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# A Study on the Effects of the Computer Revolution in India

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***Abstract***

*There are several effects that the computer revolution has had on India, including the following: the software business has emerged as one of the most rapidly expanding in the economy, contributing to the overall expansion of the economy. The government can inform the public about its policies and work through the infrastructure of mobile telephony and information and communication technology. Online shopping is a big business today. Distribution by digital means is diversified. For example, the distribution of cylinders of LPG is now also done digitally. People have improved access to information, which is a positive development. The purpose of this paper is to demonstrate how the computer revolution in India has been a significant driving factor behind the transformation of the economy, the growth of technology, and the advancement of society. Beginning in the latter half of the 20th century, it brought about a transformation in various industries, most notably through the expansion of the information technology (IT) and software services sector. Almost immediately, India emerged as a worldwide outsourcing hub, which resulted in an increase in employment, a draw for foreign investment, and a contribution to the expansion of the gross domestic product (GDP). Several important government programs, such as Digital India, have resulted in the expansion of digital infrastructure, which has led to the promotion of widespread access to the internet and digital services in both urban and rural spaces. As a result, industries such as education, healthcare, banking, and government have been completely transformed as a result of the introduction of e-governance, digital payments, and online platforms, which have fostered efficiency and transparency simultaneously. India is now able to take the lead in industries such as software development, data analytics, and emerging technologies such as artificial intelligence (AI) as a result of the surge in digital literacy, which has led to a highly competent workforce. However, despite the widespread availability of digital technology, there are still obstacles to overcome. These include the digital divide, which is particularly prevalent in rural regions; cybersecurity dangers; and the requirement for additional skill sets in a labor market that is becoming increasingly automated. The overall conclusion of the study is that India is a significant player in the global digital economy, which is driving innovation and modernization. However, the report also presents obstacles to growth that are both inclusive and secure.*

**Keywords:** Computer revolution, India, Information Technology (IT), Digital India, digital infrastructure, economic transformation, digital literacy, e-governance, outsourcing, software services, digital divide, cybersecurity, fintech, artificial intelligence (AI), and workforce development

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## INTRODUCTION

Currently, the utilization of computers has practically reached a point where it is required in virtually every industry. Within the realm of education, this has also brought about a change. The high cost of developing and purchasing computers as well as the necessity to increase their utilization, particularly in larger businesses, was the impetus for the beginning of the computer revolution. India's rise to the forefront of modern technology in

 

the developed world began with the advent of the computer revolution. An increase in the utilization of computer-based technologies has been consistently observed in the Indian industry. It is not accurate to say that the expansion of computer facilities was restricted to a select few businesses; rather, it was encompassing. The use of computers in the chemical processing industry, refineries, iron and steel business, and pharmaceutical industry saw improvements in their utilization. Fabrication mills, fertilizer factories, cement factories, engineering units, metal-cutting shops, and tool manufacturing establishments were all included in this category.

TIFRAC's software was written entirely in machine code, which consisted of a series of commands consisting of 0s and 1s. The first digital computer in India was a British-built HEC 2M computer that was imported and installed at the Indian Statistical Institute in Kolkata in 1955. This machine was the first digital computer in India.

A significant number of people rely on personal computers, sometimes known as PCs, for a variety of purposes, including work, school, and enjoyment. Desktop computers, laptops, and tablets are all included in this category. In particular, laptops have become increasingly widespread in India over the past few years, and their presence in homes and companies has increased. The adaptability and portability of laptops, in addition to the fact that they were just as powerful as desktop computers, contributed to the rise in the popularity of laptops. Because of this, India is considered one of the most significant markets for the technological hardware sector [1].

Although they possess a tremendous amount of computer capacity, the situation in agricultural and small-scale industries is disheartening. Agriculture is a computer-based industry. A massive store of information and a possible buyer of information are potential consumers. Another cause for concern was the fact that small- and medium-sized businesses did not demonstrate the same level of potential as large-scale businesses. To gain a better understanding of this, it is necessary to take a more in-depth look at the strengths and limitations of various industries and contemplate how fiscal policies have either positively or negatively reinforced these industries.

According to Ashraf (2013) [2], his study covers infrastructure, human resources, telecommunications, and research and development in the field of information technology (IT) within the framework of India. Additionally, he highlights the function of information and IT in their respective contexts. In addition to documenting the spread of IT in India and its use in a variety of disciplines, it highlights the characteristics of the liberalization of the Indian government's software policy in 1986. These characteristics include developments in networking and the expansion of the IT business in the country. This article offers a comprehensive analysis of the socio-human elements of IT, specifically focusing on its impact on the socioeconomic conditions of individuals, particularly those living in rural areas. This study discusses the limitations of the Indian digital revolution in terms of reaching out to the general population as well as the different variables that are responsible for the uneven nature of the information revolution.

According to Pattnaik (2013) [3] the purpose of this study is to attempt to express some of the socio-cultural implications that have been brought about by the revolution in information and communication technology (ICT) that has been brought about by globalization in India from a sociological perspective. After developing an understanding of the phenomenon within the context of social stratification, this study attempts to address the following: (1) the rise of a new class of capitalists and a new class of elite workforce that has come to be known as ICT and knowledge workers (along with its subculture). (2) In addition, this study attempts to conduct a sociological analysis of the phenomena of increasing class awareness among knowledge workers. This particular phenomenon is analyzed in terms of being class in itself or class for itself, as the workers have demonstrated conscious resistance to unionizing themselves. The paper also examines the phenomenon of embourgeoisement among knowledge workers in terms of their cultural and social capital. (3) This study discusses the implications of this

 

phenomenon. Therefore, this paper is a study of India's Techno-Coolie and Cyber-Coolie, which are a new class of elite technical workers, the foundation of its identity development, and its growing subculture. This study is based on observations from firsthand sources as well as secondary sources.

## OVERVIEW OF THE COMPUTER REVOLUTION IN INDIA—A HISTORICAL PERSPECTIVE

Because IT is an abbreviation for information technology, of which there are two components, the term "IT revolution" has been utilized in the context that we are currently discussing. To begin with, technology is very new, has undergone rapid development, and has impacted a large number of people on a widespread scale. Technology is responsible for the production, processing, and dissemination of information. Revolution is a short term for the rapidity and all-encompassing nature of impact. Two images come to mind when one hears the word "computer." There is an image of a desktop personal computer, but there is also a personal computer in the form of a mainframe computers. On the one hand, there is the concept of a computer functioning separately from other systems; on the other hand, there is the concept of a computer functioning as a networked system. In India, the term "computer revolution" is commonly believed to refer to the significant alteration of society that has occurred as a result of the significant increase in power and capability, as well as the utilization of computers. One of the most important aspects of this revolution is IT. The need for accuracy and speed, as well as the emergency conditions of war, further expedited certain changes that had taken place since the 19th century. The credit for launching the revolution went to World War II, which was encouraged by the need for accuracy and speed.

Subramanian (2014) [4] states that the author examines the development of India's IT industry from both a historical and critical point of view. We examine India's efforts to advance its technological capabilities during both the pre-independence and post-independence periods of its history. All aspects of its history, including its colonial background, culture, entrepreneurial climate, educational facilities, and the spread of IT, were investigated under one umbrella. To identify the variables and then go beyond those elements to comprehend the strong historical and cultural roots that have shaped the steady evolution of the IT industry in India, this study uses historical data beginning at the turn of the twentieth century to identify the factors. According to the findings of this study, India's current position is the result of nearly eight decades of persistent efforts made by its political leaders and intelligentsia. These efforts were aided by the social, cultural, and historical factors that have driven public policy. The goal of these efforts was to construct a robust technological infrastructure and achieve self-reliance.

During our period, the information superhighway was the subject of the greatest celebration. Everyone agrees that never before has information proliferated so profusely, diminishing, as is commonly thought, the boundaries and barriers that have held people apart, though many voices have sought to distinguish between "knowledge" and "information," while others have railed at how the overwhelming surfeit of information has made some people incapable of thinking beyond trivia and the "factoid." We speak with unreflective ease of the "information revolution," and in this clichéd expression, there is the most unambiguous assertion of confidence in the benign telos of history. Some commentators, alluding to more recent developments such as "e-commerce," speak even of going "beyond the information revolution," but there is something of a consensus that the "information revolution" has been to our age what the "industrial revolution" was to the eighteenth century (Drucker). The advocates of the information superhighway have been prolific in voicing the view that cyberspace embodies immense revolutionary possibilities for creating democratic politics and enfranchising those communities that have so far existed only at the margins of the tremendous information explosion of recent years. The internet argues that its unabashed votaries create a polyphony of voices, allow the hitherto silenced to speak, 2 offer forums for dissenting views, destroy the monopoly of old elites, disperse the sources of information and knowledge, empower the dispossessed, and assist in the formation of new identities—constituted not only by obvious markers such as race, gender, and ethnicity, but also by religious and sexual preferences, linguistic affiliations, political ideologies,

 

intellectual interests, customs, shared traditions and histories, and hobbies. The 'imagined communities' that Benedict Anderson spoke of are blossoming in unprecedented ways on the Internet; the shackles that once bound the working classes appear to be broken, 150 years after Marx evoked the cry of revolution and exhorted them to take control of their own fate. We are talking about the total possibilities. Radical assaults on limits of biology, gravity, and time. The dawn of a new humanism. High-jacking technology for personal empowerment, fun, and games" (11). At a time when it seemed that boredom was the most pressing concern for the wealthy West and when the typical forms of entertainment looked to have exhausted their capacity to amuse, the internet emerged to provide people who had become jaded with a new source of enchantment. When confronted with the unrelenting demands of modernity, whether they are placed upon the family, the workplace, or social institutions, cyberspace has brought back to the West that was previously seen to be such a fundamental component of its being. Boredom, a sickness intrinsically linked to Western concepts of time, is now poised to find its newest victims in the developing world. This is particularly true in the context of the developing world. Proponents of cyberspace, who are passionate about its democratic traits, have taken the argument for cyberspace's democratic qualities to an extreme. According to futurist Alvin Toffler and his colleagues, the post-scarcity information civilization is referred to as the Third Wave of humankind. If in the First Wave civilization was predominantly agricultural, and the Second Wave ushered in the age of industrial production, so in the Third Wave "the central resource—a single phrase broadly encompassing data, information, images, symbols, culture, ideology, and values—is actionable knowledge." It is "inhabited by knowledge, including incorrect ideas, existing in electronic form." As one might expect, the perennial American language of the frontier is incurably a part of the language of cyberspace enthusiasts; thus, Toffler and his cohorts speak of the "bioelectronic frontier," which has emerged just as the American dream of the limitless, yet again contracting, frontier seemed doomed to extinction. The bioelectronic frontier indicates that the bureaucratic system, which is an essential manifestation of centralized values, is on its way out [5].

**EFFECT ON THE ECONOMY**

The revolution brought about by computers led to an increase in exports, which in turn provided employment opportunities for millions of people in both urban and rural areas. The most significant benefit was that young individuals who were educated but lacked skills and spoke English were hired for this position. In many other fields, individuals who merely had a high school diploma received more money than those with a doctoral degree. Indian companies' earnings in foreign currency markets skyrocketed to the point where they were second only to traditional sectors that spin dollars. With export revenues in billions of dollars, the states of Andhra Pradesh, Karnataka, Kerala, and Puducherry, which were traditionally considered the centers of technology, were able to reap the benefits of tremendous dividends.

Lele and Goswamin (2017) [6] state that this was the case. The Indian government and public–private partnerships are working together to develop and disseminate a bewildering number of creative, networked solutions. These solutions are collectively referred to as Digital India's efforts. The goal of this initiative is to enhance life by increasing the effectiveness of safety nets and workforce productivity. However, a number of obstacles must be overcome to transform the power of information and other technologies into a technological revolution that is beneficial to India's 156 million rural households. These obstacles include the following: (1) the provision of trustworthy, up-to-date, and location-specific message content for diverse agriculture to assist stratified households in transitioning to knowledge-intensive, productive agriculture as a business: the government, private sector, and civil society all have significant roles to play; (2) the teaching of digital literacy, which includes instructing farmers on how to select and use applications, even in areas where the digital divide does not exist; apps are presently or will soon be available in regional languages; and (3) the monitoring of actual use and its effects on users' lives through an understanding of the adoption and adaptation processes. Even though many top-down policies and institutional reforms are currently underway, these challenges require bottom-up, complementary investments in physical, human, and institutional capital, as well

 

as farmer-friendly e-platforms. Additionally, it is necessary to continue with the many top-down reforms that are currently underway, in which progress is being made, and the constraints that hold back greater success are better understood.

The fact that the transfer of technology as well as the direct and royalty payments associated with them were received in rupees was the most significant advantage that resulted from the rise of the exchange rate of rupees in relation to their value in US dollars. Foreign exchange funds were allotted to maintain other industries to supply at least 2% of the additional workforce that the computer sector had previously provided. The bulk of villagers in states that were abundant in electronic goods were able to communicate with the outside world, which resulted in a significant boost in their incomes. This was made feasible as a result of the network of computer centers and cottage businesses established in these communities. These cottage enterprises resulted from the trained revolution carried out in these areas.

**Development of the Information Technology Industry**

The software and business process management industry in India has given the country the ability to achieve global dominance and open up new opportunities to expand its global reach. Over the course of approximately 20 years, the industry was successful in exporting cutting-edge services, which resulted in India becoming one of the economies with the highest growth rate. These services have also contributed to the creation of visible millionaires, either in terms of the amount of money earned or the amount of equity held by global companies that leverage software services to expand their global reach through software services or software products. No wage advantage was the driving force behind this expansion; rather, it was an innovation. The wages of those who provide premium services are significantly higher than the average wages in the country that provides these services. Despite wage arbitrage serving as the impetus, innovation and the ability to access markets around the world were the primary drivers.

According to Barnes (2013) [7] a number of academics have expressed doubts about the contribution of the IT industry to the growth of India's economy. Some people have pointed out, as they should, that the impact of IT companies on the creation of jobs that are accessible to those with lower levels of education is limited, and that the product of the industry has a minimal impact on the livelihoods of people who come from impoverished homes and communities. As a result, there are compelling arguments against governments giving the IT industry a priority in terms of financing and industry. However, this article explains why it is improbable that the state will adopt this redistributive goal. It contends that the provision of state assistance to the IT industry has been predicated on four primary factors: India's surplus of skilled and technically qualified young workers, the preeminent role played by software services within the IT industry, the establishment of political relations between industrialists and state institutions, and the significant role that earnings from software service exports play in the stabilization of India's external position. Even the uncertainty brought about by the global financial crisis has not been able to dislodge software service exports from their important place in the framework that governs India's economic policymaking. Unless there is a significant shift in the current state of affairs, it is improbable that there will be a corresponding shift in policy settings.

After beginning with apps, we expanded our offerings to include software exports, business process management, visual effects, and animations. A market that contributes to the software industry requires the value of software-linked services from India. This demand is based on the value of global clients that are being served as well as the value of processes or systems that are being automated or the value of innovations. The data being compared for worldwide IT services are for different periods. At the value level, India is responsible for approximately 35% of the market. India can better serve not only its trillion-dollar businesses but also billion-dollar companies that can increase their worldwide competitiveness by adapting Indian services thanks to the export of these services. Indian enterprises now have an additional advantage as a result of the expansion of software: they can reach the global

 

market and target clients from around the world by establishing local branches in the regions that they are intended to serve.

**Development of Skills and the Creation of New Jobs**

It is anticipated that the majority of job creation will occur in the field of information technology-based services, which includes the design and maintenance of software, technical assistance and customer support, financial and accounting services, hospital administration, and other similar fields. In the long run, if the strategy of the welfare state is continued with zeal, jobs may be generated in the fields of education and health care to address the "new" difficulties that are brought about by non-routine, leisure-time related behavioral changes. It is well established that the most significant impact of IT on employment is likely to be an increase in income disparity. The IT industry is capital-intensive, and the data that has been collected so far has proved that it has contributed to a widening wage gap among workers. A range of workers who are highly skilled and capital-absorbing earn progressively greater earnings, in contrast to workers who require less investment in skills that are becoming increasingly obsolete. Compared to other technologies, this is a characteristic that is exclusive to IT. To meet the ever-increasing demand for services from the international market, India is producing a growing number of graduates who are fluent in English and have completed their degrees. Additionally, India is producing a large number of graduates with qualifications in fields such as business, management, administrative, and social sciences, as well as engineering disciplines that are more closely related to IT. The demand for "software engineers," a field in which India possesses a considerable level of experience, will be necessary in the short term to achieve its goal of becoming a dominant force in the field of software development around the world. It is anticipated that "software for journalism," "software for public relations and advertising," and "software for finance-related areas" software for finance-related areas will become more significant. Furthermore, it is anticipated that experts in these fields, who have a foundation in fundamental areas such as journalism, advertising, and finance, will have multiplier effects on the data industry's complex. It is anticipated that, in the distant future, there will be a demand for individuals who are capable of writing or comprehending a certain application and who can work for clients who have prior knowledge in the application area. The phrase "domain specialist" was developed specifically for this category of individuals. Their educational and training backgrounds may be distinct. What is certain, however, is that the number of careers available in the field of software development, as well as the terms and conditions of service for professionals who build data products, are the factors that determine the development of the industry. The influence of IT on the educational policies of the government and the business sector's attitude towards educational technology deserves thorough investigation to ensure India's continued success in the long run.

According to Ramasamy and Reddy (2018) [8], the Indian IT industry has proven an exceptional success story by delivering software and infrastructure services to more than 60 countries. This resulted in the industry's superior delivery of these services. In the United States alone, two-thirds of all Indian IT services are provided to businesses that are among the Fortune 500. In recent years, India has established itself as a nation that is technologically advanced and has a robust economic foundation. For several decades, Indian companies have done incredibly well and have provided their foreign partners with solutions and services of the highest quality in their efforts to transition to a green IT globalization hub. Even though it has a competitive performance and in-house talents that are recognized all over the world, the Indian IT industry has reached a point where there are no more available jobs. The purpose of this study is to analyze the key variables that significantly contribute to the situation mentioned before by engaging in conversations with prominent industry professionals.

## IMPACT ON SOCIETY

The transformation brought about by computers has significantly influenced society. The emergence of microcomputers, which are compact, programmable, and interactive, has sparked a development that

 

is significantly more far-reaching than the revolution brought about by the mainframe and minicomputers. The rapid expansion of the personal computer industry on a global scale, which was the impetus for this revolution, has been spurred by the requirements of the military sector, as well as the needs of consumers. Therefore, the tremendous and broad interest of the general public in computer technology and applications has been explained. This potential public interest is taken into consideration, primarily in the process of analyzing the contributions that computers have made and the possible supplementary benefits that they could provide. Because of the increased speed of communication and ability to manage international transactions, several thousand professionals are already collaborating with customers from other countries. There are options to gain access to the scientific and technical data located in the developed world, which accounts for more than 80% of the total. The programs and services that are currently being developed will contribute to the enhancement of the productive life span of individuals who are impaired, as well as to the enhancement of general educational levels and adult education. The objective of the computer professional is to design, create, and provide support for systems that will contribute with the greatest possible efficiency to the objectives and advantages desired by the individuals who participate in the programs. Literacy in relation to expertise in computer use will become a standard operating procedure. The expansion of microcomputer facilities provides access to a wide range of technology and infrastructure that, if mismanaged or utilized incorrectly, has the potential to improve people's lives but also weaken our nation. A significant number of tasks that were formerly carried out by highly educated professionals are now being carried out by means of computers, which results in the user and supplier saving a significant amount of time. Software that will be used for the complete prospective program range must be built by a group of knowledgeable individuals who are professionals in a variety of industries. Among them, computer programs for prescriptive services for personal applications are one of the ones that have been available in rapidly growing precision and capability. The advent of the information age has made it possible for users located in distant locations to transmit the necessary data and receive results through mail. This is especially true in situations where the computations involved are so repetitive that they allow for the development of package programs that free valuable computer programs.

In their article from 2000, Rai and Lal [9] expressed the opinion that the most recent advancements in computer and communication technologies have brought about a revolution in society. However, at the same time, these technologies make a large contribution to the spectacular development of the national gross domestic product (GDP); they are simultaneously increasing the proportion of their contribution in relation to other sectors, such as agriculture and industry. As the GDP increases, the standard of living also increases. Scholars and institutions have developed several indicators to measure the degree to which a nation has advanced along the technology curve. These indicators offer a glimpse into how technological infrastructure, skills, and experience contribute to a nation's economic growth and development. For this article, these indicators are first examined and then applied to India in comparison to other economies that have low, moderate, and high incomes. According to the findings of the investigation, we conclude that the growth of an information society is dependent, to a significant degree, on changes in other socioeconomic sectors such as education, telecommunication, and the media. The development of these areas in India lags far behind that of other countries, particularly in comparison to India. Accelerating the development of other industries is also necessary to enhance GDP growth through the use of IT. The accomplishments that India has made up for this point in a variety of fields that are an essential component of the information revolution are discussed in this article.

**Access to Educational and Informational Resources**

People have been exposed to worlds that they would never have been able to experience before, and the prospect of global discourse has expanded as a result of the change brought about by it. The computer revolution has made it much simpler to acquire information. It is often possible for students who are sick of reading musty old books to get the same material online. Many people can only fantasize about art galleries or museums. However, the information society provides children with access to high-quality photos of beautiful pieces of art that they may view from the comfort of their own homes or

 

schools. They can experience the beautiful sounds of world-famous orchestras and go to well-known locations. All of this is made feasible using a computer. There is even more to this issue, however. After making contact with the source, children have the opportunity to join groups that create even more engaging experiences throughout their stay.

Because of this, not only is knowledge accessible to students but also to other people, for that matter that is. New approaches to learning and studying are being developed. In industrialized nations, where the use of computers is more widespread, knowledge is more readily available, and in some instances, more individuals can afford to pursue high school or college education. Within a short period, the recursive consequences of a society that is better educated might become exaggerated. A growing number of students are enrolling in higher education in India, which contributes to the expansion of the role of computer technology in the educational system. The University Grants Commission has already made an effort to establish measures that would give precedence to state universities and colleges to ensure that they make the most of the information and library networks available to institutions. This universal database is intended to facilitate the utilization of technology in academic settings at a reasonable cost.

According to a study conducted by Kumar and Basavaraja (2016) [10]. The majority of the students believed that the primary reasons for not utilizing computers were a lack of support from teachers (91.57% of male students and 94.25% of female students), as well as the absence of computers at both their homes and schools (82.10% of male students and 80.55% of female students). The fact that 93.68% of male students and 95.37% of female students were interested in utilizing a computer was a significant finding that emerged from the research. The majority of students opined that government agencies at the state and local levels ought to create computer laboratories and provide internet facilities in rural schools.

**The Digital Divide**

We are concerned that these developing nations, for the most part, began from a much lower base than the original industrial nations. As a result, they have an incentive to invest more aggressively in new technologies than the industrial nations that are currently in existence if they hope to grow rapidly enough to catch up to the industrial nations. For this reason, it appears to be vital to not only consider the problem of access as being answered by incorporating universal phone access into the infrastructure but also to construct a new global broadband networking infrastructure with the specific purpose of achieving universal high-speed connectivity. Today, approximately 1% of internet access is in the "third world," and the majority of these accesses are in a relatively small number of countries.

There has been an increasing desire in many industrial nations to provide at least some minimum degree of internet connection for all people in their communities, which has led to the coining of the term "digital divide" in recent times. This word was used to characterize discrepancies in connectivity, service offerings, and abilities within specific nations. In Asia, there is an additional concern to ensure that all geographical regions and individual nations have access to infrastructure that is sufficient to enable them to fully participate in global e-commerce. Additionally, there is a need to educate and train technologically savvy workers who possess the skills necessary to participate in that enterprise. However, even though separating discussions to encompass these new concerns is important and provides focus, such discussions can sometimes lead to an implicit acceptance that there will always be some developing nations or regions, and that further achievement is then primarily a matter of prudent policy implementation.

In his article from 2010, Singh [11] states that "Information and Communication Technology (ICT) is one of the important driving forces for modern civilization." In every sector of human endeavors around the globe, the rapid development and dissemination of ICTs have increased the pace of economic and social change, and this trend is expected to continue at a rapid pace. In addition to lowering the costs of coordination, communication, and information processing, ICT makes it possible to engage in

 

interactive communication that is not constrained by factors such as location, volume, medium, or time. The use of ICTs holds great promise for the global elimination of poverty and development. In many instances, economically disadvantaged people have benefited from improvements such as increased income, improved healthcare, enhanced education and training, access to job opportunities, engagement with government services, contacts with family and friends, opportunities for enterprise development, and increased agricultural productivity. In addition to fostering confidence among stakeholders in the development process and system, the issue of transparency can be easily managed with the help of ICT. This could lead to financial savings. ICTs have brought about a significant shift in the way businesses are conducted. Through the use of the internet and the business technology that it enables, such as e-commerce, vast business opportunities have become available, and the entire business world has been converted into a global village. In addition, it is anticipated that ICT will play a significant role in the process of socioeconomic development, as well as alter the pattern of people's economic models and lifestyles. However, the ability to acquire and implement these technologies is a significant factor in determining the extent to which their prospective benefits may be exploited. The degree to which an economy has adopted ICT is a measure of its capacity to take advantage of the economic opportunities afforded by the new technologies; more generally, it is an indication of the economy's prospects for making the transition to the "new economy." However, as expected, the adoption of ICT varies significantly from country to country.

## VARIOUS POLICIES AND INITIATIVES OF THE GOVERNMENT

The "National Strategy for AI" for India needs to be improved to provide comprehensive inputs for the formulation of policy regarding artificial intelligence, according to a study conducted by Chatterjee (2020) [12]. Additionally, this study suggests that the focus should be placed on issues pertaining to governance as well as concerns regarding privacy and security.

The Government of India is fully aware that IT and services enabled by IT have made major contributions to the increase in productivity and efficiency and that these sectors currently contribute roughly 8% of the national GDP. All these contributions have been made. When the linked fields of IT are taken into consideration, the number of jobs rises to more than twice that previously mentioned. It has been acknowledged that the knowledge-intensive IT industry is responsible for more than 2 million direct jobs and nearly 8 million indirect jobs. Many years ago, the government provided a number of concessions and incentives to encourage the expansion of the IT industry. In the following paragraphs, we discuss some of the most significant policy efforts implemented. August in the year 1955, the Indian Statistical Institute established the very first computer in India, which is when the term "computer" was first used in India.

The Government of India decided to implement the use of computers in the planning process. In 1967, the Planning Commission established a new commission that was named CSCC, which stands for Central Statistical and Computer Cell. Another entity, which was established in 1972 and was given the name DPD (Department of Programme Implementation and Statistics of the Planning Commission), was established with computers. The major surge in computer use, on the other hand, did not occur until after 1984 when e-commerce was declared legal in India. This was made possible by a move initiated by the Ministry of Commerce and Industry at the beginning of 1984. Following the passage of this Act, financial institutions ranging from the Western coast of the Arabian Sea to the eastern coast of the Bay of Bengal, as well as from Jammu to Kanyakumari in South India, began installing imported computer equipment. As a result, the number of computers in India has increased to the point where they are now present in every region of the nation. Currently, computers have assisted India in reducing all elements of its dependence on other countries to the extent that it may soon join developed nations with their full participation of the developed nations. This is accomplished using computers.

Additionally, it has been claimed that exports from these industries have been steadily growing, and it is predicted that they were approximately 92,000 crores in the fiscal year 2003–2004. It is anticipated

 

that they will increase to almost 1,50,000 crores in the sixth fiscal year 2006–2007. The Government of India became aware of the challenges that the industry was encountering in 2000, and as a result, it established an Information Education Regeneration Project for India. This project made several recommendations to address the issues experienced by the IT business. Over the past three years, the Department of Information Technology within the Ministry of Communications and Information Technology of the Government of India has undertaken a number of positive initiatives to provide a boost to the IT and IT-enabled services industry. As a result, by the year 2008, when all the branches and centers had finished the actions that were contemplated, there were more than 10,000 students enrolled in machine science courses. More than three thousand five hundred new academic positions will be created, and a comparable number of researchers working in the field of IT will be promoted and supported.

**The Obstacles and Prospects for the Future**

When India's computer policy was first introduced in 1983, 1984 marked the beginning of the revolution in electronic computing. In the late 1960s, when the ECIL-BEL was established, a foundation was laid for development that would later take place. Nevertheless, Indian officials were aware of the significance of computers a great deal earlier than they are today. The recognition that the correct development of computers was vital for acquiring access to contemporary technology led India to undertake various measures towards self-reliance, mostly in hardware. These actions were undertaken to gain access to modern technology. The number of ports has risen significantly.

India has the potential to have a significantly greater proportion of global software business if it is provided with adequate planning, funding, and legislation. With a relatively modest level of technological expertise, India has already shown that it is possible to do a great deal when it comes to supplying software services to industrialized countries. India's achievements are a perfect example of a country's potential for increased growth and development. On the other hand, to accomplish this goal, we will need to triumph over a variety of obstacles and difficulties in the process of growing our technological capabilities.

Internet of Things (IoT) can be characterized as things belonging to the internet to supply and access all of the information that is available in the real world. It is anticipated that billions of devices will be connected to the system, which would necessitate the spread of networks across a vast area and the processing of raw data into meaningful insights. The IoT holds the greatest potential for the technology that is currently available; nevertheless, it is a novel mechanism that can be viewed through the lenses of the internet, things, and semantic vision. A unique architectural paradigm for the IoT is presented in this study with the assistance of the Semantic Fusion paradigm (SFM). To encapsulate the information that has been processed from sensor networks, this design uses a Smart Semantic framework. To transform the system into an intelligent system, the smart embedded system is equipped with semantic logic and information based on semantic interpretation. The purpose of this article is to discuss internet-oriented applications, services, visual aspects, and issues surrounding the IoT through the utilization of Radio Frequency Identification (RFID), low-pan, and sensor networks.

## CONCLUSION

When all is said and done, the revolution brought about by computers has brought about unparalleled changes in India. India has become a global hub for IT because of its expansion into a variety of industries, including IT, education, healthcare, finance, and government services. As a result of the broad adoption of computers and digital technologies, efficient communication has become possible, processes have been streamlined, and millions of jobs have been generated, particularly in the fields of software creation and IT services.

In addition, this revolution has enabled individuals ranging from students to business owners to exert more control over their lives by expanding their access to information, education, and opportunities.

 

Nevertheless, problems such as a lack of digital literacy, worries over cybersecurity, and the digital divide between urban and rural communities continue to exist. Acting to address these concerns will be necessary to guarantee that the advantages brought about by the computer revolution are distributed fairly across the country.

Ultimately, the computer revolution in India marked a significant shift in the economic, social, and technological landscape of the country.

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