

G. History of Industrialism

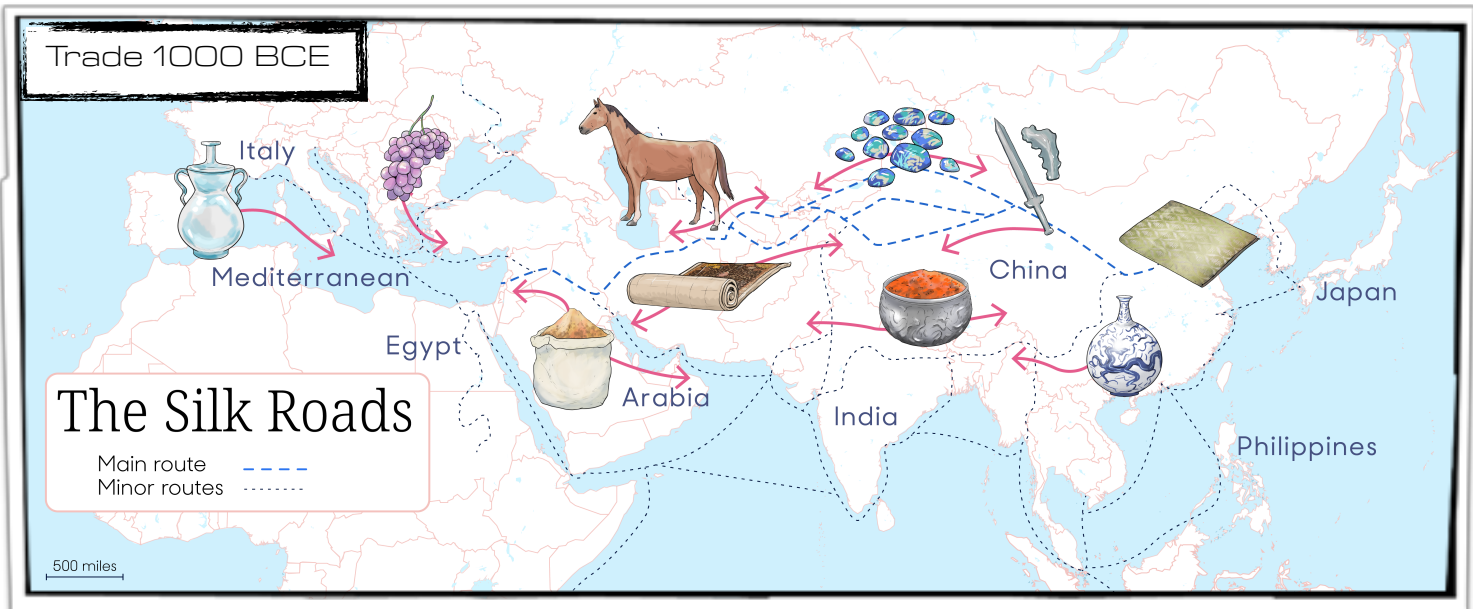
Ancient. For the vast majority of human history, society was advanced through human and animal power. Hunters and Gatherers made weapons and tools by hand, improving the materials from natural stone, bone and wood. Early farmers specifically crafted wood, stone and eventually metals like bronze into tools that were used for their work on the farm. Almost all of the materials for homes, tools and other products came from the land near the farmers, with the occasional trading opportunity for goods and resources from neighbors within the region.

In China, Middle East, and Egypt farming became productive enough to support specialist workers who began to focus on other occupations, being fed from the surplus of the farms. From this first outgrowth of specialization came artisans and craftsmen who worked in cottage industries, or small scale and home based businesses, producing durable and consumable goods by hand. These craftsmen developed tools to improve the speed, efficiency and quality of their products. These goods centered around the local environment and the needs of the society. In China, the silk industry developed around special silk worms that were unique to East Asia, spinning the silk into threads and garments; a comparative advantage found nowhere else in the world.

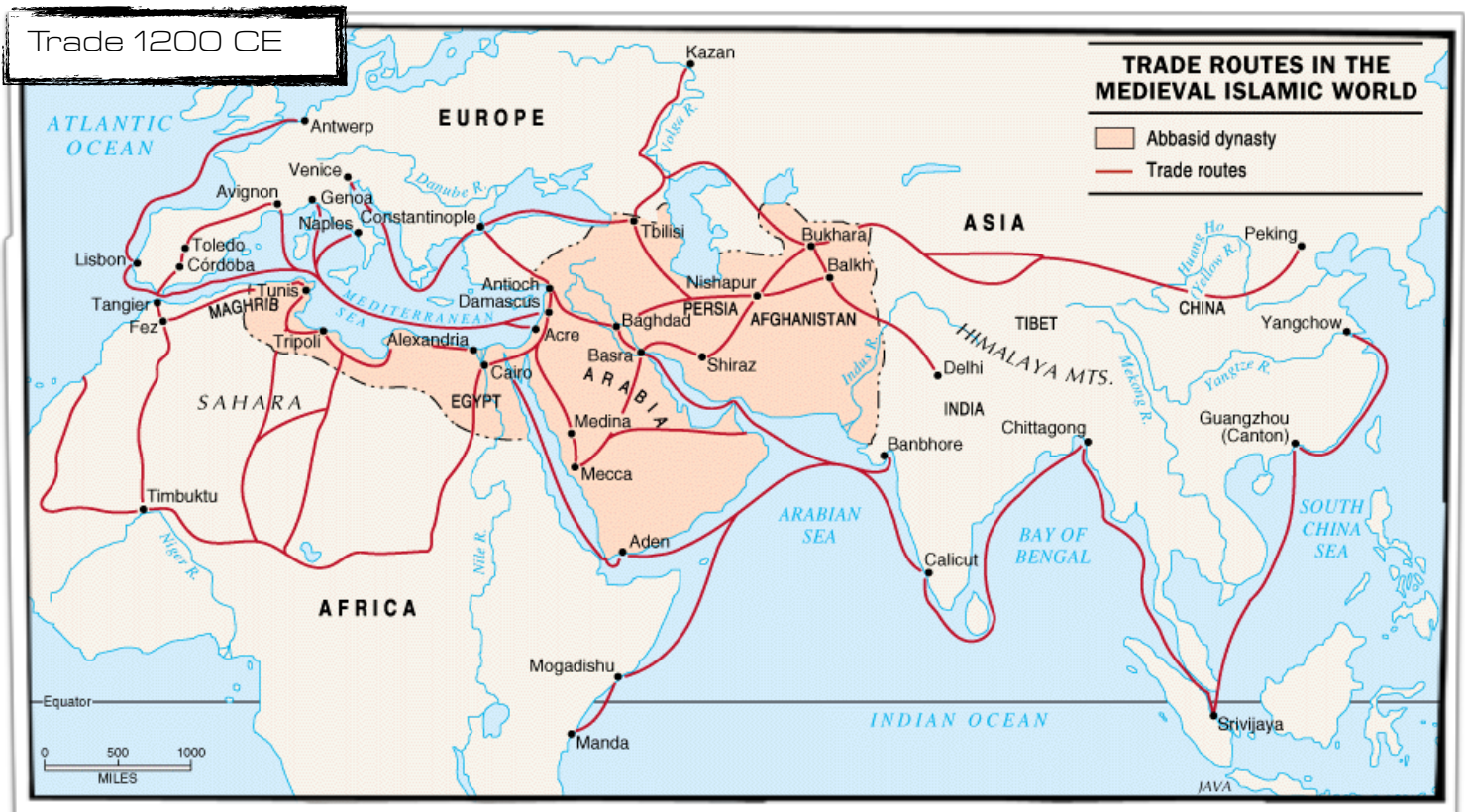


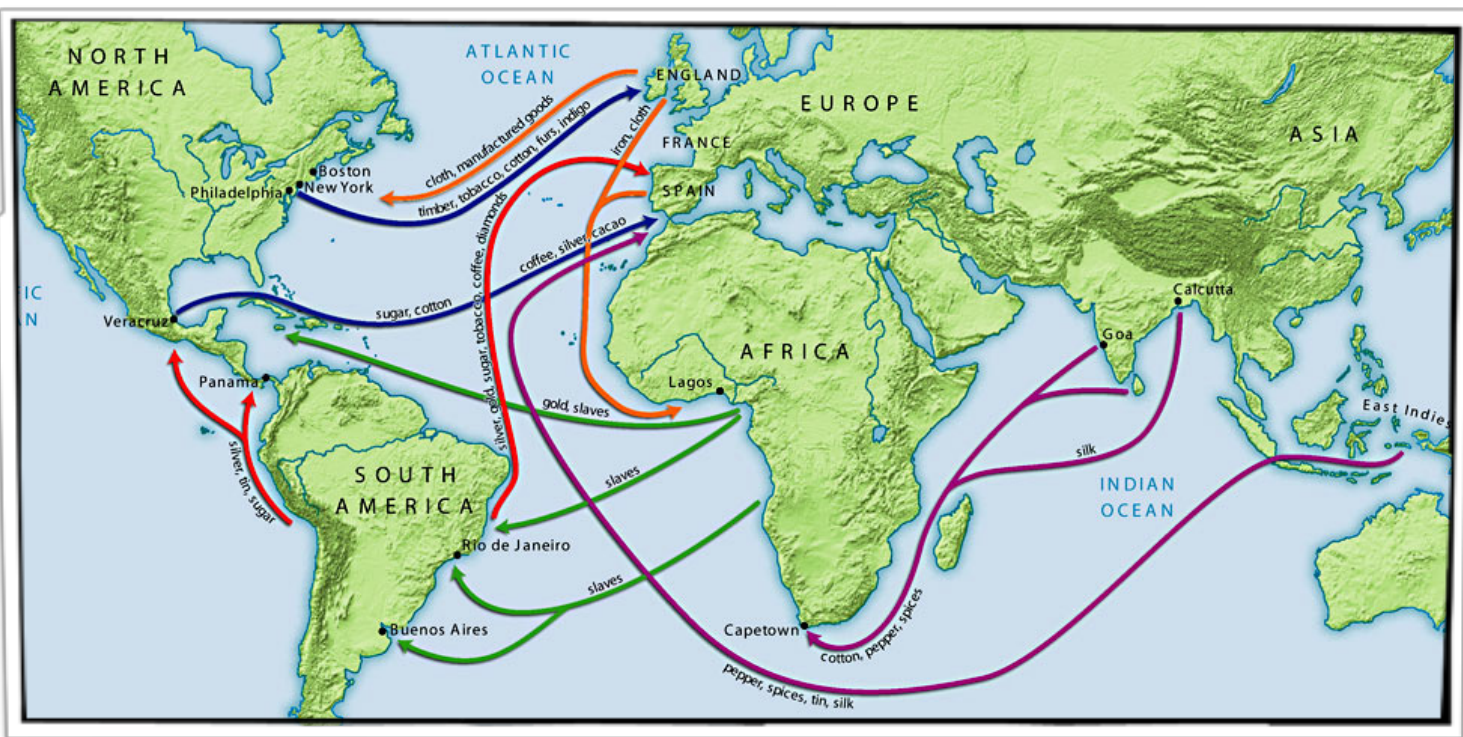
Despite the immense innovation of the era, production of goods faced many problems. Cottage industries only had access to the materials in their society, limiting the variability of what could be produced. Production by hand is slow and costly, due to the immense effort put into the development of one item. Because humans are incapable of repeating the same action incessantly, products were never perfectly uniform. Any replacement parts had to be specifically crafted for that specific situation. Because of these challenges, innovation was slow and product life cycles were long. Some technologies could go decades, or even centuries, between major updates in design.

Slavery was essential to the ancient world, as it provided cheap expendable labor that could do large amounts of work without adding to the costs of the products they were producing or wishing to purchase. Every agriculturally based society in the ancient world had some form of slavery, enslaving the people they conquered or those who went into too much debt.



As civilizations developed and expanded, extensive trade routes connected the Ancient World. Because few areas were self-sufficient, or able to meet all of their own needs, groups exchanged goods. This series of exchanges diffused specialty resources for the elites, ideas, culture and technology from China through India and the Middle East over to Europe. As a result, the merchant class developed, being the agents of exchange. By 1200 CE, trade networks had exploded with the advancement in boating technology. The Chinese and Middle East sailors brought further integration to the world, trading goods between East Asia, South East Asia, the Middle East and Africa. Trade diffused wealth, innovation, knowledge, religion, and people between these regions. Cities grew up around these trade routes, beginning the human settlement along the coast instead of inland.





Colonization. In the 1500s, the European exploration and innovations radically altered the geopolitical and economic futures of the world. With a focus on trade and land conquest, with a sprinkle of religious piety, the Europeans set sail and explode the entire known world. Their efforts connected the Old World and New World, diffusing goods, people and technology through the Columbian Exchange. The Europeans created the first global markets, global currency, global lingua franca, and multinational businesses. They also sought and captured lands that had bountiful resources, creating colonies in a quest to gain control over resource rich regions.

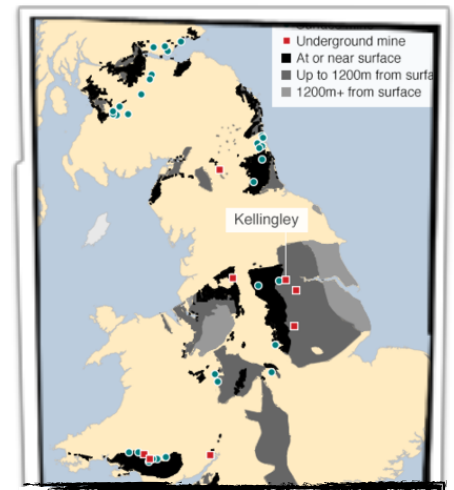
These explorations were funded by a two key Italian innovations: banks and joint-stock companies. Banks allowed people a safe place to store their extra money and allow their money to grow by earning interest. Banks also allowed people to take out loans to make purchases they could otherwise not afford, paying the bank back with interest. This allowed people to purchase goods needed to be successful in their businesses before they could actually afford them. Joint-Stock Companies gave a means for investors to be able to help fund new businesses by purchasing stock, or a share of ownership in the business. An investor can purchase as many shares of stock in a company as they are willing to risk, in exchange for a share of the profit the company earns. However, if the company fails, the investors lose all their money. On the other side of the equation, businesses benefit from selling shares of ownership because they gain money to purchase more tools and build more buildings to improve their business without having to take out a loan; but with the pressure of making as much profit as possible so their investors make as much return on investment. Stock markets allow many investors could put their money into companies they saw as being profitable, sharing the risk and rewards, while giving businesses better access to the needed capital.

This new era of globalized business brought to light the question of the role of government in business. Mercantilists believed that the exports were the new heart beat of society because they brought in profit to the society, increased wealth, and improved the tax base for the government. Because exports were so important, it was the governments role to use tariffs, quotas and military force to create markets for goods and protect trade. The ultimate goal of mercantilism was to create a trade monopoly, where only one State's businesses exported goods, while the rest of the world imported. This led to many proxy wars between the French, Spanish and British in North America, Asia and Africa. The second idea was capitalism: Adam Smith's laissez faire idea that the government should have no involvement in business. Businesses should be free to compete on a global stage with zero interference: no taxes, not tariffs, no military intervention. By competing, innovations and wealth would flourish to the benefit of all.

Industrial Revolution. In the late 1700s, Great Britain became the hearth for one of the most important revolutions in human history: the Industrial Revolution. The Industrial Revolution was humanities creating machines that have a non-human/animal power source, that can complete work with varying degrees of human assistance. Machines multiplied humanities speed, power, capacity, and productivity.

Great Britain had a unique combination of geographic attributes that led to the development of the engine and mechanization.

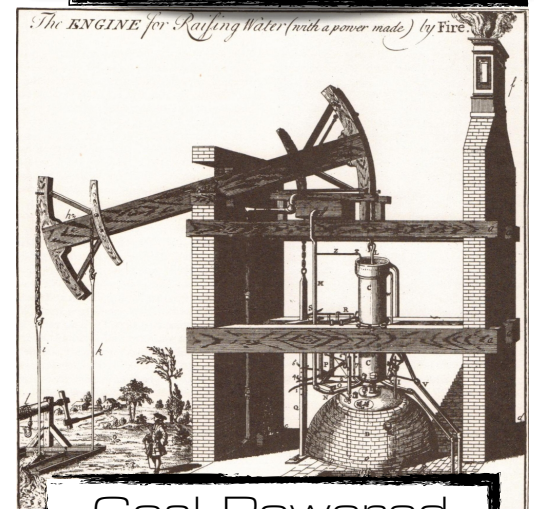
- First, there was an availability of all the natural resources needed to develop industry, with the British having access to coal near the earth's surface and was cheap to mine; much cheaper than wood who had other uses within society. The flooding of coal mines caused the British to invent the steam engine that used coal to help pump water out of the mines. The coal steam engine quickly found other uses in power factory machines, powering land and sea based transportation, and fueling power plants for electricity.
- The second factor was Britain's availability of rivers. In early British textile mills, water power was harnessed to cheaply fuel textile mills. Water continued to be critical for the location of factories, both from a hydrating laborers perspective as well as serving important roles in power or cooling machinery.
- Third, Britain was the birth place of capitalism. British communities had already made the shift from subsistence to commercial production; moving from making goods just for the local community for survival to making goods to be sold outside of the region for profit.
- Fourth, the British had the highest wages in the world. Because of the high wages and cheap coal, businesses had incentive to develop coal or steam powered machinery that could improve productivity and efficiency, leading to greater profitability.
- Fifth, the British had a unique situation of supply and demand. The British population was booming as it moved into DTM Stage 2, as well as having a massive global empire with access to immense resources. This gave the British firms a large demand for textiles. British trade with, and eventual colonization, of India gave it access to large quantities of cotton, that was cheaper than wool.
- Finally, Britain had property and intellectual patent laws. The enclosure movement allowed all land in Britain to be privately owned, where the property owner could profit from his own land in anyway he saw fit. Similarly, a company could apply for a patent, giving the company sole permission to profit from an invention. It was illegal to steal or copy a patented idea, giving businesses a financial incentive to compete for innovations. These two forces led profit seekers to own land and innovate ideas, knowing they had support from the government to protect their profits and punish anyone seeking to steal their wealth.



Coal in Britain



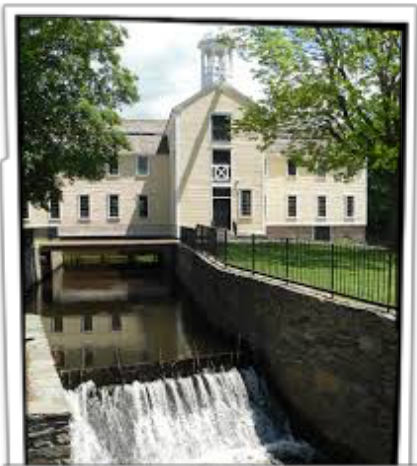
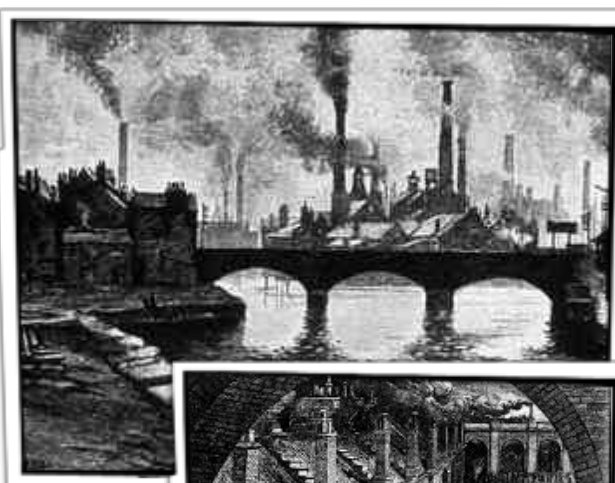
Rivers in Britain



Coal-Powered Water Pump

Britain's Industrial Revolution rapidly changed their society. The first areas to undergo change were textiles and primary sector extraction industries like farming and mining. This is because 99% of British society was invested in the production of food, textiles or resources. Due to the increased productivity and efficiency of the machines, less workers were needed on the farms and in the mines. Small family owned businesses went bankrupt and consolidated into large corporations. Unable to stay on their former lands, people migrated to the newly built mills and factories; providing ample cheap labor. Because a job was now required to purchase food and essentials, men, women and children became factory workers. Everyone worked 16-20 hour shifts for pennies a day. The ancient institution of slavery was quickly brought to a close because it was more expensive and less efficient than mechanization. The slaves were more valuable as penny-a-day laborers in the factories than owned property on the farms.

These changes created a mass intraregional migration caused urban centers to spring up seemingly overnight; with cheap low income housing being built within walking distance of the factories. While the conditions of the factories and surrounding slums were bad, the increased food security and access to cheaper products caused a decline in the crude death rate. To longer life expectancy combined with a lower CDR caused a massive population explosion. Put together, the over crowding in the city slums was a push factor. When the USA opened and promoted economic opportunities these push factors resulted in a mass emigration to the USA, which needed migrants to take ownership of and work the farm land of the newly conquered "Wild West" from their indigenous nations.



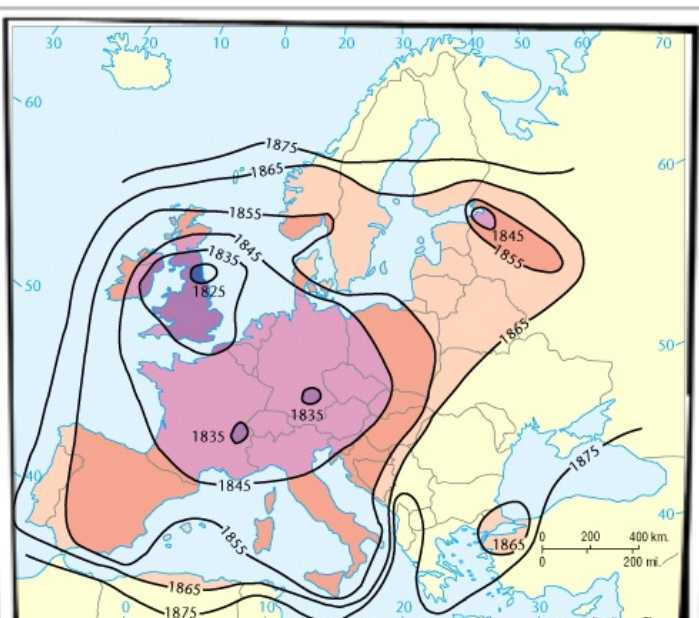
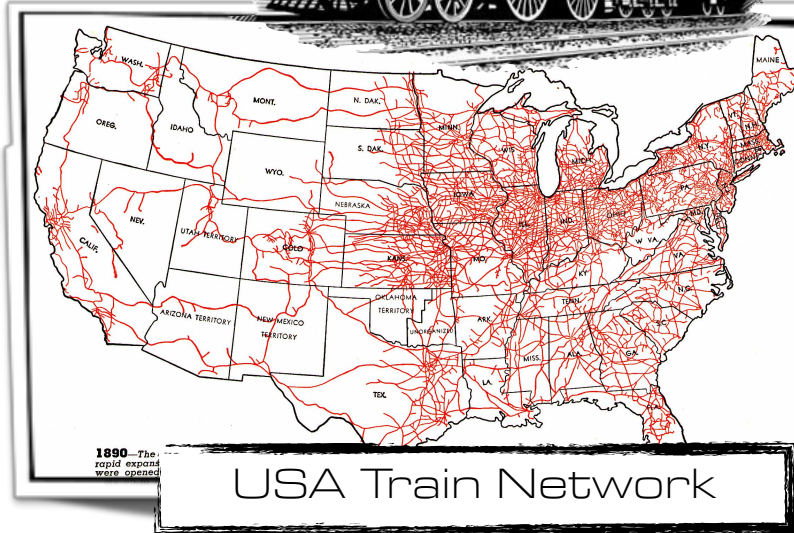
The diffusion of the Industrial Revolution has been complex and controversial. Because the steam engine ran on coal, the British designs and models were only useful to other regions that possessed coal. Mills that were powered by water had to be located near rivers. The USA, that had recently broken away from Britain were primed to adopt the Industrial Revolution. The Americans spoke English, were schooled in British Capitalism and patent system, and had an abundance of easy accessible coal and rivers. Because the British had heavily invested into North America in order to extract and ship out timbers, cotton, and fur from New York, the USA were ready to adopt the new technology. In 1793, Samuel Slater immigrated to the USA. Slater had been an apprentice at a booming waterpower textile mill in England and saw that the British had reached the limit of its potential for producing affordable textiles. Slater memorized the layouts, tools, and procedures of the textile mill before emigrating to Rhode Island, USA. In Rhode Island, he recreated the same style mill from memory, tweaking the process to fit the American style of Cotton. Soon, British styled factories with Slater's modification sprung up along the many plentiful rivers of the North East. The USA's cheap land, cheap labor, and domestically grown cotton allowed American textile manufacturing to produce more textiles at a lower cost than the British. The American comparative advantage and lower production costs led to a closure of British factories, who began instead to import the American textiles. The Race to the Bottom had begun. The USA would remain the world's leading manufacturer of textiles until the 1980s. To the USA, Samuel Slater is the father of the American Industrialism; to the British he broke patent laws for stealing factory designs and is considered a traitor.

The diffusion of the locomotive was similar to the British textiles. The USA purchased British locomotives to transport goods from the east coast across the Appalachian Mountains. With a year of purchase, American inventors had dissected and analyzed the British locomotive, made adjustments, and began producing an American made locomotive. With access to cheap domestic coal and steel, along with the American innovation of interchangeable parts, the American locomotive industry exploded.

Interchangeable parts allowed a company to design a machine to be a series of identical, reproducible parts. Each part can be mass produced, so that when a machine breaks an exact replacement is readily available to return the machine to being productive, instead of waiting for a new part to be hand crafted with the hopes it would work.

Locomotives changed the cultural landscape of the USA. Soon, 233,000 miles of railroad tracks currently laid across the USA. Massive steel bridges and tunnels replaced stone bridges. This allowed engineers to overcome mountains, valleys and large rivers that had physical barriers. Soon Americans and their goods were speeding across the country side on their iron horse. Because of the improved space-time compression, the new cities in the west were built further apart, as opposed to the close-knit urban centers in New England. In the West, businesses prized the intersection points of multiple train tracks, as they could serve large markets with ease with rail access. Cities exploded in size, with the rapid growth of Central Business Districts and the increased interregional migration because of the transportation network. People could not move easily from Boston to Denver or San Francisco in a couple days to take advantage of new economic opportunities for the cost of a train ticket.

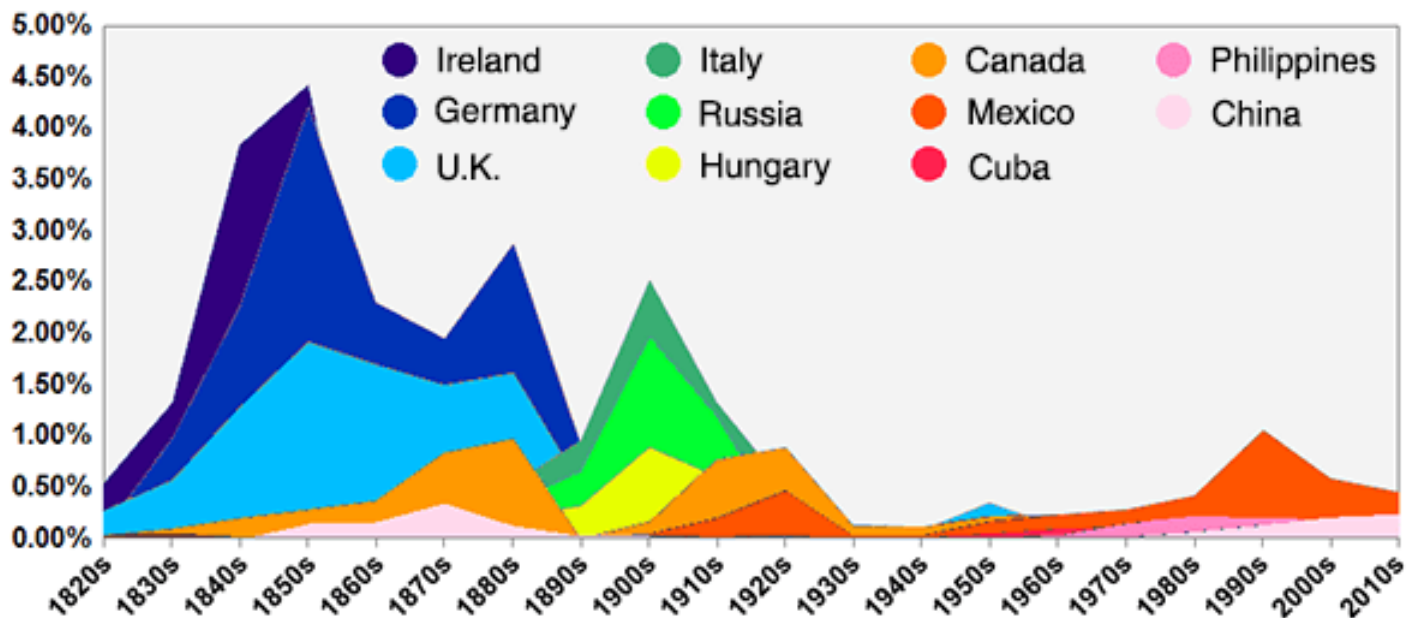
Western Europe was next to industrialize, but each State had unique challenges to overcome. First, compared to the USA, fewer people in Europe spoke English. This made mass communication and diffusion more difficult because all of the instruction manuals and blue prints were in English. Second, there was greater social divisions and economic difficulties being faced in mainland Europe. Europe was still recovering from the 20 year reign of Napoleon and fighting expensive series of wars. Few in Europe had the money available to invest in innovation, nor the political will to over turn the feudal system.



Diffusion of Industrialism

Industrialism spread in waves. The first area to industrialize in mainland Western Europe was the Ruhr Valley in modern day Germany. Having natural deposits of iron and coal, Germans worked with American and British engineers to build railroads that could connect cities near these resources. The children of the German elite were sent to British universities to learn about Business management and industrial systems; creating a wave of young entrepreneurs to fuel Germany's industrialization. Like Britain, Germany quickly felt the effects of industry, as they transitioned to being DTM Stage 2 with farm consolidation, mass urbanization, and a population explosion of 350%. This explosion, also led to a mass emigration of Germans to the USA in the mid-to-late 1800s. Soon, France followed Germany's lead, not wanting to let their rivals gain a production edge.

U.S. Immigration Flows by Country (% of U.S. Population)



The rest of Europe became integrated into the growing web of Industrialism. Gradually, the machines-based businesses and transportation were adapted, but many states were hindered by the lack of coal and iron resources needed to fully benefit from implementing industry. This created a scramble for resources within Europe and around the world. By the year 1900, hundreds of thousand of miles of railroads interconnected the rapidly growing urban centers on the European continent. Industrial goods were distributed at rapid speed by rail. Economies were transforming from being agricultural, subsistent and local to being commercial, industrial and regional/global. Like the USA, fragmented regions were deciding they would be better working together, unifying into larger political states. By 1870, both Germany and Italy unified their territories to become nation states driven by their new economic progress; the Rhine-Ruhr region of Germany and the Lombardy region of Northern Italy. The increased stability of Europe's political institutions gave states the needed government systems to subsidize and support their industrial sectors, leading to economic booms across Europe. The industrial powers entered the 1900s with strong economies that had an unquenchable thirst for energy resources and industrial materials needed to keep their factories humming, along with new markets to purchase their goods to keep the profits growing.

Industry revolutionized the social structures of Europe. The mid-1800s witnessed the abolition of slavery and feudal systems. Millions of serfs and slaves flocked to the cities in search of economic opportunities. A new social organization grew around market capitalism - organizing around a person's place in the business world: owners/financiers, management, and workers. Only in this system, people could move up in an organization and change their status OR become an entrepreneur, creating their own fortune off of their innovations and hard work. Stock markets expanded and rapidly interconnecting the world financially. The economic fortunes of one state was now interdependent on the economic success of another state. These actions led European societies to moved from DTM Stage 1 to Stage 2, resulting in massive population explosions - especially in the lower classes. When the USA made the global invitation with Lady Liberty to

"Give me your tired, your poor, Your huddled masses yearning to breathe free, The wretched refuse of your teeming shore. Send these, the homeless, tempest-tost to me, I lift my lamp beside the golden door!"

The governments of Europe were happy to oblige, helping organize transport for millions of migrants to the USA.



As the Europeans expanded their control of Asia and Africa, Japan was the first to fully acculturate to the industrial culture. Japan saw what the control the British were establishing in the rest of Asia, including China, and decided: either begin industrializing or become conquered. Using Britain as a model, Japan rapidly overthrew their feudal system and fully acculturated to British policies. Japanese students were sent to British and American universities. British engineers were hired to help build Japanese infrastructure. Traditional Japanese culture and customs were abandoned for British and American cultural traits. This also included the British lust for land, sparking Japanese imperialism into Asia. Within 20 years, Japan was the only industrialized and imperializing force in Asia. Asian states sent their resources to Japan, with the Japanese companies selling finished goods back to them. However, stage 2 Japan had an exploding urbanized population, but unlike the USA, Japan's fragmented islands and mountainous terrain had a limited carrying capacity. The rapid population growth immediately strained Japan's resources, accelerating their plans to expand an empire into the rest of Asia - especially resource rich China.

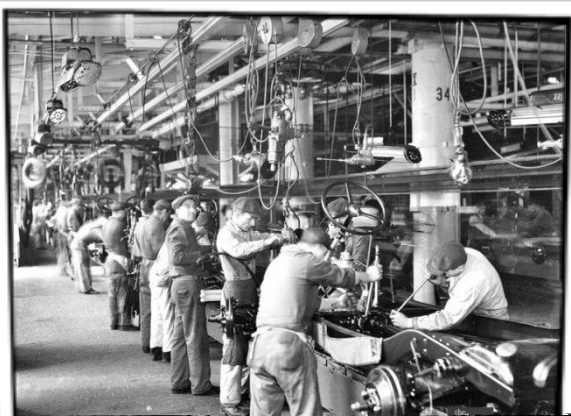


Japan: Before & After

By 1920, the industrialized world was in an era of great change and innovation. The original industrial economies, were producing heavier machinery and more complex products: cars, trains, airplanes, telephones, electricity, radio, electric light, photographic tools, audio and video recording devices, pharmaceuticals... The list of innovations is seemingly endless. These revolutions radically alter daily culture of how people lived. This wave of innovation was driven by entrepreneurial opportunities, with rags-to-riches stories like Carnegie, Rockefeller, Vanderbilt, JP Morgan, Ford, Wright, Duke and Bell.

A driving force to this innovation was the Ford assembly like production model. Henry Ford had transformed production with the assembly line - a process of placing workers in a line, giving each worker one specialized job to perform. Everyone mastered one skill and repeated it all day. The workers became hyper-efficient at that one task, allowing the whole machine to be assembled faster. It also allowed corporations to pay workers less, because they did not need to be as skilled to complete their job. This model of mass production supported

vertical integration, placing as many components of the manufacturing and assembling process at one factory site as possible (or as was affordable). This highly structured and efficient model maximized the economies of scale. Soon products like cars were being mass produced at an incredibly low price. This opened up the ability for middle-to-lower classes to own more consumer goods. The mass production also opened up the ability to sell more products on the global market. This model was diffused and enhanced through the fighting of two world wars; which honed businesses abilities to rapidly innovate, produce, and distribute products around the world.

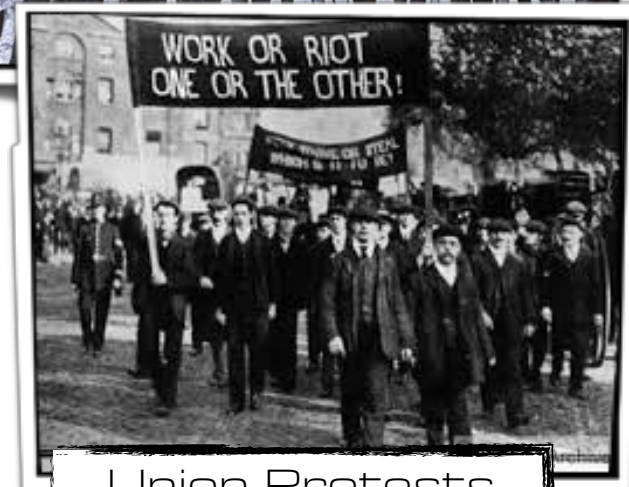


Ford Assembly Line

While Industrialism revolutionized societies, it was not without negative consequences. Working conditions in the 1800s were abysmal. Factory conditions were dangerous and the hours were long. There were no work safety laws or regulations. Children as young as five years old were expected to work for 12 to 18 hours with high speed machinery, for less than a \$1 per day. When people got hurt on the job, they were fired because they could no longer work. Children would lose fingers, hands, feet, or arms in the machines - before being abandoned to the streets. The high birthrate and decreasing infant mortality rate led to oversized families. Many children were left to the streets, abandoned and orphaned. The tenement housing apartments near the factories were poorly constructed because there were no safety building codes. Stories of collapsing buildings and destructive fires trapping and killing families were common. The high density of people in the urban centers at first was not supported by adequate infrastructure, clean water or sanitation/ sewers. This resulted in feces from open sewers mixing in with the drinking water for millions of people living in slums. Slums became plagued with outbreaks of diseases like Cholera, measles, scarlet fever, and polio. While the poor were living squalor, the new middle class and business owners were becoming multi-millionaires. Charles Dickens famously depicted these conditions in his many books, but most specifically in, "The Christmas Carol" - juxtapositioning the rags-to-riches Ebenezer Scrooge against his employer Bob Cratchit and a society living in squalor.



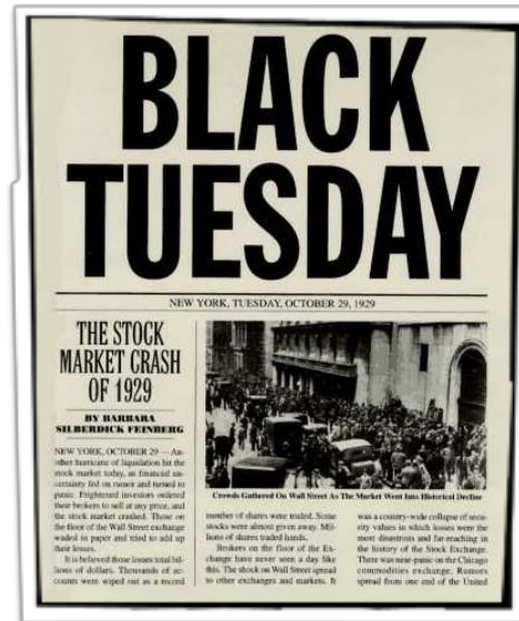
Child Labor & Poverty



Union Protests

Out of this abyss was birthed the labor and socialism movements. The workers came to realize in the mid-to-late 1800s that one worker was meaningless and powerless in the system. But, if ALL the workers united together, they were powerful. If one person didn't show up to work, nothing changed. If ALL the workers didn't show up, the factory closed down and the owner's profits were impacted. Thus, the labor unions were born - workers uniting for a common purpose. If the employers did not meet the Labor Unions demands, the workers would go on strike, stop working, and totally shut down the factory. The business owners were not pleased by this, hiring brute squads to violently end the strikes. There were repeated clashes between the unions and the owners. The government eventually intervened, working out negotiated terms between the businesses, the workers and the government. Out of these compromises was birth Socialism - a system where the government plays a larger role in the affairs of business for the benefits of the workers. In Europe and the USA, new laws were passed: minimum wage, child labor laws, maximum working hours (mandating overtime pay for work over 40 hours), building safety codes, and safety regulations on working conditions. New safety net government services were put into place to support working people: government provided health care, mandatory public K-12 education, school lunch programs, unemployment benefits, and food stamp/welfare programs.

Another consequence was the further integration and interdependence of societies within the global economy. States and banks provided loans to other states. Business and investors bought stocks on foreign stock exchanges; using mass communication tools to grow money in other industrial economies. While the movement and flow of capital across state boundaries brought immense wealth and opportunity to successful businesses, it also setup one of the greatest global economic catastrophes in history: the Great Depression. On Black Tuesday in 1929, the stock markets in New York collapsed. A few stock brokers had found ways of manipulating the market to make themselves more money. The stock brokers pretended (lied) that certain companies were being more successful and profitable than they were in reality. As a result, the lies generated more demand for stocks, causing the value and price of the stock to increase. The more investors bought stock in these companies, the higher the value of the stock. This created a bubble - a gap between the current price of a product and the actual real-world value of the product. In 1929, those investors who had been playing and manipulating the market sold their shares, making hundreds of millions of dollars in profit. The rest of the investors woke up to the reality that the bubble had been burst - they had been played, and the stocks were basically worthless and they had lost millions of dollars. This set off a chain reaction, crashing the American Stock Market and Banking system. Since many foreign businesses and governments had invested in the American Stock Market, the crashed the economies and businesses around the world. It would take the world over a decade to recover from this cataclysmic crisis.

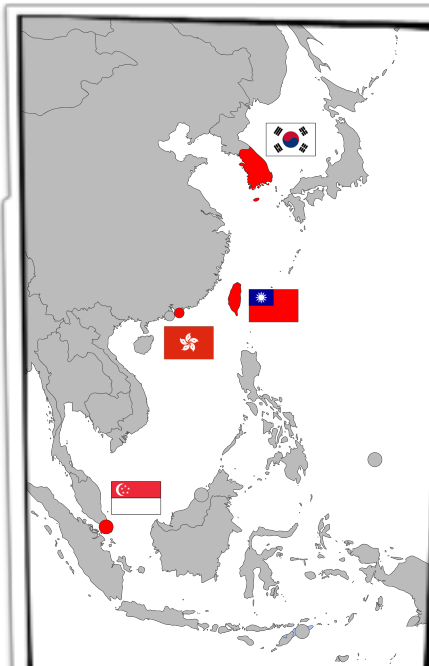


Cold War & the NIC. In the 1950s, the world was pulled between two superpowers: the USA and USSR - Capitalism vs Communism. Since the atrocities of the American-made Great Depression, many saw Communism as the inevitable wave of the future, where the government controlled all production and aspects of society. Communist states saw it as their duty to end capitalism by spreading communism around the world. The USA as this as a direct threat to their desire to create new markets in the post-war world and spread market capitalism around the world. Thus, the USA's number one priority was to contain and stop the spread of communism. The USA believed the best way to stop communism was through consumerism and choice. The USA spent billions of dollars on FDI, restructuring Western Europe and Japan: rebuilding factories,

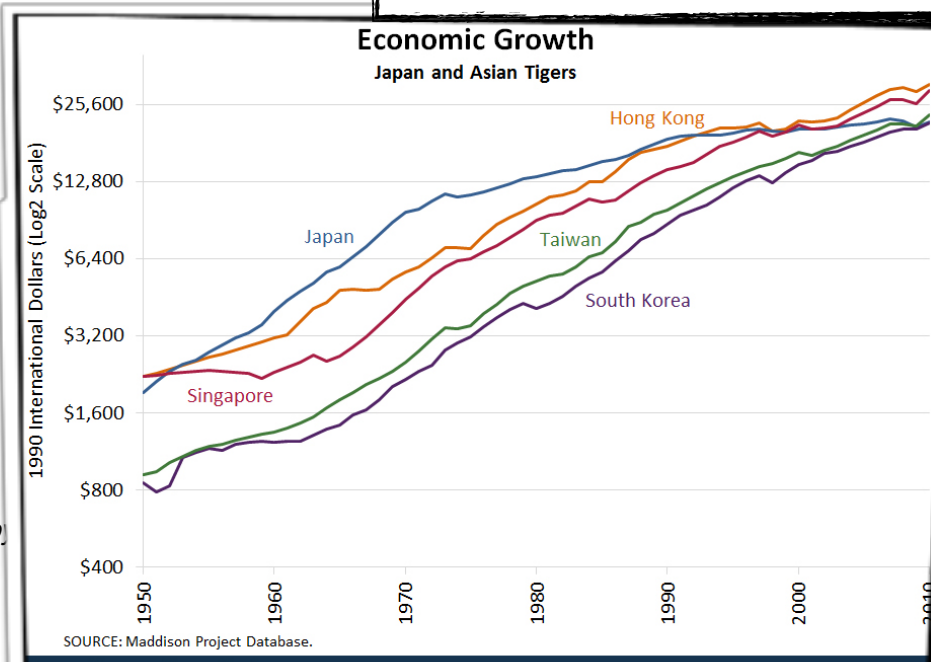
public buildings, houses, and other vital infrastructure to get the industrialized societies "back on their feet" and tasting the sweet life of high mass consumption. The USA did this through low interest development loans and trade agreements that allowed the countries to purchase cheap American goods. This was a win for the USA economy by creating market demand for US goods, while also stopping Communism's spread to these regions. By the 1980s, Western Europe and Japan had highly functional economies that were again leading the world economically with world-class production facilities.

After WWII, the Europeans decolonized, as they could no longer afford such massive empires. The now-independent states were left with a crisis: the inability to produce goods for their own economy. For close to a century, their raw materials had been shipped to Europe and America to be manufactured. Africa and Asia did not have the infrastructure or capacity to be able to start their own industries, as the colonist had only built enough infrastructure to harvest and export primary resources. The superimposed boundaries by the Europeans had divided up the few highways/railways that had been built, making the colonial roads useless to the new states. Meanwhile, America was making use of its economies of scale (and subsidies) to flood the global market with cheap goods that new start up industries could not compete. It was cheaper to import the American good then it was to produce it themselves. Also, the European and Japanese factories were receiving USA loans to rebuild, which allowed them to regain a strong position in the global economy.

This left the decolonized states in a desperate situation. Some of the newly formed states choose to continue their former colonial relationships: exporting cheap commodities to buy value-added finished goods. Others took out expensive loans from the IMF & World Bank (run by their former colonizers) to try to build a secondary sector. However, they often lacked the skilled workers and resources to effectively build it on their own. Plus, because of the superimposed boundaries, there was political instability and civil war for ~20 years; hindering the former colonies' ability to move forward. However, many Southeast Asian nations receive immense help from the USA in the 1970s-1980s due to their strategic position surrounding Communist China and USSR. The USA provided installments of industrial technology and low-interest loans to build their economies and keep them from becoming Communist. From this investment emerged the Four Asian Dragons/Tigers: Hong Kong, Singapore, South Korea and Taiwan. India and South Africa also uniquely benefited because of their relationship with Great Britain and their strategic positions in the fight to contain communism. Having been former British colonies, the regions already spoke English fluently, allowing easier interactions with the USA. They also had a foundation of British technologies, along with natural deposits of coal and iron within their borders that allowed them to have a smoother path towards Industrialization. Inversely, impoverished regions in South America and Africa that were not of strategic interest to the USA's global culture war, did not receive any financial or technological assistance from the USA; being left to struggle through its own attempts to develop.



Strategic Position vs. Communism

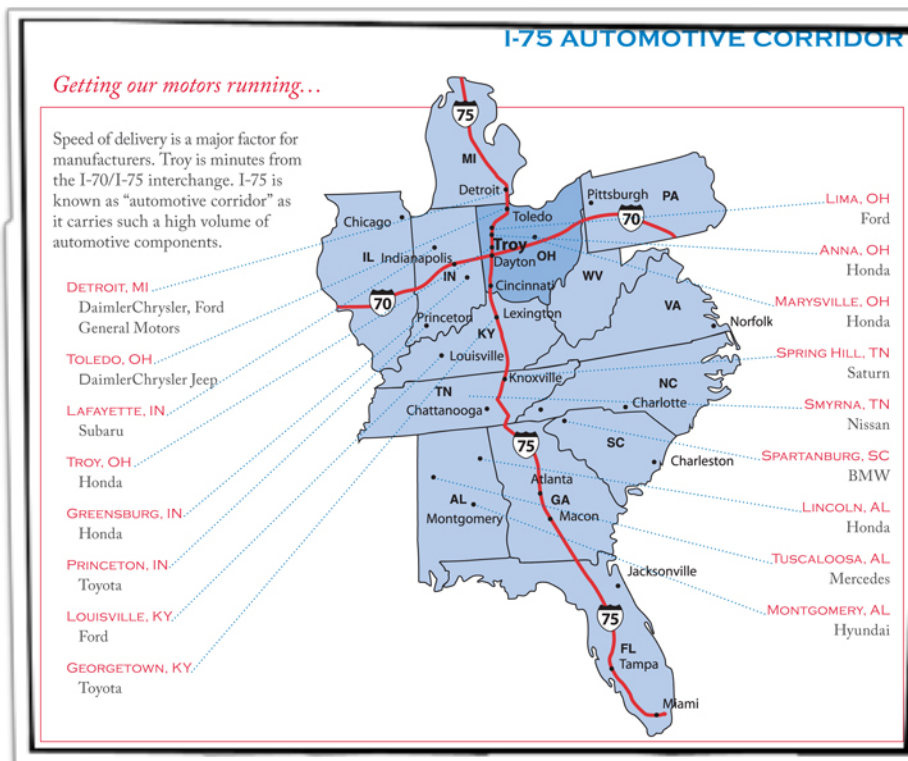


During this time, one economic equalizer emerged: oil. Because of the proliferation of cars, trucks, freight ships, and airplanes, the Core Countries became consumed with the purchase and consumption of oil. Brazil, Venezuela, Mexico, Iraq, Iran, Kuwait, UAE, and Saudi Arabia emerged as major oil producers; using their money and resources to begin to path of development towards industrialization. However, most of these economies are tied to the mining and exporting of a single commodity, which makes their economies vulnerable to the price of oil on the world market. When oil is selling at a good price, it is great for the GDP of these economies. When the price of oil drops, it spells an instant economic crisis.



The Internet Revolution and Deindustrialization. Since the 1980s, there has been a massive restructuring of how businesses organize and operate. In the 1980s, Toyota came out with a new, decentralized model of business. Instead of central, vertically integration of the supply chain for mass production, Toyota focused on disaggregating their supply chain; outsourcing the manufacturing of parts and focusing on mass customization. This led to a shift of Toyota using the New Industrialized Countries (NICs) cheap labor forces to create specialty parts and shipping them to assembly plants in their key markets controlled by Toyota. With the invention of the Internet and shipping containers, a global assembly line was created. Other companies shifted to this Global Division of Labor: allowing factories with cheap labor to specialize in different parts in different states, and then cheaply shipping them to them to bulk-gain factories located near the desired market(s). This has given birth to large multi-national companies that span across multiple state borders. Their focus has shifted from mass production to mass customization; from creating large quantities of cheap supplies to quick customization and just-in-time delivery.

Because of the Global Division of Labor, the Core Countries have been experiencing massive deindustrialization. The USA has experienced a deindustrialization of the Rust Belt. Bulk-Gain factories that are staying in the USA have moved to the Sun Belt. Toyota and Honda had setup their factories outside of the traditional “Ford Footprint” of Michigan, Ohio, Indiana. Instead they located the bulk-gain factories in Alabama, Mississippi, South Carolina, and Tennessee for their cheaper land and the Right-to-Work (Union Free) Status. From Toyota’s perspective, Alabama and Mississippi are a lot closer to the major US markets than Tokyo, while being able to take advantage of the lower land, labor, tax and utilities. With the robust network of highways and railways, the factories were still able to get their final products to market quickly because of the economies of scale achieved in transportation. As a result, factories in the Rust Belt have struggled to stay in business. Many Detroit-based factories have moved down to the Sun Belt or down to Mexico. Others laid off workers because of improvements in automation, resulting in less workers and less factories being needed at all.



Non-automotive industries have also been participating in “Race to the Bottom,” leaving the Rust belt because the cost of employment is too great, the government restrictions are too tight, or the price of their foreign competition is too low. For example, textiles have gone off shore to places like China, Vietnam and Indonesia, to take advantage of the low land costs, cheap labor, low taxes, and limited government regulation. Companies are also recognizing that Asia has a massive population that, once developed, will make an extremely profitable market. Their cost of production is so low cost now, no company in the USA can compete. The same trend has happened with the production of technology. China has become the world leader in computer production. This has happened from companies rushing to join China’s SEZ’s and from China hacking into multinational businesses to steal their designs and then out produce them on the global market.

As a result of this economic restructuring in the Core regions, there has been a rise of tertiary and quaternary sector jobs. This sector has a unique split between very high and very low skill jobs. The high skill jobs are focused on technology and innovation, requiring extensive knowledge about highly technical topics that are rapidly changing; most often a college degree or specialty certification. The low skill jobs pay a minimum wage to work at a cash register, stock a shelf, or change bed sheets. The medium-middle class wage jobs have been replaced by low paying work OR by jobs that require a higher degree/certification. This has left workers trapped. Many are trapped in communities that were reliant on one factory that has now shut down and nothing has come in to replace it. The families own a house that no one wants to buy, or no one wants to buy it for the amount it had been worth 20 years ago. Those who had a mortgage filed for bankruptcy or left the house vacant. Others are trapped because the new jobs in their area either do not pay a livable wage OR require years of schooling/retraining.

The growth in high-skilled tertiary sector jobs are in regions known as technopoles. Technopoles are areas with an agglomeration of quaternary sector work. Technopoles develop in areas with a large number of universities, resulting in a large population of highly educated workers that focus on advanced innovations. The major regions that are experience this growth are Silicon Valley in California (by San Fransisco), Research Triangle Park in Raleigh, MIT in Boston, Seattle, and New York City. These areas are focused on the strength of the core: rapid advancement and innovation. These companies research advanced technologies like biotech, pharmaceuticals, medical research, automation and space travel.

The increased interconnectivity of the world is unmistakable. The world is more integrated now than at any other point in human history. While there have been many benefits and advancements because of mass globalization, 2008 gave a strong reminder of the dangers. In the 1990s and early 2000s, houses in the USA began to be sold for more than they were truly worth. This movement was backed by mortgage companies who were giving loans to people who could not afford them, along with other risky behaviors in the financial sector. Just like 1929, in 2008 the housing bubble burst, causing a massive financial crash. While the crash started in the USA, hundreds of billions of dollars was lost instantly around the world, crashing the global economy. In 2015, the world finally emerged from the financial rubble.

