1.1 Research Background

The use of technology is gradually increasing in government departments especially with the use of Information and Communication Technology a new form of governance has been discovered known as e-Governance. In e-Governance the services of government offered manually now by the digitized documents, online services, online transactions of funds which gives a better experience to the user. These technology leads to greater benefits as in cost reduction, enhanced work culture outcome and also in protection of user by complex government procedures and the use of papers. With availability of Internet and WWW the government can offer different type of services to citizen, business, employees or to other government departments. The implementation and delivery cost is high if we are using traditional Infrastructure but some new cost effective trends are now in use like ICT [2] [3] is one of them which provides the service oriented computing platforms and greater flexibility in accessing and delivering resources over the network. As the ICT provides the way to access the online service and can deliver the documents across the world, so it can be used in government institutions for delivering the many day to day services to common man and sharing of the resources will possible among government departments. E-Governance can offer many G2C (Government to Citizen) services using ICT facility, in that the end user can access the contents and other materials as per use. The SaaS model of ICT is there to offer G2C service to all the citizen of a country. [4][6]
In ICT technology based e-Governance system all the government sector institutions of a Country or State can be connected easily and they can share the resources and e-contents for e-Governance process. [11] To connect the government departments with e-Governance system we can use ICT based model. The proposed model provides the opportunity of flexibility and adaptability to use the computing resources on-demand without physical purchasing or installation at user site. Contrary to having only one service provider in present e-Governance models where the software has to install on each system, different providers use different interfaces to their computing resources utilizing varied architectures and implementation technologies for citizen or business entities. Although this can creates a management problem, a common architecture facilitates the management of computing resources from different ICT providers in a homogenous manner this research have a proposal to reengineer the existing governance architectures, and how government institutions can manage the ICT resources. The researcher also brought reasonable explanations for the challenge of using ICT facilities to design an e-Governance system.

During the last five years, e-Governance applications were based on the traditional IT or ICT based Systems using www or Internet. With new trends of Web 2.0 and e-Governance 2.0, the e-Governance developers have moved to Rich Internet Applications.

This study aims to propose an ICT enable “Towards Studying e-Governance Strategies in Uttarakhand”. It elaborates the workflow of the developed service and focuses on ‘e-Governance as an On Demand Service stored in ICT environment, thereby moving on to the new concept of e-Governance which will benefit the users of government services countrywide. Thus, this concept would lead to a fundamental shift in the government sector of any country or state by providing a new way for storing and hosting the e-Governance applications in ICT environment, which gives a better opportunity for the end users.

For this study we choose ICT as an emerging computing paradigm which provides the variety of services in such a way that has not been experienced before. E-Governance as a ICT service (SaaS) can be one among them. The main aim of our study is to propose a ICT based e-Governance model with use the limited resources,
and which is available in an efficient and effective way to balance the current government resources in a more economical way. [12] The model proposed can be used by the developing country like India for improving their quality of offering government services to a large number of users in a very cost-effective manner. In our outcomes of thesis we proposed a prototype of ICT-based e-Governance model and will discuss some practical implementation issues of approach for government Institutes and Departments. As there is no limitation in technological developments, the new advances will come in light in the area of ICT which will give a better user experience to next generation in e-Governance process.

The present study investigates various issues involved in designing a new model of e-Governance using ICT technology with an aim to suggest solutions in the form of many measures and management standards. These will help to overcome some major threats in ICT-based e-Governance technology. To achieve our thesis aim, we used theoretical and empirical studies. Empirical study is made through the information gathered through various ICT-based e-Governance solution vendors websites further the theoretical study is made through the text analysis on various research papers and articles related to our subject areas. And finally the constant comparative method is used to compare the empirical findings with the facts discovered from our theoretical findings. These analysis and research studies are leads to find various designing issues in ICT-based e-Governance technology and to propose our model.

This thesis will present a novel ICT model for implementing Government services of e-Governance system in a country like India and the implementations of e-Governance applications in a ICT platform such as Google apps engine. This platform is based on distributed system, it has non-relational database such as BigTable. It can scale up to zeta bytes records and query and it has the power of fault tolerance and high availability, which are the basic requirement for the implementations of ICT-based e-Governance system.
1.2 Research Problem Statement

Availability and affordability of Government related services to a common man is a serious factor for sustainable development [9]. The importance of good governance, especially in developing countries like India, is increasing because of advancing pressure to catch up with the developed world regarding, for example, global competitiveness [10]. Typically, infrastructure availability are different in developing countries than in developed countries, such as low quality of education and narrow possibilities to have computers, internet or mobile phones in rural areas because of far distances and high opportunity costs [11].

Uses of ICT in e-Governance domain have many benefits. In existing system in government organizations it is very difficult to exchange information between the different sub organizations. For instance data from election commission cannot be easily shared with the Police and Defense sections. When a situation arises, it has to go through levels of bureaucracy and authorization and lot paperwork has to be done to finally get the required information which wastes huge amount of resources and time. One good objective of the thesis is to provide an e-governance model that will allow this information sharing very easily, reliably and with appropriate security attached to it without any such hassle. For instance if a traffic police wants to know personal information of a driver, he will just provide registration number of the driver and his personal information will be forwarded from the RTO or election commission to the police officer. Here, we have implementing and solving a specific model problem to implement effective e-Governance. The objective is to achieve this with ICT methodology.

In recent days many ICT companies emerge in market and offer the ICTpower too many technical solutions to make their products more cost effective and enhancive with the ICTpower. The proposed ICTbased e – Governance solution is one of those technologies where it implements the ICTpower in its existing system to enhance the functionality providing to the common man. So in this thesis, we study some key
issues that will help us to design and propose the best use of ICT in e-Governance systems.

E-Governance is a process of reform in the way and delivers services to external and internal clients for the benefit of both government and the clients that they serve. E-Governance provided the many services to those within its jurisdiction to transact electronically with the government. These services differ according to users’ needs and ICT capacity, and this diversity has given rise to the development of different applications of e-Governance, described in the following subsections. In this study e-Governance is considered as the integrative concept for several e-initiatives methods for governing the state of Uttarakhand. Governance can thus mean organizational or personal governance (see in figure). The figure indicates that e-Governance is a collection of many different e-oriented sectors of the society. [1]

1.3 Purpose of the Study

The main purpose of this study is to analyze e-Governance concepts for citizen point of view as well for business person and government department to find out the benefits of ICT as a emerging concept and then to propose a new model of e-Governance with a good understanding on ICT as a technology for a new approach for facilitating government activities through e-Governance. The effect of which can be felt as an emergence of new dimension for the generation to come. So, in the long run, most of the government and private sector entities either big, medium size or small do not want to have the overhead cost associated with running a large IT department that is solely involved in sustaining existing software application. Large partners do not have the risk tolerance to start using ICT immediately. It gives a new aspect to offer government services like pension funds to common man without owing so much. The concept is so new that work is still going on to cater the need with the best way for the e-Governance companies having a technology need. There is a big push for ICT services by several big companies. Google, Microsoft and Amazon have been heading the ICT movement. Yahoo, IBM, Intel, HP and many more are in a process of implementing the ICT technology for their businesses. Some large banks are also engaged in research and development projects in the field of ICT. So in years
to come, it is our firm belief that the ICT would definitely be providing a competitive edge to the e-Governance model over the existing technology of doing the same.

Easy and cost effective availability of information is one of the people’s peak concerns on all grounds when we work in ICT domain. People are more concerned about maximum availability in minimum recourses and cost especially when using the PC, Laptops, mobile phones or other gadgets or technologies that connect them with internet. Because a large population of India cannot use or afford the internet as it needs good infrastructure and high cost of use to gain access to the servers of e-Governance users or company details worldwide. E-Governance technology is now incorporated with many latest technologies to provide more provision and reduce the complexity from traditional e-Governance methodology to their users. So in this thesis, we are mainly focused on the various issues like Infrastructure, Operating platforms, Software and security that should be analyze before designing e-Governance systems based on ICTmodel. Because ICT is one of the fast developing technology which offer numerous benefits and provisions to users who used to enhance their existing technology with ICTpower. But still ICT has not fully utilized in e-Governance domain. [13] So there is a question raised on how the ICTprovides more benefits in e-Governance technology and to the normal citizen and how we can design such a new model. So our research throws light to identify the various designing issues, benefits and threats with ICTbased G2C services of e-Governance and the countermeasures took recently on those problems.

1.4 Research Questions

Main Question:

For this study, our endeavor is to highlight and bring out a new model of offering government services through e-Governance where ICT may be utilized to offer a cost effective, easy operating and highly available platform.

Sub-Questions:

1) What can be the Infrastructure related issues in phased based e-Governance?
2) What can be the Software or Applications services issues while offering e-Governance?
3) What can be the Operating system and other software Platform related issues in service oriented e-Governance?
4) What can be the other issues that need to addressed before designing the propose model?
5) How we can design a phased based e-Governance model,

1.5 Research Benefits

**Greater accessibility in lower cost and better learning outcomes**

The e-Governance with ICT will provide the greater accessibility among the users and better citizen service outcome. The concepts and ideas can be represented in more attractive and clear way by using text, audio, video animation and graphics to many users at a time and to large geographic areas.

The cost reduction shall be the greater benefit in this e-Governance model as it will hosted on ICTservers. The e-services are cheaper than the manual services and can be offered to number of users at a time made with less cost of infrastructure and software application.

**Increased Participation of Government departments and citizens**

As the e-service can be shared, stored and manipulated over the ICTnetwork which provides the increased participation of departments, government institutes and common man community. The more number of departments/ institutes can be connected and their resources can be shared, which will help to enhance the offering of many government services in every domain of e-Governance. This thesis is hopefully having a research contribution which helps users, government officers, IT trainers and researchers to use ICTbased e-Governance solutions in e-Governance.

Many government and private sector departments of nations or states are sure to be benefitted from this work, in the way of getting better e-Governance solutions with ICTsupport in easy way and in minimum cost and efforts.
E-Governance requires several elements of good governance such as transparency, accountability, participation, social integration, public financial management reforms and development. It includes a very broad range of services for almost all segments of society. The most common areas of E-Governance applications are: [5]

• Education • Agriculture • Transport • Health

1.6 Research Limitations

The work mainly focuses on to study of the various e-Governance models and issues related to ICT based e-Governance solutions and to propose a theoretical ICTbased e-Governance model, so this does not cover the practical difficulties and problems in ICTbased e-Governance software development. Because of this, our thesis is only limited to theoretical presentation of our views based on literature review and survey in ICTbased e-Governance.

1.7 Outcomes of the Research

The expected outcome of this thesis is to find out a novel approach after deep analysis of existing model to propose a ICTbased e-Governance system. We also try to propose a prototype model for Government services of e-Governance using ICTtechnology named GICT.

1.8 Thesis Structure

The structure of our research area is fractioned into seven chapters which are explicated by series of steps in a diagrammatical representation.

The first chapter begins with a short introduction to background of our work; we also stated the research problems about the implication and relation of our work. We divided the main research question with some sub questions which together lead to propose and prove our study.
The **second** chapter comprise of our research design and methodology which is a plan of action that points the flow in the right direction and to check whether the process is carried out in a systematic procedure. In this chapter we further discuss about our research approach along with data collection procedures, data analysis procedures, result presentation methods and finally the strategies for to validate the findings.

The **third** chapter constitutes the theoretical base of our study which is the perspective to analyze and select the literature and establish an idea of how they relate to one another. So we had gone through the relevant literature sources and the previous research studies in order to frame out the foundation for our work. We identified the further issues and detailed it by choosing the crucial content from them.

The **fourth** chapter structured on narrating the importance of the empirical study which is a research achieved only thorough self-observation or experimentation. This in turn used to making decisions in choosing the best option to get a job done. Our work is structured on comparative analysis. Along with that the data collection through different sources and methods like questionnaires are portrayed.

The **fifth** chapter is the outcome of researcher work based on the analysis of both theoretical and empirical results collected through sources in previous chapters. The design issues of proposed model will discussed in this chapter and a detail framework of propose model discussed to design practical model of ICT based e-Governance system to software vendors.

The **six and seventh** chapter finally presents the final outcomes method, findings of this research and the result obtained accompanied by the final conclusion part. In this phase we also discussed about the further research scope of our study.
References


[10]. "Amazon Elastic Compute ICT(Amazon EC2)," http://aws.amazon.com/ec2/  
