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A Comparative Exploration of Factors Driving, Great Britain's Industrial Revolution

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Abstract:

The Industrial Revolution is perhaps the main occasion in mankind's history, first began in Great Britain in the 18th century and later on it changed the fundamentals of the way societies functioned and economies operated. In the centuries that followed, it led to the creation of the factor system and the mass production of goods which continues to be important to this day. This research paper will shed light on various factors. Driving Great Britain, the industrial revolution through a comparative lens. The Industrial Revolution first occurred in Britain due to changes in farming practices, abundant natural resources, vast transportation, networks, economic freedom, and positive political, climate and technological innovations. Great Britain experienced industrialisation, majorly in two phases. The first phase was majorly the agriculture, revolution, transport revolution and textile revolution. The second phase was about the spread of the Industrial Revolution to the rest of the world. Britain's industrial revolution was a multifaceted event driven by the convergence of numerous factors. The most important pillar of IR(Industrial Revolution) was technological innovation. Great Britain witnessed a wave of inventions and technological advancement that revolutionised the British economy. Furthermore, social transformations played a pivotal role in IR. Britain's extensive colonial empire, providing raw materials, markets and a stable financial system were advantages for IR. Britain had great advantages when It came to geopolitical factors, its naval supremacy, and its ability to establish trade routes, played an important role in the IR. Overall combination of factors caused, Britain to be the first country to industrialise.

Keywords: Industrial revolution, Great Britain technological innovations, liberalisation, social transformation, networking, trade, globalisation

1.1 INTRODUCTION:

The Industrial Revolution is perhaps the main occasion in mankind's history, first began in Great Britain in the 18th century and later on it changed the fundamentals of the way societies

functioned and economies operated. In the centuries that followed, it led to the creation of the factor system and the mass production of goods which continues to be important to this day. This research paper will shed light on various factors. Driving Great Britain, the industrial revolution through a comparative lens. The Industrial Revolution first occurred in Britain due to changes in farming practices, abundant natural resources, vast transportation, networks, economic freedom, and positive political, climate and technological innovations. Great Britain experienced industrialisation, majorly in two phases. The first phase was majorly the agriculture, revolution, transport revolution and textile revolution. The second phase was about the spread of the Industrial Revolution to the rest of the world. Britain's industrial revolution was a multifaceted event driven by the convergence of numerous factors. The most important pillar of IR(Industrial Revolution) was technological innovation. Great Britain witnessed a wave of inventions and technological advancement that revolutionised the British economy. Furthermore, social transformations played a pivotal role in IR. Britain's extensive colonial empire, providing raw materials, markets and a stable financial system were advantages for IR. Britain had great advantages when It came to geopolitical factors, its naval supremacy, and its ability to establish trade routes, played an important role in the IR. Overall combination of factors caused, Britain to be the first country to industrialise.

1.2 PURPOSE OF THE STUDY:

The reason for this research is to analyze and compare various factors that draw the industrial revolution in Great Britain. By examining economic, social, political, technological, and cultural aspects to understand what led to this transformation. This research would shed light on pivotal factors specific to Great Britain that distinguish it from industrialization across the world.

1.3 OBJECTIVES OF THE RESEARCH:

The objective of the study for this research is to analyze key economic, social, and technological factors that contributed to the acceleration of IR. Investigating political institutions and policies. Examining the role of natural resources, including coal, iron, and waterways. Analyzing the impact of scientific advancements in the process of revolution. Comparing Britain's industrialization with that of other countries, identifying the differences that led to faster growth of IR in Britain.

2. HISTORICAL CONTEXT: PRE-INDUSTRIAL BRITAIN:

Industrialization in Britain started around the 1700s before which Britain was a completely different place from the one that's seen today. Industrialization brought many transformations which were not seen before IR such as roads, trains, and many other forms of networks. Before the IR, communication was very hard between the two nations. Communication was generally done by travelers or through messengers and the business was majorly done in the locality. Commuting was very hard before the IR but in the 20th century, it had changed drastically. As it was so hard to move around, people had to rely upon themselves for food, clothes, and other commodities. People majorly

had farming as an occupation. By the 18th century, people were reliant on each other for necessary goods. Education was majorly for the rich as there were very few schools and universities. Majorly girls were also excused from education after the age of seven. People were constantly battling against famine and fair landlord discrimination at work. Poverty was a very major problem in Britain as many people could only work in the agricultural season. In Elizabeth I's reign a system was introduced to guarantee the poor for help. The Elizabethan Poor Law had been amended. Still, there was not much change in the conditions of the poor.

3. KEY FACTORS FOR THE INDUSTRIAL REVOLUTION IN GREAT BRITAIN:

- Unlimited availability of coal
- Geographical advantage
- Intellectual climate
- Political liberalization

These are the major reasons for industrialization in Britain.

3.1 UNLIMITED AVAILABILITY OF COAL:

Coal was the fuel that began the Industrial Revolution and Britain was lucky to have a restricted stock of coal that could undoubtedly be mined. Moreover, Britain enjoyed an upper hand over other European Union nations because its mines were near the seacoast. In this manner, boats could undoubtedly ship coal to most designated markets. For example, in London, the increased demand for coal led to digging, deeper and deeper and increased the risk of flooding. To exploit the mines pumping out the water was necessary. House-drawn pumps could only pump out to 90 feet limiting the amount of resources. The idea of making profits motivated the capitalists to innovate the first steam engine, which was invented by Thomas Newcomen in 1712. This discovery had the power of 20 horses and could pump out way below a thousand feet. As a result, Britain had inexhaustible quantities of cheap energy.

3.2 GEOGRAPHICAL ADVANTAGE:

Great, Britain had several graphical advantages that significantly contributed to industrialization. These geographical factors played a crucial role in shaping the fast pace of industrialization in Britain. As Britain is situated near the coastal region and is in the middle of the two big continents Asia and America, it had great advantages for various factors. There were abundant natural resources present in Great Britain. Coal and iron were particularly in abundance. Iron ore was important for constructing machinery, infrastructure, and transportation networks. These resources were near the industrial center which reduced the transportation cost and enhanced their accessibility, thereby helping the industrial growth. Britain had an extensive network of navigable, rivers and canals, which helped the transportation of raw materials, goods, and finished products. Rivers such as Thames, Mersey, and Severn helped crucial transportation arteries linking

industrial hubs with ports for exporting and importing goods and raw materials. The construction of canals such as Bridgewater, Canal Leeds and Liverpool Canal further improved connectivity and lowered transportation costs. Britain naturally had a geographical advantage of access to seaports facilitating international trade. London served as a gateway for imports and exports such as cotton from American colonies were imported and manufactured goods were exported to global markets. The location of these ports enabled efficient transportation time. Britain as an island nation enjoyed relative security from land-based invasions, allowing for stability and continuity of economic activities. Britain's proximity to other nations resulted in the exchange of ideas with neighbouring nations, fostering innovation and technological diffusion. Britain's colonial empire had given them access to vast resources and markets. At the same time, the climate also provided favourable conditions for industrial activities. A mild and stable climate supported agriculture and, a steady food supply which helped in the growth of the urban population. These geographical factors not only provided efficiency in the utilization of resources but also promoted trade, innovation, and economic growth, establishing Britain as the epicentre for industrialization in human history.

3.3 INTELLECTUAL CLIMATE:

Several key factors converge to create an environmental, right for industrialization. These factors included scientific advancement, philosophical ideas, intrapreneurial spirit, and social and political environment. In the 18th century, Britain witnessed significant advancement in science and technology, laying the groundwork for the industrial revolution. The scientific revolution of an earlier century had already given a new way of thinking, experimenting with the application of reason. In fields such as engineering, chemistry and physics Britain had made a notable contribution, providing technological progress. Great scientists like Isaac Newton, Robert Boyle and James Watt exemplified the spirit of scientific enquiry which led to further inventions. Philosophical ideas with their emphasis on rationalism, individualism, and progress, influenced the intellectual climate of the 1700s in Britain. Philosophers and economists like John Locke, Adam Smith and David Hume articulated ideas that challenged traditional authority and introduced the notion of human agency in shaping societal and economic affairs. Locke's theory of property rights and Smith's concept of the free market provided ideological support for capitalist enterprise and economic growth. Budding of the capitalist economy in Britain fostered an entrepreneurial spirit that promoted innovation and risk-taking. The mercantile class was that rise which fueled the trade, and colonial expansion and accumulated more wealth. Entrepreneurs like Richard Arkwright, who pioneered the factory system in textile manufacturing and Josiah Wedgwood, who pioneered the factory system, revolutionized pottery production, which led to Driving forward industrial progress.

3.4 POLITICAL LIBERALISATION:

Political liberalization indirectly played a significant role in shaping the conditions of

industrial growth. Political liberalization refers to the gradual expansion of political rights, and freedom and the establishment of institutions that helped and eased the political system. There was the emergence of various political developments such as the Glorious Revolution of 1688, which published sovereignty and laid the foundation for constitutional monarchy. The legal framework was established that protected property rights and ensured the rule of law was important for industrialization. Enforcement of contracts and the protection of Political liberalization in Britain conceded with the shift towards free trade policies which was notably exemplified by the repeal of corn laws of 1846. Policies helped in the reduction of trade barriers, and facilitated the flow of goods and capital, both domestically and internationally it also encouraged competition, allowing industries to innovate and capitalize. The Enclosure Act in 18 century privatized land holdings, leading to agricultural efficiencies and surplus labour. Unlike many European countries plagued by frequent wars and internal disputes, Britain experienced greater and more stable governance, enabling Britain to develop a sustainable economy and have greater industrial expansion. Political liberalization created a favourable environment which was essential for the industrial revolution to flourish and provided great freedom and incentives for growth. Therefore, liberalization played a crucial role in shaping the industrial development in the 1700s.

4. PHASE I (1750-1850) INDUSTRIAL REVOLUTION IN BRITAIN:

It first started in England, followed by the USA, Belgium, France, and other European countries there were fundamental changes along with the development of factories and rural-urban migration. The Industrial Revolution was a gradual process before this Britain experienced a commercial revolution (Moving from natural to commercial markets). The commercial revolution spread beyond a few English merchants, which compelled improvement in transportation, technological innovation, aiding, and the industrial revolution. In the first phase, three stages of revolution could be seen, agriculture, revolution, textile revolution, and transport revolution.

4.1 TEXTILE REVOLUTION:

The textile revolution was 1st to industrialize in Great Britain as Britain had already learned about textile from India and China. Furthermore, the cheap availability of raw materials from the colonized India gave Britain an absolute advantage in the global market. There was an evolution of the flying shuttle which was hand operated machine that increased the speed of weaving. In 1765, the spinning jenny was invented which was a fuel-based machine that spun eight times faster than the flying shuttle. In 1769, a water-framed-water-powered spinning machine was too large for the home. Use led to certain creation of factories in 1779. The spinning jenny was combined with water frames which led to the invention of the water-spinning mule. Water spinning was the first power mule that would automatically and quickly move the thread into cloth was invented. In 1793, cotton gin helped separate cotton from cotton seed, increasing the supply of cotton. In 1846, the speed of sewing

increased with the invention of sewing machines.

4.2 AGRICULTURAL REVOLUTION:

The agricultural methods have not changed much since ages. The tools used were outdated and therefore the agricultural production was only sufficient to sustain the needs of domestic people. With the magnetization of agriculture machines were brought to the farms. This not only enhanced agriculture output but for resulted in ruler urban migration (As labour was being increasingly replaced by machines). There people moved towards towns to acquire, better-paid jobs in the upcoming, growing factories. Simultaneously the growing population in the urban sector health higher demand. As a result, this created pressure to further, enhance agriculture output. Innovations in terms of seed, drills, crop rotation, stop, and breeding for better, quality, milk, cheese, and beef were increasingly adopted. There was an innovation of fertilizers, and the state paid much attention to research and development training and educating the farmers to use these newly upcoming methods.

4.3 TRANSPORT REVOLUTION:

Transport revolution, increase production in agriculture and industry. There was increased pressure to look for places that could act as markets as well as a source of new raw materials to link markets with factories and factories to farms. There was a huge investment in infrastructure development that happened throughout Great Britain. Before the Industrial Revolution, simple transport like cards, drawn by horses and ships powered by sails were used. These means were not only of limited scope but were extremely slow with the Industrial Revolution, trains, steamships, trolleys, and automobiles, captured Britain's economy. Initial changes were observed in 1807 with steamboats. This increases the preview of water transportation for Britain. Between 1810 to 1830, the roadways were the heart of Britain's policymaking. Several national highways, connecting urban towns with the countryside were laid down. Macadamized roads which had smooth and hard surfaces, replaced the previous dirt and gravel-filled pathways. This significantly lowered the journey, and time, and enhanced commercialization. In 1825, Britain witnessed the evolution of locomotives (the first box of train) this led to faster movement of both goods and people in 1885, with gasoline engines there was the invention of automobiles. Railways played a significant role in Great Britain's industrialization. Stephenson introduced the rocket trains between Liverpool and Manchester, which covered 40 miles in one and a half hours between 1832 and 1870 railroad tracks went from 49 miles to north of 15,000 Miles inside steel rails were supplanted by iron rails. The expansion of railways in the hands of trade where goods reach different regions easily and efficiently. In 1869, Westings House's air brakes made train travel safe. Great Britain introduced a diesel engine. In 1892, it lowered the cost of production. Finally, in 1903 airplanes were introduced which flooded industrial drive and took it to the next level.

PHASE II (1850-1960) OF THE INDUSTRIAL REVOLUTION IN GREAT BRITAIN:

The second phase of the Industrial Revolution took place between 1850 to 1960, this era witnessed the spread of IR to Germany, Japan, and Russia. In the beginning, Great Britain was the head of the Industrial Revolution and it endeavoured to boycott the commodities of its strategies and innovation of creation, yet it before long failed. In 1812 US started its process of industrialization after the War of 1812 (32 months long military conflict between the UK and the US) which was primarily due to the trade restriction imposed by the UK. After 1825, France joined the Industrial Revolution, after the French Revolution and Napoleon War. Countries like Germany, Belgium, Sweden, Poland, and Italy also witnessed the industrial revolution by 1890 countries know about the industrial revolution. Countries like Russia and Japan also joined the drive for industrial change. In the second phase, Britain had massive growth in its exports post to 1855. By 1860 exports globally rose by 7%. The export of coal rose to over 3,000,000 tones and iron and steel from 3,000,000 to over 13,000,000 tones. With an increased market for capital goods worldwide and increased pressure for capital accumulation, transactional, Railways witnessed massive investment. Industrial nations first led trucks in their own countries followed by colonies and lastly trading partners. Between 1830 to 18 56,000 miles of Railways were set up across Britain. Setting up of these railway lines, inspired investors, and big men to expand their business to extract increased profit. Railways only were responsible for doubling British iron output between 1830 to 1840s, it peaked in 1850 and accounted for 40% of the GDP.

During the second period of industrialization in Great Britain around 1850, a huge transportation revolution happened, significantly affecting worldwide exchange, monetary turn of events, and international elements. Rail routes assumed a focal part in this change, quickly extending to interface industrial focuses, ports, and farming districts. The advancement of steam trains and upgrades in railroad designing strategies sped up, limited, and proficiency, changing travel and correspondence while cultivating a financial mix. Aggressive undertakings, for example, the Berlin to Baghdad Rail route expected to associate far-off locales, mirroring the developing significance of transportation framework in molding international and financial techniques. Moreover, the finishing of the Suez Channel in 1869 gave a vital easy route to oceanic exchange between Europe and Asia, diminishing travel distances and expenses, and working with the fast extension of European provincial realms. The Panama Trench opened in 1914, and further revolutionized sea transportation by giving an easy route between the Atlantic and Pacific Seas, essentially lessening travel distances and journey times. Other transportation courses, like the Cape to Cairo Rail route imagined by English settlers, planned to interface huge domains, reflecting pilgrim desires and goals for monetary control. Also, projects like the Trans-Siberian Rail route in Russia finished in 1916, worked with the development of individuals and assets across tremendous distances, changing Russia's monetary and

international scene. These transportation courses and framework projects assumed a critical part in working with worldwide exchange, financial turn of events, and the rise of new monetary focuses and exchange designs during this groundbreaking time. 1916, worked with the development of individuals and assets across tremendous distances, changing Russia's monetary and international scene. These transportation courses and framework projects assumed a critical part in working with worldwide exchange, financial turn of events, and the rise of new monetary focuses and exchange designs during this groundbreaking time.

Over time, electricity became the prime source of power and mass production of goods in a factory system was employed. The problem of unemployment and low standards of living was largely tackled. The Industrial Revolution also witnessed key potential changes like the traditional system of land aristocracy was dissolved with a shift towards a more democratic form of governance. There was a rise in the power of the capitalist class and the role of the state increased. On the social front, the industrial revolution, airy development and growth of cities and townships, problems, around the status of women and poor standard of living and women's participation lowered. There was a positive rise in population, growth rate and leisure activities within return induced productivity to increase. Furthermore, research and development stimulated not only Great Britain but also global economies.

CONCLUSION:

In conclusion, the industrial revolution in Great Britain is one of the most transformative periods witnessed in human history, reshaping societies, and economies at a global scale. Through a comparative exploration of the factors, driving, such a fast-paced revolution in Britain, we have gained valuable insights into the multifaceted event. Primarily the introduction to the Industrial Revolution highlighted the significance and outlined various phases of industrialization in Britain. We identified the key factors such as technological innovations, social transformation economic conditions and geographical advantages that contributed to Britain's industrialization. Later, we drilled into the historical context of preindustrial, Britain discussing the social and economic conditions that set the need for industrialization. Further, in Chapter 3, we discussed the key reasons like the unlimited availability of coal and geographical advantages which provided fuel to industrial growth and promoted innovation, entrepreneurship, and economic expansion. In Chapter 4, we shed light on phase 1 of the Industrial Revolution, highlighting the pivotal role of the textile Revolution, agriculture, vision, and transport revolution. This advancement transformed efficiency and productivity and revolutionized transportation, laying the groundwork for Britain's industrial dominance. Later, examined phase 2 of the Industrial Revolution, during which Britain, industrial power spread globally. Significant impact of railways, canals and maritime routes on global trade and economies could be witnessed. In conclusion, the industrial revolution in Great Britain was a

complex and multifaceted phenomenon that shaped the economic, social, technological, and political factors, leading to today's United Kingdom. By analyzing these factors through a comparative lens, we can deeply understand Britain's industrial aristocracy and its lasting impact on today's world. The legacy of the Industrial Revolution ensures mass production, urbanization, technological innovation, and global trade, showing significance in shaping the course of human history.

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