Bridges to Everywhere The central fact of the age we live in is that every country, every market, every medium of communication, every natural resource is connected. Simon Anholt, The Good Country Party Connectivity is the new meta-pattern of our age. Like liberty or capitalism, it is a world-historical idea, one that gestates, spreads, and transforms over a long timescale and brings about epochal changes. Despite the acute unpredictability that afflicts our world today, we can be adequately certain of current mega-trends such as rapid urbanization and ubiquitous technology. Every day, for the first time in their lives, millions of people switch on mobile phones, log on to the Web, move into cities, or fly on an airplane. We go where opportunity and technology allow. Connectivity is thus more than a tool; it is an impulse. No matter which way we connect, we do so through infrastructure. While the word infrastructure is less than a century old, it represents nothing less than our physical capacity for global interaction. Engineering advances have made new infrastructures possible that were the dreams of previous generations. Over a century ago, crucial geographic interventions such as the Suez and Panama Canals reshaped global navigation and trade. Since the nineteenth century, Ottoman sultans aspired to construct a tunnel that would connect Istanbuls European and Asian sides. Now Turkey has both the Marmaray tunnel that opened in 2013 and freight railways and oil and gas pipelines that are strengthening its position as a key corridor between Europe and China. Turkey has been called the country where continents collide; now it is the country where continents connect. The early twentieth-century Japanese emperor Taisho also sought to link Honshu and northern Hokkaido Island, but only in the 1980s did it complete the Seikan Tunnel, which traverses fifty-four kilometers (including twenty-three kilometers under the seabed) and carries Shinkansen high-speed trains. Once the tunnels to Sakhalin and South Korea are complete, Japan wont truly be an island anymore. We are in only an early phase of reengineering the planet to facilitate surging flows of people, commodities, goods, data, and capital. Indeed, the next wave of transcontinental and intercontinental mega-infrastructures is even more ambitious: an interoceanic highway across the from So Paulo to Perus Pacific port of San Juan de Marcona, bridges connecting Arabia to Africa, a tunnel from Siberia to Alaska, polar submarine cables on the Arctic seabed from London to Tokyo, and electricity grids transferring Saharan solar power under the Mediterranean to Europe. Britains exclave of Gibraltar will be the mouth of a tunnel under the Mediterranean to Tangier in Morocco, from which a new high-speed rail extends down the coast to Casablanca. Even where continents are not physically attaching to each other, ports and airports are expanding to absorb the massive increase in cross-continental flows. None of these mega-infrastructures are bridges to nowhere. Those that already exist have added trillions of dollars of value to the world economy. During the Industrial Revolution, it was the combination of higher productivity and trade that raised Britains and Americas growth rates to 12 percent for more than a century. As the Nobel laureate Michael Spence has argued, the internal growth of economies would never have reached todays rates without the cross-border flows of resources, capital, and technology. Because only one-quarter of world trade is between countriesthat share a border, connectivity is the sine qua non for growthboth within countries and across them. Connectivity itselfalongside demographics, capital markets, labor productivity, and technologyis thus a major source of momentum in the global economy. Think of the world like a watch whose battery is constantly charged through kinetic energy: The more you walk, the more power it has. For all the effort we expend calculating the value of national economies, therefore, it is time to devote as much attention to the value of connectivity between them. There is no better investment than connectivity. Government spending on physical infrastructurewhat is known as gross fixed capital formationsuch as roads and bridges, and social infrastructure, such as medical care and education, is considered investment (rather than consumption) because it saves costs in the long run and generates widespread benefits for society. Large-scale spending on infrastructure was relatively low for most of the nineteenth century, accounting for about 57 percent of Englands GDP and peaking at 10 percent on the eve of World War I.1 The United States ramped up its infrastructure investment to almost 20 percent of GDP from the late nineteenth century through World War I, enabling it to double Britains growth rate and become the worlds largest economy. Even though the major American and Canadian canal and railroad companies went bankrupt at the turn of the twentieth century, they left the country with an extensive transportation network that enabled continental-scale commercial expansion right up to the present. The influential British economist John Maynard Keynes strongly argued for such public works investment as a tool of creating jobs and boosting aggregate demand, policies adopted by President Roosevelt during the Depression. From World War II onward, fixed capital formation rose like a west-to-east wave from under 20 percent of GDP to over 30 percent.

Germanys 1950s Wirtschaftswunder (economic miracle), Japans 1960s 9 percent growth rates, the Asian Tigers of the 1970s and 1980s (South Korea, Taiwan, Singapore, and Hong Kong), and then China starting in the 1990s, where it topped 40 percent of GDP and powered sustained growth of close to 10 percent for the past three decades. China embraced Keynes like nobodys business. The past several decades prove beyond any doubt that connectivity is how regions move from economies valued in the billions to the trillions. Furthermore, infrastructure is a foundation of social mobility and economic resilience: Urban societies with ample transportation networks (such as southern China) rebounded much faster from the 20078 financial crisis, with people able to move efficiently to find work. Spain was among the hardest hit by the eurozone recession but thanks to its high-quality infrastructure is today Europes fastest-growing economy. As global debt surges to record levels while interest rates remain at historical lows, the worlds finances should be directed toward underwriting productive connectivity rather than ethereal derivatives. For a massive country such as America to live up to its self-proclaimed destiny, it too must spend much more on connectivity. Historically, U.S. infrastructure spending has returned almost $2 for every $1 invested, but investment has been tailing off for decades. Today Americas clogged roads and tunnels cause wasteful congestion, its crumbling bridges cause accidents and delays, and its ailingports and refineries lack both the efficiency and the capacity tomeet global demand. Since the financial crisis, dozens of prominent economists including Yales Robert Shiller have advocated infrastructure-led investment as a way to create jobs and boost economic confidence. The American Society of Civil Engineers has called for $1.6 trillion in spending for an overhaul of Americas transportation system. Only nowand just before it is too lateis such a national overhaul near the top of Americas agenda with proposals for the creation of a national infrastructure bank. The same is true across the world: The gap between the supply and the demand for infrastructure has never been greater. As the world population climbs toward eight billion people, it has been living off the infrastructure stock meant for a world of three billion. But only infrastructure and all the industries that benefit from it can collectively create the estimated 300 million jobs needed in the coming two decades as populations grow and urbanize. The World Bank argues that infrastructure is the missing link in achieving the Milennium Development Goals related to poverty, health, education, and other objectives, and infrastructure has been formally included in the latest Sustainable Development Goals ratified in 2015.3 The transition beyond export-led growth toward higher value-added services and consumption begins with infrastructure investment.We are finally witnessing a massive global commitment to infrastructure. Cities and highways, pipelines and ports, bridges and tunnels, telecom towers and Internet cables, electricity grids and sewage systems, and other fixed assets command about $3 trillion per year in global spending, well over the $1.75 trillion spent annually on defense, and the gap is growing. Infrastructure outlays are projected to rise to $9 trillion per year by 2025 (with Asia leading the way). The global connectivity revolution has begun. Already we have installed a far greater volume of lines connecting people than dividing them: Our infrastructural matrix today includes approximately 64 million kilometers of highways, 2 million kilometers of pipelines, 1.2 million kilometers of railways, and 750,000 kilometers of undersea Internet cables that connect our many key population and economic centers. By contrast, we have only 250,000 kilometers of international borders. By some estimates, mankind will build more infrastructures in the next forty years alone than it has in the past four thousand. The interstate puzzle thus gives way to a lattice of infrastructure circuitry. The world is starting to look a lot like the Internet. Seeing Is Believing Astronauts in low Earth orbit (about 215 kilometers high) have snapped stunning pictures of our majestic planet. Theyve captured natural features like oceans, mountains, ice caps, and glaciers, and even caught glimpses of man-made structures. It turns out that the Great Wall of China and the Great Pyramid of Giza in Egypt are rather difficult to discern without high-performance zoom lenses, but more modern engineering such as megacities, ultra-long bridges, and straight desert highways are easy to spot. The Kennecott copper mine in Utah and the Mir diamond mine in Siberia stretch several kilometers across, making their stepped terrace structure noticeable as well. The two hundred square kilometers of greenhouses in Almera in southern Spain, where up to half of Europes annual demand for fresh fruits and vegetables is grown, is unmistakable, especially as sunlight reflects off their plastic roofs. What about borders? How many of those are physically robust enough to see? Many political borders are formed by natural environmental features, reminding us of natures fundamental role in shaping human settlement and cultural differentiation. The border between North and South Korea is best seen when the sun goes down, when the bright lights of the South contrast with the darkness of the North. The most visible border between any two large countries is undoubtedly between India and Pakistan. Stretching diagonally for twenty-nine hundred kilometers from the Arabian Sea to Kashmir, it also stands out from space at night due to the 150,000 floodlights that form a bright orange blaze. The maps hanging in our classrooms and offices would lead us to believe that all borders were as robust as the Indo-Pakistani border. Yet North Americas two major borders mask the deeper reality of growing connectivity. The three-thousand-kilometer U.S.-Mexico border crosses beaches and deserts and along the Rio Grande River but also between cities that have the same name on either side such as Nogales, Naco, and Tecate. Even with haphazardly patrolled security fencing on the American side, it is still the most frequently traversed border in the world, with over 350 million legal crossings annually (more than the entire population of the United States). The U.S.-Canada border that stretches from the Arctic to the Pacific to the Atlantic Ocean is the worlds longest at almost nine thousand kilometers, but 300,000 people and over $1 billion in daily trade traverse the almost

twenty major border crossings. There are many places where borders are stiffening: Israels security barrier, the fifteen-kilometer vros River fence in Greece, and the two-hundred-kilometer Bulgarian barbed-wire fence aimed at curbing illegal immigrants, among others. And yet all of these bordersand even more unfriendly onesremain porous. And indeed, almost all such fences are terribly costly and ineffective responses to problems that borders cannot solve. If borders are meant to separate territories and societies, then why are ever more populations clustering along them? It is a particular irony that our maps show mostly political borders rather than border demographics and economics, which are the embodiment of the anti-border nature of many border regions. Most of Canadas population lives near the U.S. border and benefits from proximity to the American market. Since 2010, both the Mexican and the U.S. populations on their border have grown by 20 percent. Even more ironic: The best place to see how connectivity fundamentally changes relations from hostility to cooperation is borders. The thriving business between India and Pakistan and many other pairs of antagonists is a reminder that borders are rarely the solid lines we see on maps but rather porous filters for exchange. In theseand dozens of other cases, we increasingly work around our bordersand build straight across themmore than we bow to them.Ultimately, from the Great Wall of China and Hadrians Wall to the Berlin Walland eventually the Cypriot Green Line and the Korean demilitarized zoneforces far more powerful than these barriers prevail. As Alexandra Novosseloff has written, A wall ends its life as a tourist attraction. In todays world, territorial boundaries dont even really capture the geography of borders: Airports may be far inland but contain borders within them, while cyber-security forces patrol technology infrastructures that stretch far across borders. Even if political borders remain physically robust, the world has still become more borderless as countries eliminate extraneous visa requirements, currencies are exchangeable in real time at ATMs, content from almost anywhere can be accessed online, and the cost of phone calls drops to zero due to Skype and Viber. The more societies trade and communicateand depend on each other for food, water, and energythe less we can pretend that borders are the most important lines on the map. The absence of the full panoply of man-made infrastructure on our maps gives the impression that borders trump other means of portraying human geography. But today the reverse is true: Borders matter only where they matter; other lines matter more most of the time. Hardly anywhere are they a more significant factor in the fate of nations than what crosses them. We are building a new world orderliterally.