Review Article

A Review on Impact of Information Communication & Computation Technology (ICCT) on Selected Primary, Secondary, and Tertiary Industrial Sectors

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Abstract

The impact of Information communication and computation technology (ICCT) is increasing day by day among different communities throughout the world for obtaining information related to many issues, problems, and their solutions. The growth of ICCT has revolutionized in many sectors of the society and contributing to solve problems related to basic needs, advanced wants, and anticipated desires of the people. Information communication and computation technology has great essence and impact on every business & society. This study made an attempt to determine the effect of ICCT on various industrial sectors including primary, secondary, and tertiary levels. In this paper, we have identified ICCT as a most important general-purpose technology due to its abilities to solve fundamental need-based problems and advanced wants and desires-based problems of society. The paper also discusses the impact of ICCT on conceptual and predictive developments on some industrial sectors like Agriculture, Textile, Education, and Banking. This review provides documentation to guide future research and facilitate knowledge growth and creation relating to the impacts of ICCT on various business sectors. A major finding of this review based on analysis is that ICCT is valuable to the overall growth of an industry, but the level and scopes are in need of internal and external influence, including corresponding organizational resources of the firm and its transaction partners, as well as the competitive and macro environment.
Keywords: Information communication and computation technology (ICCT), Education, Banking, Agriculture, Textile, Society.

INTRODUCTION

From the beginning of the 21st century, the world is witnessing a revolution due to accelerated growth in information communication and computation technology. This is measured as the most important development since the industrial revolution happened around the mid-18th Century. This development is affecting our daily life at home, at work including shops, banks, schools, colleges, universities and society. The advents of ICCT is affecting the way people think, communicate, and behave. Today, the world has developed as a global village with the internet, mobile phones, and satellite networks shrinking time and space, converging computers and communications together. Advancement in chips, satellite, radio, and optical fiber technology have allowed millions of people around the world to connect electronically regardless of national or international boundaries. Consequently, a new way of communication to process, store and distribute a huge amount of information in every industry sector is possible. This explosion in connectivity is the modern and the most important wave in the information revolution. Information communication, and computation technology (ICCT) is clearly considered as a key growth area in this century, supporting dynamic and highly competitive business environment to improve efficiency, cost-effectiveness, and deliver high-quality products and services to customers [1]. ICCT is also measured as an instrument in marketing for communicating existing customers, looking for new customers, as well as offering innovative services. A conversation about the impact of information communication and computation technology on various business sectors is largely a matter of speculation since we are still in the beginning to perceive its effects. Organizations are gradually increasing the usage of information technology to optimize the solutions for business problems, to increase both the effectiveness and efficiency of the decision-making process, to improve production and service quality, to attain dynamic constancy, and competition for new markets. There is no dispute that information communication and computation technology (ICCT) has tremendously changed everyday life. ICCT instruments such as computers, internet, wireless devices, social networks, have become part of most people's lives regardless of

age or gender. Consequently, these technologies have changed our lifestyle. Lifestyle refers to the technique and style of our lives including our clothing, habits, friendships, values and so on. Some studies have taken lifestyle to state one's physical and mental health status, as well as adults' quality of life. Lifestyles are identified and classified in order to enhance the development of social identity through people's activities, interests, and opinions. Lifestyle can be recognized by a wide range of activities, interests, and opinions. However, there is a deficiency of comprehensive research in this area. In fact, while several researchers have investigated the impact of ICCT on one dimension of lifestyle, no comprehensive research has been undertaken to determine the impact of ICCT on many dimensions of lifestyle and society from a holistic perspective [2]. Hence in this study, an attempt is made to determine the effect of ICCT on various industrial sectors including primary, secondary, and tertiary levels.

Objectives of the study
- To learn various emerging technologies under the umbrella of ICCT and their importance.
- To know the impact of such technologies under ICCT on selected Primary, Secondary and Tertiary industry sectors.
- To review the effect of ICCT in some of the selected primary, secondary and tertiary industry sectors by means of reviewing recently published data.
- To discuss the uses of ICCT in above industries with special focus on Developing country.
- To know the functions of ICCT as universal technology and its impact on society in general.

ICCT and related emerging technologies:
It observed that Information Communication and Computation Technology (ICCT) is showing all the three characteristics of emerging technologies. ICCT is grown and spread its roots to all industries and industry sector from A to Z due to its universality property as an example shown in Table-1. The improvement and innovation spawning properties of ICCT as general-purpose technology are created major stake holding areas including Big data and business analytics, cloud technology, Artificial Intelligence, Internet of things (IoT), Digital Marketing, 3D Printing, Virtual Reality, and Optical Computing P.S. Aithal *et al.*, [3].

Big data and Business Analytics
The emerging subfield of ICCT called big data and business analytics focus on handling enormous volume of data continuously generated in any business or data capturing process and analyses it using various quantitative analytical techniques and mathematical models to study the pattern and descriptive information, predictive information, and prescriptive information are helpful for decision makers to make the best decisions

to the problems related to future characteristics of the business.

Cloud Technology
Cloud computing is one of the advances in computer technology and is uses information communication technology as well. Due to the ubiquity of cloud computing facility with flexibility in scaling it has become an important topic of research and provides the value for computing processes in the business. The cloud computing model offers so-called Business Intelligence (BI) for any kind of business decisions via the Internet.

Artificial Intelligence
Artificial intelligence (AI) is an area of computer science which focus on the creation of intelligent machines that make decisions like human beings. The main functions of artificial intelligence machines are to recognize the environment such as speech recognition, Learning, Planning, Problem-solving, and decision making [3].

Internet of Things (IoT)
It is a network of several electronic, computing, and optical devices/objects together with human beings connected virtually by means of internet or intranet for enabling them to send and receive data and information. These objects are provided with unique identifiers (UIDs) and are proficient to transfer data and information over a network without needing human-to-human or human-to-computer interaction by using IOT technology.

Digital Marketing
ICCT created a new business model called E-business/ M-business model. This model consists of ubiquitous selling proposition. Digital marketing is nothing but the selling of products or services using digital technologies by following a new business model mostly on Internet using fixed or mobile phones, or other digital media. Digital marketing is developed as an essential future marketing activity using ICCT general purpose technology.

3D Printing
3D printing is an ICCT application where various materials are joined or solidified using various processes under the control of a computer to create a three-dimensional object. In 3D printing, an object is created by placing down sequential coats of material until the object is created. 3D printing can be divided into plastic, metal, fabrics, bio and other hosts of any industries with many applications in many industries worldwide.

Virtual Reality
Virtual reality is an artificial environment that is created with the help of computer-based software and presented to the user in such a way that the user

suspends belief and accepts it as a real environment. On a computer, virtual reality is primarily experienced through two of the five senses: sight and sound. Currently, the virtual reality is mainly developed and used in simulated training and education as well as the simulated game environment. But it may further find its applications in many other areas including business as augmented reality and may enter the group of general-purpose technology.

Optical Computing
High-speed computers based on optical signal switching and optical signal processing is expected to breakthrough with their full potentials and capabilities using optical logic gates and flip-flops fabricated by nanocomposites are expected to the breakthrough in this century.

Table-1: Selected Industries and Industry Sectors which use and benefits from ICCT

SL No	Industries	Industry sectors/ Segments	ICCT Applications
1	Agricultural & Allied Products (Primary sector)	Agricultural Products, Forestry and logging, fishery	Remote sensing using satellite technologies, Geographical information systems, Agronomy and soil sciences, Weather prediction & forecasting etc.
2	Manufacturing (Secondary sector)	Raw materials, Food manufacturing, Textiles	Automated procurement Quality control Online marketing
3	Banking & Insurance (Tertiary sector)	Public Banking Private Banking International Banking Life Insurance General insurance	E-banking, Online banking, Online and mobile services, ERP and networking, Transactional services, ATM management etc.
4	Education & Training (Tertiary sector)	Education, Training	Online education, Online training, E-gadgets, Online evaluation etc.

ICCT has made a major impact due to its associated new business model. These business models provided both business organizations and customers to use the ubiquitous concept of selling and buying the goods and services from anywhere, anytime and any amount of time. In the 21st century, ICCT is grown and spread its roots to all industries and industry sectors. The business model developed using ICCT general purpose technology is very close to the ideal business model [3].

Impact OF ICCT on agriculture-a primary sector:
Technology has played a large role in emerging the agricultural industry. Modern agricultural technology has been developed with keeping two important things in mind: Today it is potential to cultivate crops in a desert by use of agricultural biotechnology. With this technology, plants have been bringing about to stay alive in deficiency conditions. Through heritable engineering, scientists have achieved to introduce traits into prevailing genes with a goal of making crops unaffected to droughts and pests [4].

Modern Farming Tools and Equipment usage in Agriculture
Modern technology and machinery in moisture present at certain depths in the soil [5]. This agricultural employed today is below with details;
Autopilot Tractors
New GPS tractors and sprayers machines can accurately improve the determination themselves over and done with the field without drivers [6]. On the board of computer system, a user has told how extensive path given the piece of equipment will cover

he will initiative a short distance setting A and B points to make a line [7]. The GPS scheme will have a track to follow and it draws conclusions that line into similar lines set apart by the width of the tool in use.

Crop Sensors
Crop sensors are going to help farmers apply fertilizer in a very effective way, maximizing uptake. Detecting how your crop is feeling and dropping potential leaching and runoff into groundwater [8]. This is taking variable rate technology to the next level. As an alternative to making a preparation fertilizer map for a field earlier you go out to apply it, crop sensors tell application equipment how much to apply in real time.

Monitoring and Controlling Crop Irrigation Schemes via Smartphone
Mobile technology is performing an important role in intensive care and controlling crop irrigation systems.

Biotechnology
Biotechnology or genetic engineering (GE) is not new technology, but it is a significant technology with much more potential yet to be released [9]. The form of genetic engineering, is most of the individuals have probably heard of is herbicide confrontation. Crops can be completed to express toxins that switch to particular pests. Many employ toxins that are similar toxin found in some organic pesticides.

Documentation of Fields via GPS

Due to onboard closed-circuit television and GPS facility of document yields and application rates are fetching easier and more precise every year.

Ultrasounds for Livestock

Ultrasound is not only for testing on baby animals in the womb but also can be used to determine what quality of meat might be found in an animal before it goes to market.

Usage of Mobile Technology and Cameras

Mobile technology and cameras are playing a big role for farmers and farmers are using all the social media sites for all types of reasons [10]. Some are using apps like Foursquare to hang onto tabs on employees. Putting up cameras all over the place the farm is a trend that's catching on. Livestock managers are wiring up their barns, feedlots, and meadows with cameras that send images back to a central location like an office or home computer [11]. They can save a closer eye on animals when they are away or home for the night.

Top Fifteen Countries Using Modern Agricultural Technology with Agricultural Outputs in 2015

The top fifteen countries using modern agricultural technology with agricultural outputs in 2015 with GDP in million USD. Key Issues of ICCT in Agriculture.

The key issues of implementing the ICCT in agriculture sector along with the specifics comments and insights discussed under the following groupings:

People/Community Issues

People/Community is an important issue promoting and impeding ICCT adoption for agriculture production, agriculture development, and all aspects ensuring rural viability. Identification and empowering of agents of change were universally accepted as the critical adoption success factor.

Training and Research

Fundamental research elaborating on local and global digital divides is crucial. At this early evolutionary stage of the Information Society ICCT,

there are dangers yet to be recognized with measures to counter them yet to be evaluated.

Political Issues

Utilization of ICCT for strengthening the linkages between agriculture policy, research and extension institutions, communities and individuals is a political issue as well as an organizational option.

Adoption Barriers and their alleviation

The lack of physical and human resource infrastructure which was repeatedly cited as a major impediment [12]. Comments identifying wireless connectivity as an alleviating factor, for example, did not contribute to the understanding of this issue since wireless facilities need infrastructure as well. Infrastructure was related to technology in general [10-12]. Some of the important contributions of ICCT on textile sector are summarized in table-2.

Further Research opportunity of ICCT on Agricultural Sector

The use of ICCT on Agriculture constantly experiences developments in technology. Recently, the use of information communication and computation technologies (ICCT), such as e-mail and the World Wide Web, has developed commonplace. Information communication and computation technologies afford the agriculture industry the opening to increase information flow to all industry applicants at a decreased cost. The agricultural postponement mechanism is becoming reliant on ICCT to make available on appropriate and setting specific technologies for the farmers to provide timely and proficient advice to the farmers. ICCT can be the best mean not only to advance agricultural extension but also to develop agriculture research and education system. The crop forecasting, input management, command area management, watershed management, land and water resources development, drinking water potential mapping precision management, natural disaster management, fishery management, hill area development, and postharvest management are the key areas, where information communication and computation technologies can play its imperative impact. Some of the possible research opportunities in ICCT related emerging technologies in the agriculture sector are depicted in table-3.

Table-2: Review on some important contributions of ICCT on agriculture sector

S. No.	Contribution	Reference
1	Information and Communication Technologies (ICTs) used for the extensive transfer and sharing of information. ICTs promote and issue new and existing farming information and knowledge. Since information is essential for helping agricultural and rural development and carrying about social and economic changes.	Oladele, O. I. (2015) [13]
2	Information and Communication Technology (ICT) is perceived as an important means of creating transformation in agricultural sector. When used as a wide-ranging tool for providing local farming groups with scientific knowledge, ICT messengers will make the formation of knowledge societies in the rural areas of the developing world.	Shaik. N. Meera, *et al*., (2004) [14]
3	ICTs are the blessing to agriculture as they provide the farmers with data, information and knowledge increase the production of higher value crops, reduction in expenses of production, increase in selling price, less use of pesticides for vegetables on their farms.	Susmita Das, *et al.*, (2016) [15]
4	ICTs plays a significant role in enhancing agricultural production, despite mobile phones having an insignificant impact while telephone main lines remain a significant contributor to agricultural growth despite the wide proliferation of mobile technologies.	Hopestone kayiska Chavula, (2014), [16]
5	Mobile phone penetration has been growing rapidly even in the remote rural areas and its potential contributions to spread of innovative farming technology on time with adequate speed and transferring knowledge to farmers, advising and educating farmers in their decision making, enabling farmers to clarify their own goals and possibilities, and stimulating desirable agricultural developments.	Xiaolan Fu, *et al.*, (2012) [17]
6	ICCT can help an average Indian farmer to get relevant information regarding agro-inputs, crop production technologies, agro-processing, market support, agro-finance and management of farm agri-business, IT in this information age has been recognized as an essential medium of disseminating information and advice to farmers.	Adams, (2016) [18]
7	ICCT can help an average Indian farmer to get relevant information regarding agro-inputs, crop production technologies, agro-processing, market support, agro-finance and management of farm agri-business, IT in this information age has been recognized as an essential medium of disseminating information and advice to farmers.	Slavoljub Milovanovic, (2014) [19]
8	The agricultural sector in India is currently passing through a difficult phase. India is moving towards an agricultural emergency due to lack of attention, insufficient land reforms, defective land management, non-providing of fair prices to farmers for their crops, inadequate investment in irrigational and agricultural infrastructure in India, etc.	K.M. Singh, *et al.*, (2015) [20]
9	ICT based initiatives can be taken for the propagation of information, transfer of technology, procurement of inputs and selling of outputs in a way so that farmers can be benefitted. The timely information and practical solutions of the agricultural problems help the farmers to adopt good agricultural practices, make better choices of inputs and to plan the cultivation properly.	Surabhi Sing, (2017) [21]
10	ICT in agriculture is an emerging field focusing on the enhancement of agriculture and rural development. It involves applications of innovative ways to use ICT in the rural domain. The advancement in ICT can be utilized for providing accurate, timely, relevant information and services to the farmers, thereby facilitating an environment for more remunerative agriculture.	Manish Mahant, (2012) [22]

Table-3: Some of the possible research opportunities in ICCT related emerging technologies in agriculture sector

S. No.	ICCT related emerging technologies	Possible research opportunities
1	Big data and Business Analytics	Big Data and Business Analytics in Agriculture. Big data is reaching into agriculture in a big way. Sensors on fields and crops are opening to provide literally rough data points on soil conditions, as well as complete info on wind, fertilizer necessities, water accessibility, and pest infestations. Possibly, farming has been driven for over a century. Big Data is different from this historic information gathering in terms of the volume and the analytical potential embedded in contemporary digital technologies.
2	Cloud Technology	Cloud computing helps agriculture industry grow. There is also an incentive for farmers to use knowledge-based repositories containing a wealth of information related to farming practices, crops input, agricultural innovations, pesticides, seeds, fertilizers, nutrients, and weed resistance, as well as on equipment.
3	Artificial Intelligence	Agriculture is seeing fast acceptance of Artificial Intelligence (AI) in relations of agricultural products and in-field farming methods. Cognitive computing, in specific, is all set to become the most disruptive technology in agriculture services as it can recognize, learn, and respond to different situations (based on learning) to increase efficiency.
4	Internet of Things (IoT)	In IoT-based smart farming, a system is built for monitoring the crop field with the help of sensors (light, humidity, temperature, soil moisture, etc.) and automating the irrigation system.
5	Digital Marketing	Digital Agriculture can be defined as ICCT and data ecosystems to support the development and delivery of timely, targeted (localized) information and services to make farming profitable and sustainable (socially, economically and environmentally) while delivering safe, nutritious and affordable food for all.
6	3D Printing	Additive manufacturing is a great asset for many different industries and can be used for various applications. You may not know it, but agriculture is one of the industries starting to make the most of the cutting-edge technology that is 3D printing. Including the 3D printing technology in their production process helped them to create quality tools more quickly and improve their manufacturing process. This way, they can totally adapt the tools to their use and improve their farming activities. Moreover, for this kind of use, a desktop 3D printer is great because they allow them to print directly on the place.
7	Virtual Reality	Virtual agriculture is a virtual reality technology applied to agricultural, which refers to the computer in the implementation of substance in virtual soil adsorption, emissions, the migration process, animal and plant growth process, the result of the expression, as-simulation, alienation, and so on.

Impact of ICCT on textile industry – a secondary sector

Today, Information Communication and Computation Technology (ICCT) the stage of a dynamic role in the field of textile industry. Any industrial unit employs four Ms that is, Men, Material, Machine, and Money [23]. To get an organizational achievement, administrators need to emphasis on synchronizing all these factors and developing combined effect within and outside organizational operations. With the bigger competition, companies are taking the support of ICCT to enhance its Supply Chain Management (SCM) and by it as a competitive edge. In short, several textile companies are leveraging the technological influence to adding value to their business. Supply Chain Management consist of sourcing, procuring, converting, and all the logistics activities. It seeks to increase the operation speed by exchanging data in real-time, reduce inventory, and increased sales volume by fulfilling customer requirements more efficiently and effectively. Technology developments in the textile industry have been very substantial, particularly over the last three decades, and this paper quantifies and illustrates the impact these technological developments have made since 1967 on the machine and labor productivity, quality, costs, and services. Great as these improvements have been, have they succeeded in making the textile industry of developed high-wage countries competitive from a cost point of view with the textile industries of lower wage countries. It is also pointed out that this cost advantage can be offset to a substantial degree by improved service [24]. Development of market-induced competition compels textile organizations to leverage technological power to a greater extent. The tremendous growth of productivity of various manufacturing machinery on one hand and intensification of domestic and international competition on the other have stimulated increasing applications of diverse Information Communication and Computation Technology. From enhancing the performance of machinery to improving the quality of coordination, ICCT has played a cardinal role in adding value to the textile business [25].

Key Drivers for ICCT-development in Textile Industry

Various deficits in the textile supply chain calls for the effective implementation of ICCT.

Risk Spiral

Most of the time, there is a lack of accurate information connected to demand and supply in the textile supply chain. This results in uncertainty in the expected sequence of functions across the supply chain, as every single function tries to protect its individual interests by overemphasizing the effect of demand or supply variability. This leads into excessive inventory (Bullwhip effect) shape up at various supply signs. Consequently, this excessive inventory instigates long cycle-time, poor sale, low fill rates and further reduces order visibility. Inadequate information infrastructure leading to no information and delay in getting information triggers this "spiral of uncertainty", which adversely impacts business performance.

Long Procurement Time

The traditional procurement process of a textile retailer takes in between 7 to 9 months, in some cases even eleven months. The biggest problem faced by any textile retailer is to identify consumption trends seven to eleven months prior to actual consumption. Lack of transparency and slow propagation of demand-data entail early stock-outs.

Supply Chain Inefficiencies

Apparel and textiles account for world trade of over US$300 Billion annually, out of which, cross-border trade in apparel alone stands at about US$200 billion. From concept design to the retail presentation of the finished garment, the time taken can go up to 12-14 months. Garment production actually accounts for just

5%-20% of that time, the balance "extra" caused by the multiplicity of processes, allowances in elapsed time at various stages and also lack of transparency in the supply chain.

Growth in Information Communication and Computation Technology (ICCT)

ICCT growth is brought about by the convergence of three key elements: innovative soft wares, affordable hard wares, and high-speed global communication networks. Various application soft wares like mySAP.com, Baan supply chain solution (SCS), i2, SAP advanced planning optimizer (APO) and others offer a useful solution to enhance the performance of the textile supply chain. Development in hardware is possible through the creation of a relational database, client/server architecture, TCP/IP networks protocols, multimedia, wireless technology, Internet. The scope and extent of Internet usages can be found out by the fact that, 60% of large-sized and 30% of medium-sized companies worldwide use the Internet in marketing and other business-related transactions.

Global Migration

Textile and clothing supply chain are currently expanding globally, it's with many companies either sourcing components from overseas or moving manufacturing base to countries with lower labor costs. This global-migration necessitates managing every kind of information efficiently and at a much faster speed. All above factors initiate increasing interface of Information Communication and Computation Technology with every link of the textile supply chain to make business more efficient, responsive and transparent [25]. Some of the important contributions of ICCT on textile sector are summarized in table-4.

Table-4: Review on some important contributions of ICCT on textile industry

S. No.	Contribution	Reference
1	Information and Communication Technology (ICT) has an important role to play as developing countries adjust to the new era. The Garment producers in developing countries should seek to identify the stages of the supply chain in which they can realistically specialize, depending on factors specific to their countries such as closeness to major markets, the scope for vertical linkages, existing infrastructure and the policy environment to develop.	Kerry McNamara, (2009) [26]
2	Information technology is a critical factor in textile apparel supply chain management. The IT found quality improvement and lead time reduction are the key competitive factors for all the actors within the chain. Current use, shortcomings and possible future uses of IT differ in relation to the three processes considered and to the chain phase.	Cipriano Forza, (2010) [27]
3	Cirqle is a Swedish created app using ICT to aide in the recollection of used textiles, by offering app users rewards (discounts) for used textile proceeds at specific retailers. Through meeting specific information about app users, ICT concerns such as Cirqle, are key to enhancing reverse supply chains, and in the result, aiding in the drop of the "first-mile problem".	Iuliia Tsiupka, (2015) [28]
4	ICT programme technology is used at various stages of the design process together with CAD and CAM. Presently, it is rapidly changing the textile industry. Initial design proposals are generated, developed, modeled and communicated using ICT and CAD also, software such as Photoshop is used to create and manipulate fabric designs. Latest technological development such as using the 3-D body scanner analyses the body sizes and its application for catalog companies.	Ichetaonye, S. I, (2011) [29]
5	The textile and garment industry used to be single most export earner for India, now IT and ITES companies have taken that place pushing textiles to number two. In the world, India is known for both these industries. The combination of these two can create synergy if properly used. The application of IT in the textile and garment industry can help them in improving the overall performance.	Arindam Basu, (2007) [30]
6	The trajectory of development of Information technology has intersected every application in the textile industry. As innovation rates accelerate and product life cycles shorten, so companies become increasingly sensitive to three key metrics: speed-to-market; speed-to-volume; and time-to-profit.	Debasis Daspal, (2004) [31]
7	The textile and apparel industry are one of the largest industries in the global marketplace. Technology has aided designers and manufacturers to meet the current business environment's challenges. Because technology is a broad term and in order to clarify the discussion of this phenomenon, types of technology were divided into two categories: Process technology and information technology. Process Technology is hardware and/or software that facilitates the actual physical development of the product.	Mary Ruppert-Stroescu, (2009) [32]
8	The information technology infrastructure also helps to speed up their retrieval of world-wide industry information. By always being able to keep track of the most current product trends world-wide, the users' competitive advantage will be increased.	Benjamin P.C., (2010) [33]
9	The textile and clothing industry are moving away from its traditional roots in an attempt to revive the fortunes of this mature industry, through the adoption of novel technologies. Digital Prototypes are used as an essential tool in the modern design process.	Evridiki Papachristou, (2015) [34]
10	Electronic commerce or e-commerce states to a wide range of online commercial actions for products and services. Benefits of e-commerce include global marketing opportunities for products and markets. With the continued globalization emphasis of the textile and apparel supply chain, analyses and creative implementation of e-commerce applications may offer a unique product and market opportunities.	Ashok Kumar Panigrahi, (2016) [35]

Further Research Opportunity of ICCT on Textile Industry

In India, the Textile industry has the second largest share of employment after agriculture. Indian textiles manufacturing sector is tremendously varied and diverse with the hand-spun and hand-woven sector at one end of the spectrum, and the capital-intensive, sophisticated machinery on the other side. The exclusion of Multifiber Arrangement (MFA) quotas encouraged by Indian policymakers to relax investment limitations and to accept market liberalization procedures in the textile sector. With the objective of accelerating growth in exports and investment in the textile sector, Government of India is encouraging the Indian Textile Industry by offering numerous funding schemes. Electronic textiles currently are attracting the most interest in textile research globally, and their effect on the textile industry will be enormous. The

term electro-textiles, known as e-textiles, refer to fabrics that can function electrically as electronics and behave physically as textiles. On one end of the spectrum, there are pragmatic applications such as military research into interactive camouflage or textiles that can heal wounded soldiers. On the other end of the spectrum, work is being done by artists and designers in the area of reactive clothes: "second skins" that can adapt to the environment and to the individual. Fashion, health, and Telecommunication industries are also pursuing the vision of clothing that can express aspects of people's personalities, needs, and desires or augment social dynamics through the use and display of aggregate social information Electronic textiles will definitely upgrade the quality of life innovatively. Of course, further strong research is essential in this area. Some of the possible research opportunities in ICCT related emerging technologies in the textile sector are depicted in table-5.

Table-5: Some of the possible research opportunities in ICCT related emerging technologies in textile sector

S. No.	ICCT related emerging technologies	Possible research opportunities in textile sector
1	Big data and Business Analytics	Business Analytics involves various techniques for the accuracy and the precise output based on the data generated by the firm, thereby allowing the firm to further strengthen their roots in the future endeavors. The technology, automation, type of material used, techniques used for different type of clothes to be produced the "TEXTILE INDUSTRY", which is the industry that includes the manufacturing of the materials like yarn, fabric, and clothing is undergoing rapid changes and significant growth.
2	Cloud Technology	In the textile industry, it is providing useful services to simplify business operations. Augmented Reality (AR) is an application introduced by Cloud computing system which is widely used in the apparel and fashion industry to get a virtual view of an actual environment through computer generated applications.
3	Artificial Intelligence	Artificial intelligence and its applications in textiles. Artificial Intelligence (AI) systems are one of the options available in the textile industry to participate the basics such as manufacture, quality, cost, information, statistical procedure controller, just-in-time manufacturing, and computer integrated manufacturing.
4	Internet of Things (IoT)	The textile manufacturing has originated a long way – from the old days of handcrafting to today's highly technology-driven business, the industry has changed itself. The textile industry has continuously been very labor intensive industry and with developments in technology, especially technologies such as IoT (Internet of Things), artificial intelligence, it has remained able to achieve a high grade of automation over the whole textile fabrication process – right from design, fabric formation to finish.
5	Digital Marketing	Digital Marketing - A New Era of the Success of Textile Industries in India. Digital marketing is an umbrella term for all of your online marketing efforts. Businesses leverage digital channels such as Google search, social media, email, and their websites to connect with their current and prospective customers.
6	3D Printing	3D printing in the textile manufacturing occupancies you give free rein to your imagination in order to speedily create new structures through innovative new materials. The different types of fabrics and 3D printing permits you to explore new facets in fashion and consequently to propose a new vision in the textile sector.
7	Virtual Reality	Virtual reality is changing the way we shop. Virtual reality (VR) refers to a computer-simulated environment that can replicate physical presence in places in the real world or imagined worlds. Virtual reality is one of the new technological developments that have an authoritative possible to be combined into the textile industry due to its capability to imitator a real-life shopping skill. Therefore, it is appropriate to examine the probability of VR in the Textile industry.

Impact of ICCT on educational sector -tertiary sector

ICCT experience may be more a hindrance to the education process with possible detrimental impacts to the quality of learning students receive through lack of interaction. The first section analyses and summarises the impact of ICCT on the main areas of the education institutions, management, students and finally impact on society.

Indicators and Levels

Different levels and indicators imply different methods of collecting information on the possible impact of ICCT on education [36]. Monitoring the impact can be done in several ways like a mixture of quantifiable and qualitative methods as listed below:

National Level

Impact on a national level deals with key factors of importance for how ICCT is implemented in

the school system in different countries. This is most of all related to the way's countries define ICCT as of importance in educational development.

Local Level

Important on a local level is the extent to which local authorities develop strategies, expressed in different kinds of documents, to give a direction for the implementation and use of ICCT in education.

Institutional Level

On the institutional level, the leadership at the school is important in creating the setting for ICCT use. This relates to the implementation strategies developed by national and local authorities, but also to how the leadership gives direction to certain developments.

Teacher Education Level

Teachers' ICCT competence points to the extent teacher education has implemented courses and a strategy towards the increased competence of teachers in using ICCT is an important part of educational development and change.

Collective Level

Collaborative work: This point is an indication of how the use of ICCT might stimulate more collaborative work among students, and that project work becomes more prevalent in schools.

Individual Level

Outcomes: Different indications of the outcomes of ICCT use on the individual level, both in a summative and a formative way related to learning, Knowledge building, problem-solving [37].

As per the seven requirements for the effective use of ICCT in education are:
- Suiting technology to educational goals and standards.
- Having a vision for the use of technology to support the curriculum.
- Providing for both in-service and pre-service training.
- Ensure access to appropriate technology.
- Provide for administrative support for technology use.
- Providing time for teachers to plan and learn how to integrate technology.
- Providing for on-going technique support for technology use.

In general, these requirements fall into three areas of impact.
- Providing the infrastructure of hardware and software.
- Providing curriculum and technical support for teachers.
- School organization, design, policies and practices, schooling, and management support.

Any discussion about the use of computer systems in schools is built upon understandings of the link between schools, learning and computer technology. Education feeds technology to solve problems of society, which in turn forms the basis of education [38].

The significance of ICCT in educational sector

The integration of information technology in education is an essential matter in confirming quality in the educational system. There are two correspondingly significant reasons for integrating information technology in teaching.

Due to Information Communication and Computation Technology is there any change in the delivery system

ICCT tools have some relative advantages as compared to the conventional mode of information sharing [39]. Analysed the difficulties in getting the academic performance so it promotes independent learning for the students, and how it supported easier access to information and promotes an exciting way to educate students. This generates the need for the computer, which is not only useful in sharing knowledge but also, imbibes skills required in a prospective manager such as conceptual, behavioural, analytical and administrative.

Information Communication and Computation Technology and the determination of education

The sensitivities of knowledge itself have also transformed whereas knowledge possibly will once have been perceived as unchanging must be perceived as "revisionary, original, personal and pluralistic". Encouraging students to include visual elements as part of their projects work; Spending students' time as a multimedia workstation, planning a presentation; assembling projection graphics, video clips, animation, sound, and other materials; trying to match particular materials with specific learning objectives; and integrating the materials into a unified presentation. Eliminating and/ or minimizing physical problems arising from the use of Information Communication and Computation Technology [40].

Information Communication and Computation Technology and the possible of education

The use of Information Communication and Computation Technology (ICCT) to support the classroom teacher and school managers to organize and manage the learning environment better has received little specific attention, even though many applications or systems purport that this is one of their aims. Research findings indicate that using information and communication technology has been effective to a high extent on increase in educational motivation, enhancement of question-making skill, enforcement of research spirit, increase in curricular scores and in total

on educational improvement of third grade secondary school students [41].

masterpieces, thus making them available to millions of people throughout the world [42].

Education in the changing world

Computer technologies facilitate educational opportunities and assist an individual in perfecting his perceptions. The more rapid change, the more attention should be paid to recognizing the pattern of future events. One can suppose proposed patterns of ICCT in education as center on nature of knowledge, functional techniques and a controlling criterion in society. Computer technologies have become instrumental in the rapidly developing art of filming the world's

Current influence of the internet and ICCT

The number of Internet users has grown over 400 million in the year 2008 (predictions for the year 2010 are set for more than one billion) (State of the Internet, 2009). Any potential advantages of the Internet-usage that a company can exploit recruit develop and retain these types of personnel, is even more important due to the fact that there is a shortage of highly profiled people in the workforce market.

Table-6: Review on some important contributions of ICCT on education industry sector

S. No.	Contribution	Reference
1	In the era of Information Communication Technology, education sector can get many benefits. The student can perform well throughout the usage of ICT. ICT supports the students to enhance their knowledge, skills as well as to improve their learning experience.	M. Wasif Nisar, (2011) [44]
2	ICCT has begun to show its presence in the education sector but its impact is seen low compared to other sectors due to the fact that traditional teaching model of student–teacher interaction has a high degree of personal contact with learners.	Ron Oliver, (2014), [45]
3	ICT helps facilitate the transaction between producers and users by keeping the students updated and enhancing teacher's capacity and ability fostering a live contact between the teacher and the student through e-mail, chalk session, e-learning, web-based learning including internet, intranet, extranet, CD-ROM, TV audio-videotape.	Anu Sharma, (2011), [46]
4	The introduction of information and communication technologies (ICT) in education was that they can become catalysts for change. Undoubtedly, some countries have made considerable progress in bringing networked ICT into education and made it possible for teachers and learners to use them on a daily basis.	Israel B. Olaore, (2014) [47]
5	E-learning is a current way of learning, which consist of electronic media in the field of education. E-learning makes uses of information and communication technology (ICT). Correspondence learning or distance learning are the situations where e-learning comes to use. E-learning includes numerous types of media that make available audio, video, text, and images. E-learning makes use of intranet or extranet or internet and widens the horizon of traditional learning.	Himanshu Agarwal, (2013) [48]
6	The main challenges and provides an overview of the future of ICTs and their connection with education. It begins with a description of the so-called knowledge-based society and the importance of each educational agent (teacher-student) and their role in transforming the teaching-learning process.	Hernandez, R.M, (2017) [49]
7	Education is the greatest entity for any country to develop and prosper. It also makes available of the talent and motivation to every single person. The traditional education system at higher education level is similar to brick and mortar nature of the business system, where a student change to systematic education from college/University by personally be present to essential courses regularly. One of the possible developments in the next-generation education system is online education.	P. S. Aithal, (2016) [50]
8	Online educations are advancing by having more scope due to the busy schedule of working groups and their concentration to obtain knowledge in new fields. Working group individuals find tough to get admission in top institutions for their interested courses due to competition and lack of time flexibility.	Krishna Prasad K, (2017) [51]
9	Education is something that was once not available in certain parts of the world. There are many advances in technology that have helped education to become more readily available than it once was. Inventions such as the online classroom have improved education in a significant way and it is growing around the world every day.	Mohammed Al Muhtadi, (2013) [52]
10	Information and communication technologies (ICT) are extremely influencing every discipline under the sun including Education. It is affecting every aspect of education from teaching-learning to assessment and evaluation. It improves the effectiveness of education. It aids literacy movements. It enhances the scope of education by facilitating mobile learning and inclusive education.	Madhuri V. Tikam, (2013) [53]

A Modern Use of Internet in Educational Sector

The Internet is allowing greater flexibility in working hours and location, especially with the spread of unmetered high-speed connections and web applications The Internet can now be accessed almost anywhere by numerous means, especially through mobile Internet devices. Mobile phones, data cards, handheld game consoles, and cellular routers allow users to connect to the Internet from anywhere there is a wireless network supporting that device's technology [43]. All in all, the analysis finds evidence that most of the countries under consideration hold great potential for increased efficiency in ICCT and for improving their educational outputs and outcomes. Some of the important contributions of ICCT on education sector are summarized in table-6.

Further Research Opportunity of ICCT on Educational Sector

It is obvious that in the 21st century the world will be dominated by modern technology and due to rapid scientific, economic, cultural and political changes, the educational systems will not be able to consider themselves as islands separated from the other social and national organization in the global village. Because the education, both in the view of historical empiricism and particular conditions encompassing 21st century, surely, will be the center of changes, evolutions, and multiplications of the 21st century. Certainly, society doesn't view ICCT only as an economic variable and political lever, but as a possibility for changing education through ICCT. So, one can suppose proposed patterns of ICCT in education as center on nature of knowledge, functional techniques and a controlling criterion in society. It is obvious that first, the teachers should be able to understand the kinds of existing facilities and not ignore ICCT. This needs teacher training program and also adults training programs for facilitating new jobs resulting from ICCT. Some of the possible research opportunities in ICCT related emerging technologies in education sector are depicted in table 7.

Table-7: Some of the possible research opportunities in ICCT related emerging technologies in education sector

S. No.	ICCT related emerging technologies	Possible research opportunities in education sector
1	Big data and Business Analytics	Big data analytics has developed a key part of any leading business school's curriculum. Big data analytics is now an important management skill. They work alongside students from business analytics courses and, increasingly, other parts of Imperial College, such as engineering, computing, and medicine. It gives educators and students an edge in understanding where and how improvements can be made in the learning process. (Big) Data Analytics creates new opportunities to improve the education process by helping teachers and learners make smarter decisions earlier in the learning progression.
2	Cloud Technology	Cloud computing is an exciting development in today's education system. It offers students and administrative workers to an avenue to access different applications and resources through web pages easily, at minimal costs and quickly.
3	Artificial Intelligence	Artificial intelligence can program basic actions in education, like grading. Even in lower grades, teachers every so often finds that grading takings up an important amount of time, time that could be used to relate with students, prepare for class, or work on professional development.
4	Internet of Things (IoT)	Internet of Things (IoT) and Its Significance in Education. These objects such as sensors, smartphones, watches, and electronics will transmit data via "The Internet" to the cloud providing a "smarter" service or experience for the user.
5	Digital Marketing	Digital Marketing is the use of digital channels for the promotion of a business or brand. And digital marketing is the greatest method that can be implemented by educational institutions to reach out to potential students.
6	3D Printing	The future of 3D printing in education. 3D printing is a rapid production method with minimal waste material. Its design flexibility means users can create modified objects for a low cost.
7	Virtual Reality	VR will change how educational institutions approach learning by delivering learning experiences that no longer depend on lectures to teach concepts or the idea of earning a degree to attain just one role in the course of person's lifelong career. In fact, VR can help to create learning experiences that expand across several disciplines facilitating the growth of multi-disciplinary career paths.

ICCT impact on banking sector – tertiary sector

ICCT also facilitates the introduction of new delivery channels--in the form of Automated Teller Machines, Net Banking, Mobile Banking etc [54]. Further, ICCT deployment has assumed such high levels that it is no longer possible for banks to manage their ICCT implementations on a standalone basis with ICCT revolution, banks are increasingly interconnecting their computer systems not only across branches in a city but also to other geographic locations

with high-speed network infrastructure, and setting up local area and wide area networks and connecting them to the Internet. As a result, information systems and networks are now exposed to a growing number [55]. All in all, this auspicious technology influences the banking industry, mostly in the following three aspects:

Technology is influencing competition and the amount of contestability in banking

Due to the growth of technology, the bank's incomparability in particulars is deteriorated. Entry barrier has been declining, a new competitor has emerged [56]. Information Communication and Computation Technology has changed the contours of three major functions being performed by the banks viz. access to liquidity, the transformation of assets and monitoring of risks. Information technology and the communication networking systems have a crucial bearing on the efficiency of money, capital, and foreign exchange markets. Some monetary products and services have become more crystal-clear commodities, customer show willing to unbundled the petition for monetary products and services, all these lead to a more competitive market atmosphere. Due to hand down entry and existed construction, for some sub-financial markets, contestability in banking is also raised up [57].

Technology Influence Economy of Scale

Competitive pressure force banks to lower their cost. Bank seeks to get economy of scale in bank procession instead of being a big bank [58]. Bank seeks to secure the optimal business structure, and secure the competitive imperative of economy of scale. There are other options to get economy of scale, including joint venture and confederation of financial firms. Small firms also can get economy of scale by outsourcing, i.e. buy in an economy of scale [58].

Technology Influence the Economics of Delivery

Technology has a major impact on the way banking and financial services are delivered. a wide range of alternative delivery mechanism becomes available, Internet, ATM… these Reduce the dependence on the branch network as a core delivery mechanism. With the development of technology, the financial systems are substantially over-supplied with a delivery system through a duplication of a network, the bank has to change their delivery strategy, rationalize their branch network strategy, and widen the range of delivery option [59]. It is observed that the Banking industry has been taking advantage of the following 22 Technology Products: (1) Net Banking, (2) Credit Card Online, (3) One View, (4) Insta Alerts, (5) Mobile Banking, (6) Net-Safe, (7) e-Monies Electronic Fund Transfer, (8) Online Payment of Excise & Service Tax, (9) Phone Banking, (10) Bill Payment, (11) Shopping, (12) Ticket Booking, (13) Railway Ticket Booking through SMS, (14) Prepaid Mobile Recharge, (15) Smart Money Order, (16) Card to Card Funds Transfer,

(17) Funds Transfer (e-Cheques), (18) Anywhere Banking, (19) Internet Banking, (20) Mobile Banking, (21) Bank Home, and (22) Cash on Tap. Information Communication and Computation Technology offer enormous potential and various opportunities for the Indian banking sector [60]. It provides a cost-effective, rapid and systematic provision of services to the customer. The efficient use of technology has facilitated accurate and timely management of the increased transaction volumes of banks which comes with a larger customer base. Indian banking industry is greatly benefiting from the ICCT revolution all over the world [61].

E-Banking

Electronic banking is normally a postponement of traditional banking, using the net as an electronic delivery station for banking products and services [62]. E-banking is a variety of banking facilities that exploit electronic equipment and consist of Telephone banking, Net Banking, ATM, Debit/Credit Card. EFT, AFT etc. E-banking made its debt in UK and USA 1920s [63]. It grows into highly popular during 1960, over and done with electronic funds transfer and credit cards. The concept of web-based baking came into existence in Europe and USA at the beginning of 1980. In India, even if the e-banking model penetration is in initial stage, it is bringing a fundamental shift in the functioning of the banks [64].

Benefits of e-banking
To the Customer

Anywhere banking no substance where the customer is in the world. Set of scales inquiry, request for services, issuing information etc., from wherever in the world is possible. Anytime Banking – Managing assets in real time and most significantly, 24 hours a day, 7days a week according to the convenience of the customers [65]. Many banks have modernized their services with the facilities of computer and electronic equipment. Brings down the "Cost of Banking" to the customer over a period of time. Cash withdrawal from any branch / ATM. On-line acquisitions of goods and services together with online payment for the same.

To the Bank

Innovative, scheme, discourses competition and present the bank as technology driven in the banking sector market. Reduces customer visits to the branch and thereby human intervention. Inter-branch reconciliation is immediate thereby reducing probabilities of fraud and misappropriation. On-line banking is an effect of medium promotions of a number of schemes in the bank, a marketing tool indeed. Integrated customer data paves way for individualized and customized services [62-65]. Some of the important contributions of ICCT on banking sector are summarized in table-8.

Table-8: Review on some important contributions of ICCT on banking industry sector

S. No.	Contribution	Reference
1	The technological changes in mobile networks, mobile devices, and the innovative attributes of mobile internet, advances in the theoretical framework of innovation in services allowed to develop a customer-centric analysis of m-banking value proposition.	P. S. Aithal, (2016) [66]
2	Mobile banking is considered as potentially one of the most value-added and important mobile services available. It is argued that online mobile banking system has a close correspondence with the ideal banking system.	P. S. Aithal, *et al.*, (2015) [67]
3	The banking industry is fast growing with the use of technology in the form of ATMs, online banking, Telephone banking, Mobile banking etc., the plastic card is one of the banking products that cater to the needs of the retail segment has seen its number grow in geometric progression in recent years.	Manjusha Goel, (2013) [68]
4	A strong adoption rate of mobile phone technology, including using mobile phones as a primary device for connecting the internet. The internet strongly determines the success of getting a bank loan. Individuals who use the internet daily is likely to get a bank loan approved.	Yusuf Akande sheriff, (2017) [69]
5	Information Technology and Communications networking system were done to change the operating environment of banks drastically. The changes brought about by IT (Information Technology), new products, more sophisticated customers, changing cost structures, and enhanced competitive pressures have all combined to transform the structure of the banking industry.	Ankita Sharma, (2014) [70]
6	Technology has transformed both the products offered and the delivery channels used by banks in retail banking. It has also greatly impacted the wholesale markets of banks. The electronic products delivery and trading systems used in banking anticipated to the potential new risks arising from their development.	Meera Sharma, (2001) [71]
7	The effects of information technology (IT) in the banking industry. It is believed that IT can improve the bank's performance in two ways: IT can reduce operational cost and facilitate transactions between the customers within the same network.	Shirley J. Ho, (2006) [72]
8	ICT has taken the center stage in almost every aspect of human endeavor. ICT help banks improve the efficiency and effectiveness of services offered to customers and enhance business processes, managerial decision making, and workgroup collaborations, which strengthens their competitive positions in rapidly changing and emerging economies.	Matthew K. Luka, (2012) [73]
9	Information technology contributes to the banking system in three different ways as follows: IT saves the time of the customers and the employees conspicuously, IT cuts down the expenses and IT facilitates the network transactions.	Saeid Khajeh dangolania, (2011) [74]
10	IT helps in profitability for the banks as compared to marketing expenses. Therefore, Banks in India need to pay more attention to building up its IT infrastructure to ensure greater efficiency and improved performance.	Gayathri G., (2018), [75]

Further Research Opportunities of use of ICCT in banking sector

The 21st century will convey about an all-embracing meeting of computing, communications, information, and knowledge. This will drastically change the way we live, work, and think. The progress of high-speed networks, coupled with the falling cost of computing power, is making conceivable applications undreamed of in the past. Voice, data, images, and video may now be relocated around the world in microseconds. This explosion of technology is moving the banking industry from paper and branch banks to' digitized and networked banking services. It has already transformed the internal accounting and management schemes of banks. It is now basically changing the distribution systems of banks use to interact with their customers. All over the world, banks are still struggling to find a technological explanation to meet the tasks of a rapidly-changing environment. It is clear that this new technology is fluctuating the banking industry forever. Banks with the capability to invest and integrate information communication and computation technology will turn out to dominate in the highly competitive global market. Bankers are influenced that investing in ICCT is critical. Its potential and consequences on the banking industry future are enormous. Some of the possible research opportunities in ICCT related emerging technologies in banking sector are depicted in table-9.

Table-9: Some of the possible research opportunities in ICCT related emerging technologies in banking sector

S. No.	ICCT related emerging technologies	Possible research opportunities in banking sector
1	Big data and Business Analytics	Big Data Analytics can become the main driver of innovation in the banking industry and it is actually becoming one. The financial and banking data will be one of the cornerstones of this Big Data flood, and being able to process it means being competitive among the banks and financial institutions.
2	Cloud Technology	Cloud computing means banks will not have to invest heavily in dedicated hardware, software, and related manpower. Improve flexibility and scalability: the cloud gives banks the capability to reply quickly to changing market, customer and technological needs.
3	Artificial Intelligence	Artificial Intelligence Powered Banking. Financial Services is data intensive and therefore a great candidate for AI automation. AI technologies offer banks an opportunity to reinvent banking processes and gain unprecedented advantages.
4	Internet of Things (IoT)	The Internet of Things (IoT) is the next big and imminent thing in financial services. It is a network of connected devices through the Internet, which receive and send data. The Internet of Things (IoT) is the next big and imminent thing in financial services. It is a network of connected devices through the Internet, which receive and send data. In this whitepaper, we discuss how IoT will help financial and banking services bring more value to customers.
5	Digital Marketing	Digital marketing for banks supports the offline as well in their promotion or from insights generated which are then injected into the traditional marketing efforts. Banking through digital channels has been growing rapidly around the world, first with online banking and now with mobile banking.
6	3D Printing	Through 3d-printing technology, banks possibly will offer physical products that might pressure their image as a resolution provider that could improve its customer's feeling of safety (somebody to rely on) and make available new relevant experiences. these possibly will be accomplished by setting up 3d-printers next to its ATM stations. here, is obtainable a service a bank may deliver related to slight every-day life inconveniences. banking facilities become Tangible. in this way, banks resolve not only be in people's hands but also in their cores.
7	Virtual Reality	Virtual reality has emerged as a hot topic in banking with the rise of artificial intelligence, innovation labs, and the death of the physical bank branch. VR is going to face some opposition before it's more widely adopted across financial services. Just because banks can use it, doesn't mean they should use it everywhere, or at all. Banks are experimenting with how to use it, when it's appropriate, and who their partners will be. One thing is for certain, though: if customers like it, banks will want it.

Impact of ICCT on society

The more advanced technology develops, the more it gives the impression to have control over our lives. Today, the use of technology is widely available and insistently promoted throughout our society [76]. While technology makes life easier for people, it also creates some problems for our society such as the decline in ordinary social behaviors. Yet, modern societies realized the significance of intellectual technology which is a form of new knowledge that achieves goals or solves many problems. The word technology consists of two parts (Techno) means application, art or skill, and (Logy) means science and learning. Thus, the linguistic meaning of the word technology is the methods and tools that a society has developed in order to facilitate the solution of its practical problems and to provide the necessary needs for the community [77]. Consequently, the use of technology in all areas of life increases risks, threats, and crimes associated with the use of this technique, which reflects negatively on the possibility of its use in absolute terms in all walks of life. Since human beings are social by nature, relationships nowadays become more controlled by the use of new technologies such as social media, which decreases the distances, in spite of obligating negative effects on human relations in society and family. At present, people identify that the use of modern technologies is an obligation for life and an indication of the cultural consciousness of the community [78]. They have positive prominent roles as one of the necessities of this era where they arrive in all way of walking life to arrange for services, increase the quality of life and growth of communication and relationships since it is an advanced culture reflects the beliefs of the community. Thus, there are increased concerns in the speed at which modern technology spreads as well as its uses and their false and undesirable impacts. This was due to the time off of effective direction where some groups have become open to the negative effects of life-threatening. Since education is a significant area of life, the use of modern technologies makes it an essential part of education, not just a simple addition. This research shows the negative impacts of modern technologies on society and will add to raise people's responsiveness towards the suitable ways of using modern technologies. The authors hope

that by presenting the negative effects of modern technologies on society, it will have positive inspirations on individuals and society in general since modern technologies play a major role in people's lives and future possibilities [76-78].

With the development of the computer industry and internet networks during the last three decades' things, has changed and global communication has reached an unprecedented height [79]. With these developments, immense scopes have come to the surface to impart learning in a much more efficient and interactive way. Multimedia technology and internet networks have revolutionized the whole philosophy of learning and distance learning and provided us with the opportunity for close interaction between teachers and learners with an improved standard of learning materials compared to what was existing one with the printed media. As we mentioned earlier it has gone to such an extent to create a practical classroom where teachers and students are scattered all over the world.

Table-10: Review on some important contributions of ICCT on society

S. No.	Contribution	Reference
1	The world changed drastically in the past few decades with a large majority of these changes due to the increased infiltration of technology in society. Technology has become part of society's everyday functioning, changing rapidly and providing widespread mobility.	Wihan de Wet, (2016) [90]
2	In the last ten years, the continuous growth of internet penetration and the wider palette for spreading ICT tools have changed the availability and quantity of information, communications methods, and the learning processes.	Laszlo Duma, (2013) [91]
3	ICTs create a gap between having and have not. Evolution of the digital divide: from access to usage divide and readiness to engage with the Internet. People communicate more than ever with e-mail and spend more time using ICTs-number of Internet subscriptions, increased access to broadband, use of emails, chatting and intensity of Internet use. ICTs integrated into people's daily lives.	Anik Lacroix, (2007) [92]
4	Describing the impact that Information Technology will have on society in the new century is indeed something the fact that there will be so many inventions in the area of information technology that we can't even think of at this stage and the sheer volume of things included in the term society.	Oliver Masutti, (2001) [93]
5	The impact of IT on various areas of every day increased life, considerably during this period. There is no doubt that Information Technology (IT) has tremendously changed everyday life. New technologies such as computers, internet, wireless devices, social networks, of most people's lives have become part of regardless of age or gender. Consequently, these technologies have changed our lifestyle.	Payam Hanafizadeh, (2017) [94]
6	Information technology is having wide-ranging effects across numerous domains of society, and policymakers are a substitute on issues relating to economic productivity, intellectual property rights, privacy protection, and affordability of and access to information.	Konsbruck Robert Lee, (2010) [95]
7	These new technologies have been accessible by people in their everyday life and increase their living standards. Nowadays, many ICT gadgets are used in our life and they facilitate with mobility thus used anywhere and anytime. These gadgets operate for Information, Speed, and Communication and reduce the physical and mental human workload. By that principles, modern-day gadgets truly helped mankind in daily life.	Mansi Prakashbhai Bosamia, (2013) [96]
8	Information and communication technologies (ICT) helps in improving education, health, innovations, government service delivery, and participatory democracy; others are pervasively detrimental to the society as a whole, like e-fraud, hacking, dissemination of offensive images by foreign and local media, and job.	Jonathan E. Ogbuabor, (2017) [97]
9	In recent years the flood of new technologies and the expanded use of social media have already changed the way people communicate with each other. New technologies and social media, however, can change the communication between Government and the citizens as they contribute decisively to the transformation of public administration towards a new and open format that will be characterized by a) active participation of citizens in public affairs, b) close collaboration between public services and between government and citizens, and c) transparency of the State activities. The transition to open governance is a process with many stages.	Maria Karakiza, (2014) [98]
10	Information and Communication Technologies (ICTs) are increasingly used in transport to make travel more efficient and cost-effective. The major implication of ICTs for transport though is the creation of new valuable datasets since all individuals are constantly on the move, generating new data which can be used to inform policies, research or business decisions.	Thomopoulos, (2014) [99]

Social Issues

One of the lifestyle topics in this review concerns social issues. An article related to social aspects of lifestyle was grouped under the categories of social behavior and entertainment. Unlike its effect on other aspects of lifestyle, Information Communication and Computation Technology may have both positive and negative impacts on social lifestyle. Many articles discussed the impact of information technology on "social behavioural" issues including the negative impact [80-86].

Work and Environment

Information Communication and Computation Technology have changed the way we work [87]. ICCT also has many impacts on our environment. In this review, we found four articles that cover "work" and "environment" issues. Related articles discussed issues such as transport, the designers' work environment, and environmental impacts [47].

Energy

One of our lifestyle dimensions is "energy". In this review, we found two articles that investigated the impact of information communication and computation technology on energy [88]. Indicated that in a smart mining camp, by using a wireless sensor network system, we can remotely control an amenity functions and reduce energy consumption emissions. They concluded that the changes may decrease energy consumption considerably. They also maintain that ICCTs have a great potential for reducing energy consumption, although this may depend on the economic and political environment. Emissions proposed a framework whereby ICCT can change the energy-demanding features of everyday life [89]. Some of the important contributions of ICCT on society are summarized in table-10.

FINDINGS BASED ON THE REVIEW

- Adoption of ICCT permitted information systems for agriculture development and rural viability is a strategic issue part and parcel of agriculture and rural policies.
- Transforming agriculture sector into the modern digital agriculture to improve social and economic benefits.
- Information communication and computation technologies in the shape of the lack of infrastructure in rural areas of developing countries.
- There is a need to establish new technologies centers and media houses for dissemination the agriculture information among farmers in rural areas.
- ICCT can play a major role in facilitating the process of agricultural production and meet Challenges of information technology as related to agricultural production.

- Fast changes in ICCT domain enable development and dissemination of electronic services in agriculture.
- Understood about emerging technologies like: Big data and Business Analytics, Cloud Technology, Artificial Intelligence, Internet of Things (IoT), Digital Marketing, 3D Printing, and Virtual Reality are impacting on all sectors.
- Modern agricultural technology has been developed with keeping two important things in mind: first thing is to obtain the highest yields possible and the second thing is to get the highest economic profit possible.
- Increased and improved investment in ICCT infrastructure and capacity development. ICCT training and content development and ICCT compatibility with stakeholders needs.
- ICCT on agricultural information access includes: increase in useful information availability, increase the knowledge and skills on farming activities, and improves the quality of information and effectiveness of record keeping.
- Improves awareness of agricultural information on various events and news, and enhances the accuracy of information for agricultural decision makers, enhances capacity building in agricultural markets, enhances the timeliness of useful information, and improve the relevance of such information in research.
- Fashion products development is proving that a digital prototype is feasible and can be used for some specific goals and applications.
- ICCT has affected synchronization of planning across the textile supply chain to improve visibility and to optimize performance.
- The transition of world-market, induced by increasing corporate merger, acquisition on one hand, and the changing socio-economic landscape on the other, have further integrated ICCT into every part of the textile supply chain.
- Textile and apparel companies need effective communication among buyers, designers, merchandisers, suppliers, and factories. With the increasing availability of computing and communication information networks, there is an imperative to deploy technologies such as the Internet, World Wide Webs, and client/server architecture, to serve the needs of industries.
- The review indicates that the availability of ICT in Education is supportive for the students to improve their learning skills, as well as latest technologies of ICT, are helpful for the students to better prepare their assignments and projects.
- ICCT will fulfill many needs and requirements of the present age in the field of instruction and education like individualization of instruction, utilization of multi-sensory and multi-media aid material and efficient and effective management of different educational institutions.

- Students can engage in games that can help them to learn lessons. In fact, there are many educational games out there that are so fun for children that they do not even realize that they are learning while they playing. With this, there are games that can help to improve mental acuity, which can be a huge help when it comes to learning.
- ICCT has changed the way of people to use financial services. It is saving both time and money allowing people to conduct banking operations efficiently.
- ICCT has helped banking industry to transform from bulk paper and waste to paperless communication and means of online transaction of funds.
- The technology evolved through ICCT includes telephone banking, online banking, credit cards, debit cards for money transfer, electronic money, and transactions through automatic teller machines.
- ICCT plays an important role in the profitability of banks by decreasing other expenses in the banking sector which include marketing expenses, compensation expenses, depreciation expenses, and printing expenses.
- The frequency of internet strongly determines the success of getting a bank loan.
- ICCT has been of great impact on the banks that it leads to saving the period of the customers and the workers evidently, cutting down the expenses and facilitating the network transactions.
- Technology appears to be essential in everyday life to an increasing extent, and this development is greatly facilitated by the spread of ICCT tools.
- Information Communication and Computation Technology (ICCT) has tremendously changed everyday life. New technologies such as computers, the Internet, wireless devices, social networks, have become part of people's lives irrespective of their age, gender, or country.
- The ongoing computing and communications revolution have numerous economic and social impacts on modern society and require serious social science investigation in order to manage its risks and dangers.
- ICCT plays a integration role by bringing people from different parts of the world together to communicate with each other across the world.
- It gives an opportunity to improve online communication, to meet new people online, establish a friendship, and to share personal information online (ubiquitous).
- Information Communication and Computation Technologies (ICCT) are increasingly used in transport to make travel more efficient and cost-effective.

CONCLUSION

The paper reviews the Impact of Information Communication and Computation Technology on various service sectors and I understood that there is a meaningful relationship between information technology and various service sectors. It was showed that there are many problems were indicated by researchers about Information Communication and Computation Technology in the shape of a lack of infrastructure in rural areas of developing countries. The Government should create an integrated agricultural information system on Agro-technologies and techniques, pricing and market information so that strategic information could be provided to farmers and other stakeholders at national, regional and district levels. In India, it can be successful only if it is properly implemented in rural areas also. There is also a need to maintain the privacy and confidentiality of data. Information Communication and Computation Technology offer enormous potential and various opportunities for the Indian banking sector. It provides a cost-effective, rapid and systematic provision of services to the customer. This appears to be an indication that ICCT will have detrimental effects on education. One of the best things about technology is that it is constantly changing. As technology changes, so will the effect it has on education. The positive conclusion can be concluded in the field of Information Communication and Computation Technology on Education, Banking, Society, agriculture, and textile sectors are having the level of relationship to develop various business sectors.

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