



## Role and Impact of ICT on Changing Lifestyle in Uttarakhand

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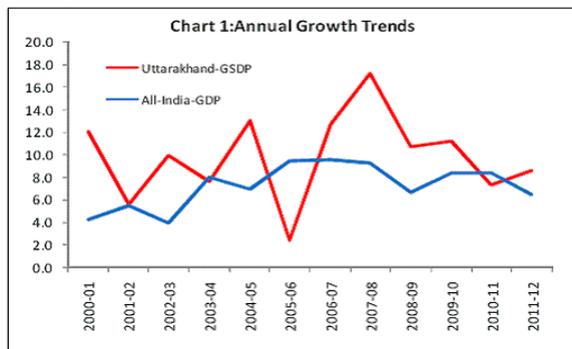
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**ABSTRACT:** This paper throws light on the effect of Information and Communication Technology (ICT) on the human lifestyle in Uttarakhand. It describes how the advent of technology has revolutionized the working of various departments. It also discusses the various challenges that people are facing in the use of technology. Then, there is a brief discussion on the measures that may lead to the utilization of ICT in a more efficient way and their implementation may see Uttarakhand become one of the smartest and well-developed states of our country. Finally, we have tried to put some cases that will promote ICT in Uttarakhand.

**Keywords:** ICT (Information and communication technology), GDP (Gross domestic product), IT (Information technology), MIS (Management information system), EVM (Electronic voting machine)

### I. A BASIC INTRODUCTION

Uttarakhand is a beautiful state of India that has many magnificent hill stations, glaciers, rivers, wildlife and other landmarks that attract people not only from our country but all across the globe. Since its origin as a new state, people here have been following the old traditional methods of living and managing life until ICT finally came into picture in the last 10-12 years and completely modified this approach. Gradually, people have started realizing the importance of technology in their day-to-day life. Not only the private sector, but now the government sector has also adopted new technological tools that have empowered their development.



**Fig. 1.** [1] Comparison of Uttarakhand GSDP with All India GDP.

This chart shows the total annual contribution of Uttarakhand to the development of India in terms of its GDP (Gross Domestic Product).

### II. IMPORTANCE OF ICT

Technology is always developing. The more it develops, the more we change. ICT is the smart use of digital technology including smartphones, gadgets, wireless Bluetooth and of course internet which have taken the level of our society to completely new heights. Let us put a few examples- for Communication, we have Whatsapp, Facebook, twitter, etc. for Entertainment, we have games, movies, music, etc. for Information, we have limitless material on Wikipedia to study, research and much more. Our honorable Prime Minister Mr. Narendra Modi has a vision of making India totally digitized and ICT can be a very crucial factor in making that vision come true.

### III. IMPACT OF ICT

ICT has affected every sector of life in Uttarakhand. Some of these are discussed below:

#### A. Effect on Education Sector

ICT has totally changed the way education is delivered and how people gather it. How a traditional way of teaching in a classroom looked like was something like this:



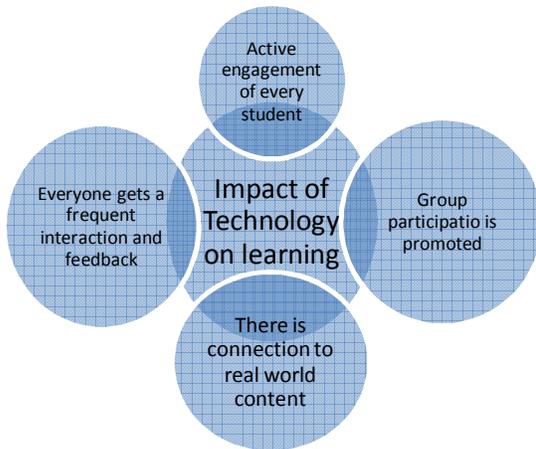
**Fig. 2.** Traditional picture of a classroom.

But technology has now brought a drastic change and now the picture of a typical classroom is like:



**Fig. 3.** Use of ICT tools for providing education.

The use of video lectures and power point presentations is now being promoted and implemented by many schools and colleges.



**Fig. 4.** Impact of technology on learning.

This way of teaching helps students learn things quickly and in a better way. Moreover, there is unlimited information available for everybody who is interested to know about any topic on the internet.

According to the latest census report in 2011, the literacy rates of every district in Uttarakhand have gone up considerably from the last decade or so.

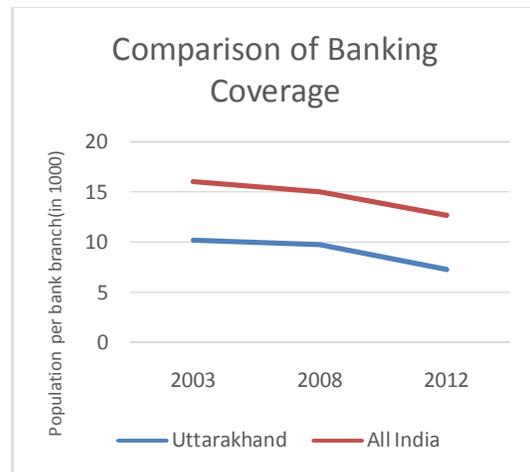
**Table 2: Change in the male and female literacy in uttarakhand in the last decade [2].**

Description	2001	2011
Population	8489349	10086292
Male	4325924	5137773
Female	4163425	4948519
Literacy	71.62%	78.82%
Male Literacy	83.28%	87.40%
Female Literacy	59.63%	70.01%

This table clearly shows the increase in literacy rates in Uttarakhand in the last decade due to an increase in the use of ICT.

#### B. Effect on Banking Sector

In Uttarakhand, the number of private banks as well as government banks using new technological tools have gone up considerably. According to a survey, people using government banks for transactions are 60% while those using private banks are only 17% [3]. This shows that people give a lot of preference to the government banks for transactions.



**Fig. 5.** [4] Comparison of banking coverage of Uttarakhand and India.

Almost all the banks (excluding some such as SBI (State Bank of India)) are now supporting net banking. You can do all your transactions online without being physically present at the banks.

#### C. Effect on Social Connectivity

Technology has played a major role in bringing people together. Applications like Whatsapp, Facebook, Twitter and Instagram have allowed people anywhere on the globe to stay connected with one another. People

can now remain in touch with one another, chat (messaging as well as video chat), download and upload data, access system resources of each another and do much more.

Uttarakhand has seen a huge rise in usage of such social-connecting applications. Also, the number of smartphone users especially android have increased over the years. Studies have shown that since 2010, the total smartphone users in the state have increased by a very large value.

#### D. Effect on Management of Organizations

Every organization in today's competitive world has an IT (information technology) department in it. This department is considered as one of the most important departments in the organization as every other department of the organization is connected to it through a software known as MIS (Management Information System). This software is controlled by the IT department and is a central unit in the organization that connects all other departments. It can be defined as a system which provides information, support and decision-making for an organization. It can be thought of as an integrated system of man and machine for providing support to operations, management and day-to-day functions.

The MIS provides accountability for each employee and allows every department in the organization to work efficiently and collectively towards achieving a common goal.

For example, if an employee needs to clear his grievances on some matter, he or she can directly go to the MIS and through his/her account can drop a mail to the HR (Human Resource) department) which will immediately react to it and get the matter sorted out. MIS also helps managers of an organization take effective decisions without any risks.

The major challenge in using MIS was to secure confidential data from the unauthorized employees.

Nowadays organizations keep a certain level of restriction to the access of the MIS for every individual working in the organization to avoid the misuse of it.

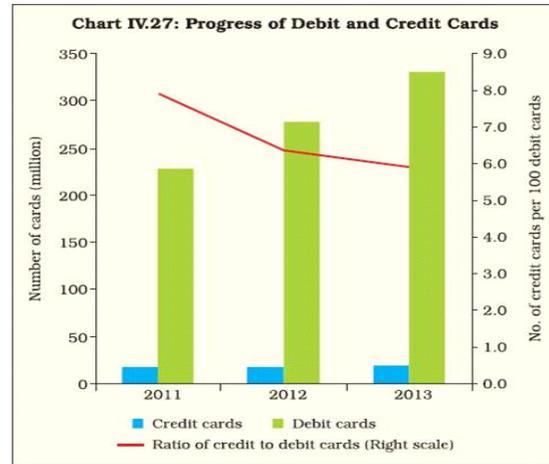
In Uttarakhand, MIS has created many job opportunities for executives in cities having large number of industries like Kashipur and Dehradun.

#### E. Effect on Economy

The economy not only in Uttarakhand but in almost every state of India is getting directly affected by the change in technology. After demonetization in India, a large share of economic transactions are now being done online. People are switching towards various e-payment options like use of paytm, freecharge, Bhim

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and other such applications which allow transaction of money without any cash. In addition to this, the use of master cards, credit cards and debit cards for money transactions are also being adopted. All these steps have been taken by the government to turn India into a cashless economy.



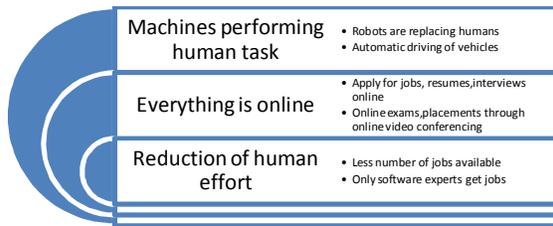
**Fig. 6.** [5] Increase in the use of credit cards and debit cards in Uttarakhand

Specifically in Uttarakhand, all these strategies are being promoted and implemented increasingly. But, still there is a huge population in the state that is dependent on the traditional system of money transfer. Thus, there is a need for generating awareness among such people about the new ICT techniques and how these techniques can make their lives more comfortable. In addition to this, a lot of tourists from all over the country come here and spend a lot of time without any discomfort. This is due to the lenient policies made by the Uttarakhand government for tourists. This is giving a huge boost to the economy of Uttarakhand through tourism.

#### F. Effect on Business

Business nowadays is getting directly affected by the use of technology and its advancement. Business not only at a large scale but also at a smaller scale is empowered by the use of new technological tools. Gone are the days when people used to do a business by physical interaction which used to consume a lot of time and not attract much of the customers. Putting a business online can allow people to make a lot more profit in the business and attract a lots of customers.

Also, employment in terms of man power has gone down considerably. This is illustrated by the following figure.



**Fig. 7.** ICT in employment.

Along with this, e-commerce is really gaining a lot of popularity among customers as well as sellers, There are various online shopping sites like amazon, snap deal, etc. These sites have provided a new method for people to buy products without being present at the shop while the payment is done either through master cards (which are quite popular) or through cash on delivery which is much more convenient.

Thus, the impact of ICT on business and its management has been huge and it is continuously increasing.

#### *G. Effect on Health*

ICT has affected the health of every individual of this generation either directly or indirectly both in a positive and a negative way.

Its direct effects include the lack of physical movement or exercise which is induced by the usage of internet tools which provide any services without much of physical movement. Now, every information, transaction or chat is just a click away. On a positive side, people are finding a lot of solutions to their health issues and suggestions by the health experts or applications on the internet.

Some of the indirect effects include the weakness to immunity caused by the harmful radiations emitted by electronic gadgets, atomic and nuclear devices and Wi-Fi, etc.

The traditional lifestyle in Uttarakhand is such that the people are generally very active physically and hardworking. But with day-by-day advancement of technology and the usage of new gadgets, this tradition is getting changed. This, in turn is giving rise to many new diseases and many people falling prey to obesity. The graph of people falling ill due to such unhealthy lifestyle is going up every year in the state.

## **IV. CHALLENGES FOR ICT IN UTTARAKHAND**

ICT is currently facing a lot of problems to get fully implemented in Uttarakhand. There are a number of reasons to it. Some of them are:

#### *A. Lack of Awareness*

Most of the people in Uttarakhand are living in an old-fashioned society or in hilly and remote areas. There, they remain unaware about the economic trends going around in the urban areas of the state and the nation.

#### *B. Lack of Elementary Education*

People who are older in age generally do not have enough knowledge for operating a smartphone. There is a large set of people who are not literate enough to work with such technology such as the tribal communities. In fact, there are some people who do not even have a bank account.

#### *C. Poor Electricity and Network Connections*

There are many remote and hazard-prone regions in the state where there is very less or no electricity supply. In many areas, the establishment of network is a really difficult task.

#### *D. Poverty*

Quite a significant amount of population is not having enough money to buy a good smartphone and have an internet connection.

#### *E. Geographical Isolation*

A large share of the total population lives in hilly regions or in places that are isolated from the rest of the people. Thus, people in the state are spread in all the regions in form of groups or communities which remain quite far away from each other. Thus, connecting everyone into a network is a really difficult task.

#### *F. Poor Infrastructure*

Many banks still do not provide ATM services in the state. The operating systems that the ATMs are using are operated from foreign countries. Thus, there is a lot of risk in online transactions. Recently, there have been many cases when the people have been cheated online and there is no investigation done by the solo cybercrime unit located at Dehradun. The applications we use for digital payment can also be hacked very easily. Thus, a lot of improvement in the infrastructure is required.

#### *G. Lack of Government Policies*

The government in the state has also not implemented strategies and policies which could have led to more efficient utilization of ICT. The few initiatives launched by the government are only at a very small scale and were not implemented properly.

## V. HOW CAN THE CHALLENGES BE OVERCOME

In order for the technology to grow in the state, all the challenges need to be overcome as quickly as possible.

Some of the measures that can be taken in our view are:

### A. Creating Awareness

People who are not educated and do not know about importance of ICT must be told about it. They must be made familiar with the new technological trends going around in the country. If they are made aware through campaigns and given knowledge about the easiness that technology can bring to their routine life, they are likely to follow the ICT tools and techniques.

### B. Effective Government Policies

The most important role in overcoming all these problems is to be played by the government. The new government under the influence of Mr. Narendra Modi can definitely solve all these problems to a large extent. They need to make strategies and policies which will enhance the growth of IT sector in the state. In addition to this, a proper implementation of these policies should also be done.

## VI. OUR IDEAS

There are a lots of cases where different ideas have been suggested and tried to promote the use of ICT in Uttarakhand. We are discussing a few of them along with our ideas.

### A. An Automated Online Voting System



Fig. 8. [6] Logo for an online voting system

Since our independence and the formation of the first government in India, we have been following a traditional voting system which is done manually. In this system, ballots were used to cast the vote to a particular political party.

But this system was found inefficient in conducting fair, smooth and consistent elections.

Then a few years back, the concept of EVM (Electronic Voting Machine) was introduced. This made some improvement to the mode of conducting elections. But still there are a lots of defects in the current voting system.

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We suggest the use of an online voting system which can remove many of the problems that the current election system is facing. In an automated online voting system, everyone eligible for voting has a separate account through which that person is allowed to vote. For this, everyone in the state needs to have a separate account.

### What does such a system bring to the election system?

1) *More accurate results:* This way of conducting elections can allow voting to be conducted in a fair way. The results will be calculated by the tallying up by the computer. Therefore, the chances of mistakes are reduced considerably. For example, in the recent elections in five states of our country, Arvind Kejriwal and Mayawati filed a case against the EVM used for those elections. This would not have been the case if the voting would have been conducted online.

2) *Faster results:* Results of the contested elections are computed from the entries of the database. Thus, the results will be given immediately after the elections are over.

3) *Reduction in the overall cost and convenience:* This system will eliminate the cost of all the ballots that were being used up till now. Also, it will be convenient for people as they can vote by sitting at their homes.

4) *Fair system of voting:* There can be several restrictions/constraints applied on the client side of the website so that every voter gives his/her vote in a fair manner.

5) *Reminders and feedback through emails:* Constant reminders of the date and timings of the elections will be given to the voters. Also, a confirmation mail can be given after a voter gives a vote.

6) *Everyone can vote:* There are many people who are very eager but are unable to vote due to lack of transport, weather conditions or due to some other reason. Such people can vote very easily with having to worry about getting out of their homes.

### B. An ICT Awareness Portal Connecting Uttarakhand

In our view, an online portal connecting the whole Uttarakhand state can enhance the usage of ICT and allow a better use of it.

The main idea here is the creation of a website where each individual of Uttarakhand should be logged in. This website should include all the basic as well as newly evolving technological trends in the market so that everybody connected to it gets to know about the latest advancement in technology and the changes it is

going through day by day. It may include all the modes of information i.e. audios, videos, power point presentations, pdf (portable document format) and any other way of giving information that is easily understood to everyone connected. Also, it must support all the regional languages of Uttarakhand like Pahari, Kumauni and Garhwali along with Hindi and English. Any new technology should get uploaded on it along with all its background knowledge and implementation procedures.

#### **Advantages of such a portal**

7) *Information about new technology is given to everyone:* As soon as there is any new ICT tool or software developed it gets uploaded on the website along with its full functioning. This enables everybody connected to the website to acquire the knowledge about the new technology.

8) *Improvement in Literacy Rate:* In this type of system people will be given education about the use of ICT. As many people will get to know about the fundamentals of using internet, it will automatically raise the level of literacy in the entire state.

9) *Better connectivity of the people living in a state:* People living in one state will get linked on a single platform. This will allow better integrity among people and they will get to learn from each other. This

will help in taking everyone forward towards a bright future and a united development of the state.

10) *Knowledge about a topic is conveyed at a faster rate:* Any new topic will get discussed among so many people that it will take no time for the information to get conveyed among everyone living in the state.

#### **VII. CONCLUSION**

The 21<sup>st</sup> century revolves totally around the development of new technology. From the discussion of all the topics so far, it can be concluded that ICT is definitely changing the world at a rapid pace and Uttarakhand is also getting affected by it too. There is still room for a lot more improvement required by both sides, the people living here as well as the government in the growth of ICT and its better implementation in the entire state.

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