Chapter IV

LITERATURE REVIEW

4.1 Introduction:

The purpose of this Literature review is to take a review of existing literature related to e-governance in higher education in Maharashtra and India. This review was conducted as a basis for this research to have a proper understanding of e-Governance implementation in higher educational institutions. This was essential in order to identify research conducted within the study area and will ensure unnecessary duplication is avoided in the subject and the research area. A literature review will also provide valuable insights in choosing appropriate research techniques, structure, models and framework. The initial part of the review will set the background by examining existing literature related to the general aspects of e-governance and its implementation in higher educational institution in Maharashtra, which is one of the most advanced states in India in all respect. The chapter examines study of e-Governance in higher educational institution and other critical factors such as social, economical, technical and political that affects the successful implementation of e-governance projects and their impact on the government’s administrative structure in the higher educational sector.

Thus, a literature review is an account of what has been published on a topic by accredited scholars and researchers. Generally, it is part of the introduction to research thesis. The purpose of writing the literature review is to convey to readers, what knowledge and ideas have been established on a topic, and what their strengths and weaknesses are. As a piece of writing, the literature review must be defined by a guiding concept of the topic.

Besides enlarging your knowledge about the topic, writing a literature review lets you gain and demonstrate skills in two areas –
1. **Information seeking**: The ability to scan the literature efficiently, using manual or computerized methods, to identify a set of useful articles, books, magazines, annual reports, international published papers, newspaper articles etc.

2. **Critical appraisal**: The ability to apply principles of analysis to identify unbiased and valid studies.

A literature review is an evaluative report of studies found in the literature related to our selected area. The review should describe, summarize, evaluate and clarify this literature. It should give a theoretical basis for the research and help you determine the nature of your own research. A literature review goes beyond the search for information and includes the identification and articulation of relationships between the literature and your field of research.

4.2 Meaning of e-Governance:

According to Richard Heeks¹ “one of the prominent writers on e-Governance specify, new ICT can make a significant contribution to the achievement of good governance goals. The ‘e-Governance’ can make governance more efficient and more effective and being other benefit’s too. He also outlines the three main contributions of e-Governance: Improving government processes (e-Administration); Connecting citizens (e-Citizens and e-Services); and Building external interaction (e-Society).

As per his view, there are three basic potentials for good governance for development i.e.

i) **Automation** : The automation of existing clerical functions.

ii) **Informatisation** : Supporting current process of decision making, communication and decision implementation;

iii) **Transformation** : Creating new methods of public service delivery.”

e-Governance can be understood² as “Performance of the governance via electronic medium order to facilitate an efficient, speedy and transparent process of disseminating information to the citizens and also facilitating the electronic channel of communication from citizens to government which would led to efficient and effective service delivery an proper grievance redressal.” It also includes the use of ICTs for performing the various activities within the administration.
4.3 Definition of e-Governance:

The term E-Governance has got weight age in recent years there is no universal definition. Different organization and governments define term to suit their objective and knowledge. e-Governance is often defined in various ways, and literature does not offer a consistent definition for e-governance. The below mentioned definition is adapted from UNESCO’s definition of e-Governance.

UNESCO defines e-governance as: “Governance refers to the exercise of political, economical and administrative authority in the management of the country’s affairs, including citizen's articulation of their interests and exercise of their legal rights and obligations. E-governance may be understood on the performance of this governance via the electronic medium. It does so to facilitate an efficient, speedy and transparent process of disseminating information to the public and other agencies and for performing government administration activities.”

E-Governance refers to the public sector’s use of Information and Communication Technologies (ICT’s) with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective (UNESCO, 2011). This definition was chosen because it clearly shows us that e-Governance is not about automation of existing government systems but it is a tool that has the capability to transform the way government and citizens interact.

According to the World Bank e- Governance refers to information Technology used by government agencies of that have the ability to transform relation with citizens, business and other arms of government. These technologies can serve a verity of different ends. Better delivery of government the resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth and/or cost reduction.”

As per the US E-Governance Act “Electronic Government” the use by the government of web-based internet applications and other Information Technologies, combined with processes that implement those technologies, to –
A) Enhance the access to and delivery of government information and service to the public other agencies and other government entities; or

B) Being about improvements in government operations that may include effectives, efficiently, service quality or transformation.”

Ex president of India Dr. A.P.J. Abdul Kalam has visualized E-Governance in India context as “A transparent, smart e-Governance with seamless access, secure and authentic flow of information crossing the interdepartmental barrier and providing a fair and unbiased service to the citizen.”

4.4 ICT and e-Governance:

There were several attempts to transform or reinvent the government function. With the introduction of ICT, government bureaucratic structures are going through a new phase of change or transformative phase. Increasingly government organizations consider Information Technology as a “panacea” for improving managerial efficiency. Several examples from private sector show us that the proper implementation of Information and Communication Technology can significantly change the way organisations conduct their business. This often led to an assumption that the introduction of ICT will lead to transformation of organisations. However, we cannot assume similar changes will be possible with e-governance projects due to the specific nature of governments and their unique structural constraints related to the existing bureaucratic system.

4.5 Principals of Good Governance

Paula Dobriansky, US Ex. Secretary of State for Global Affairs clarify “Good governance promotes fundamental and universal human rights. Because Unites state believes political power lies with the people, the Millennium Challenge Corporation is directed towards supporting those principles of governance that allow people to pursue their lives in a just, equitable and democratic society. We want to provide developing nations with tools they need to educate their citizens and to take part in the opportunities offered by the global economy. We are working to eradicate corruption and create a renewed respect for human rights as well as property rights.
In the worlds of the one of America’s greatest presidents Abraham Lincoln, democracy is form of government “of the people, by the people and for the people.” The right of every person to speak freely about his government is a basic human right.

Following are the some important points for good governance:

1. Free and Fair elections
2. Independent Judiciary and the rule of Law
3. Freedom of speech and Press
4. Fighting against corruption
5. Investing for people

By promoting good governance in our foreign policy particularly through the MCA, the conditions of citizens’ lives worldwide will be enhanced through the creation of strong democratic nations with prosperous economies and improved standards of livings.”

4.6 Difference between e-Government and e-Governance

Jeong Chun Hai expressed in his article e-Governance or e-Government or Digital government, essentially refers\(^8\) to “The utilization of IT, ICTs and other web-based telecommunication technologies to improve and/or enhance on the efficiency and effectiveness of service delivery in the public sector.” e-Governance is the ICT-enabled route to achieving good governance. With power of ICTs at its roots, it provides three basic change potentials for good governance for development: Automation, Informatisation and Transformation.

e-Governance and e-government both the terms are treated to be the same\(^9\), though, there is little difference between these two. **E-Government** is the use ICTs in public administrations - combined with organizational change and new skills - to improve public services and democratic processes and to strengthen support to public policies. Whilst e-Government has traditionally been understood as being centered on the operations of a government, e-Governance is understood to extend the cope by including citizen engagement and participation in governance. So as **e-Governance** is the use of technologies that both helps governing and has to be governed.
Israles, Amos Avny clarify\textsuperscript{10} “The strongest point seems to be the fact that e-Government will become the predominant type of governance of the 21\textsuperscript{st} century. The weak point and the threats include perils such as: differentiated society, distancing civil servants from common people, changing work habits of public administration, incongruity between government and people and lack of citizen’s interest in the e-services available on the other side the opportunities analysis shows that e-Government, if proper installed and operated could be the most easy and popular link between people and government.

He concludes that the 21\textsuperscript{st} century is going to be a very complex, confusing, chaotic and changing social environment for the people, organization and governments. E-Government would be the predominant administrative instrument of the future.

4.7 e-Governance Service and Models

Increasing rates of ICT adoption by governments and a large number of e-governance projects initiated worldwide led to more research in the e-governance area. Another reason for increased focus from researchers was the high failure rates of e-governance projects and increasing challenges related to implementation. The fore mentioned issues demanded a comprehensive approach to the implementation of e-governance. This has led to the development of models and frameworks by various factors including governments (Australia (ANAO 2000); Sweden (SAFAD 2000); India (NeGP 2003)), development agencies (World bank (2002); United Nations(2003)), consultancies (Gartner (2000); Deloitte (2001)) and researchers (Layne & Lee, 2001; Andersen & Henriksen, 2006; Finger & Pecoud, 2003; Kannabiran et., al, 2005; Moon, 2002). Most of these models have different number and names of stages; however, most of them have stages that share similar characteristics. In order to understand various thoughts within the e-governance space, this researcher looked at four different frameworks and models

According to Amutha Kannan written in the newspaper article\textsuperscript{11} mentioned by E Balagurusamy, Tamilnadu state planning commission member of education suggest ways and means to increase the state Gross Enrollment Ratio (GER) in higher education from 16 percent to 20 percent in the next plan period and to 25 percent in the next 10 year. He suggested 5E model in higher education: Expansion, Equity, Excellence, Employability and e-Governance.
According to Pankaj Sharma written on e-Governance in his book. He defines “e-Governance in my view, defines a terrain- the public sector - as well as the institutions, people and processes that operate within that terrain, e-Governance is about how that terrain operate and how it gains and maintains legitimacy.” He also mentions e-Governance has a nice sound to it but we must remember that the e-word doesn’t mean an instant change from old systems to this new electronic world. This is an ongoing exercise whereby system needs to be evaluated, new architectures designed, processes modeled, infrastructure built and staff trained. There are also the issue of accessibility usability, security and transparency; however, security may conflict with access and transparency with ease of use. He also claimed that implementing new systems is 10% about technology. The rest is ensuring that the people who will the technology are adequately trained and comfortable with moving to the new ways.

The author, who specifies Gartner, an international consultancy firm, has formulated a 4-phase e-Governance model. This can serve as a reference for the governments to position where a project fits in the overall evaluation of an e-Governance strategy. According to Gartner, e-Governance will mature according to the following 4 phases viz, Information, Interaction, Transaction and Transformation.

In this explanation of ICT and e-Governance that impact of the Emerging Information society on the policy development process and Democratic Quality, it found out that the new ICT’s have much strength.

-Speed
-Formality
-Relative ease of access
-Target ability
-Relative low cost

It is known, how technological advances driving e-Government fundamentally and altering how stakeholders interacting to system or government.

Vasu Deva claimed in his book “e-Governance” related to quality of relationship between the government and the citizen whom it serve and protects e – Governance consist of four important pillars- i.e Accountability, Transparency, Predictability and Participation.

The models of e- Governance can be grouped in to the following four broad categories:
1. **The General Information Dissemination Model** - The first step in the transition from traditional government to e-government.

2. **The Critical Information Dissemination Model** – It is restricted to the dissemination of critical information to targeted audience or in wider public domain. It understanding ‘user value’ of information set that is being made available.

3. **The Advocacy Model** - Its aid to civil society to influence the government decision – making process by forming virtual communities or specific groups within as well as outside the government. It enables public debate government. It enables public debate on issues related to public welfare. The model helps the government by directing strategic flow of information to groups of communication.

4. **The Integrative public model** - This model is a consolidation of the earlier three models. Two ways information flow model, in which the potential of IT is fully utilized because of its interactive of operation, this model leads to greater participation, efficiency and transparency. It save time and cost in the decision making process within the government. Limitation, lack of elements familiarity with IT.”

4.8 E-Governance for Administrative development

Rajeev Singh, 2005, Published paper he said in his conclusion “One of the largest countries in the world in terms of population has one of the lowest literacy rates in the world, The literacy rate is dismally low at 61%. The country, which rank 2nd in terms of population and is one of the fastest growing economies, rank disappointing 144th in ranking of countries based on literacy rate.

“Education is the most critical element in empowering people with skills and knowledge and giving them access to productive employment in the future. The 11th plan should pay special attention to this area. If there is a consolidated place where all the student information is available then it becomes easier to analyze the performance of various initiatives taken by Ministry of HRD.
Some of the major objectives that are important and are in line with Planning Commission’s objectives are mentioned below:

1. Education for poor
2. Not just enrolment but quality education
3. Sharp reduction in drop-outs
4. Inclusion of excluded groups – SCs, STs, Minorities and Girls
5. Active participation of community in management of schools
6. Accountability for delivery of education – both public and private
7. Student data verification and validation at the time of admission
8. Ensure continuous and growing supply of quality manpower to the industry/corporate and service sector
9. Increase Technical/Vocational education along with skill development

To fulfill the above objective in effective manner to capture of student data and the allied information about them incorporated into “Student Data Hub” in standard format, open architecture, interoperable framework that can be leveraged extensively for providing a Single Source and a Single Version of Truth about the student and Educational Data. The framework has found use in a developed nation and can be replicated in India with planned study and scope.”

As stated by Ntiro on e-Governance in eastern Africans’ article15,”There are three main domains of e-Governance:

1. Improving Government processes: e-Administration
2. Connecting Citizens: e-Citizens and e-Services
3. Building External Interactions: e-Society

These particularly address the problems that government is too costly, too inefficient and too ineffective; too self-serving and too inconvenient; and too insular.”

4.9 SWOT Analysis of e-Governance

According to Maria Tsourela16 in her article “The ICT revolution and globalization have become powerful forces in upgrading economic growth and competitiveness of several countries. Through the use of technology, IC system, a country has the ability to use the
economies of scale in order to cut costs and perform better in terms productivity and service delivery. By lowering per unit costs of operations, the public sector can produce the same (or higher) output through lower spending and in less time. Rapidly, Reliability, efficiency, cost-effectiveness, customer-orientations and accessibility are the main guidelines for the development of the e-government services in Greece in order to provide quality services to users in order to provide quality services to users in the digital economy. A SWOT analysis will take place for the evaluation of the current state of e-government services. He also summaries many strengths and opportunities fuel the development of e-government in Greece, while at the same time new threats and challenges arise. The roll out of e-government services in Greece is currently advancing well, but polices of digital inclusion should play an advance role in this development in order to encourage the bridging of the ‘digital divide’.”

As specified in her international paper by Seema Verma and et al in17 “Libyan-Government is full of challenges and opportunities. She will present a strength, weakness, opportunity and threats (SWOT) analysis of social, political, economical and technical aspects of e-Governance.

1. A Social aspects
2. A political aspects
3. An economical aspects
4. The technical aspects

An analysis of current status of social, political, economical and technical aspects has been presented. The real challenge which nation faces while implementing e-Government has been discusses. It will help in Libya in refining the e-Governance Model.”

4.10 E-governance in India:

Vikas Kanungo briefed in his article18 “Citizen Centric e-Governance in India”, Global shifts towards increased deployment of IT by governments emerged in the nineties, with the advent of the World Wide Web. The technology as well as e-Governance initiatives
have come a long way since then. With the increase in Internet and mobile connections, the citizens are learning to exploit their new mode of access in wide ranging ways. They have started expecting more and more information and services online from governments and corporate organizations to further their civic, professional and personal lives, thus creating abundant evidence that the new “e-citizenship” is taking hold.

The real challenge is how to develop and sustain successful e-governance projects and deliver state of the art e-services to citizens. No country has so far implemented successful e-governance system for one billion people. Some initial requirements are implementing successful e-governance across the nation.

A wide array of e-governance projects were envisaged and implemented after the introduction of NeGP (IT-Taskforce, 2000). Most of these projects were implemented on a regional basis and some were rolled out by the national government mostly focusing on conducting government business like filing of income tax returns. Some of these projects lacked proper processes and standards, and addressed the different requirements using a wide array of technologies.

4.11 National Government Initiatives:

Government of India had taken initiative for “The National e-Governance Plan (NeGp) take into consideration the potential of e-Governance to improve the interaction with the government and to improve the quality of life of the vast population of the developing Nation. The Government of India has formulated a national program called the National e-Governance plan (NeGp). Through, plan of the Government of India to make all government services available to the citizen via electronic media. The plan and strategies of government to cover encapsulated all the important areas relating to e-Governance implementation are:

a) Infrastructure
b) Web enabled delivery of public services i.e. MMP( Mission Mode Projects)
c) Capacity building
d) Awareness
e) Communication
f) Set standard and quality of service
g) Provide permanent security which includes Biometrics
h) Digital signature,
i) Inter- Operability
j) Network and Information security etc.
This was not possible without setting policy and strategies. NeGp is a comprehensive “programme” of GOI and is designed to leverage capability and opportunities presented by TCT technologies in India over the last couple of decades. The need of e-Government in India was finally articulated in the form of the 11th report of second Administrative Reform Commission (ARC) titled “Promoting e-Governance - The Smart Way Forward”.

According to this report the goals of e-Governance were defined as follows:

1. Better service delivery to citizen.
2. Ushering in transparency and accountability.
3. Empowering people through information
4. Improve efficiency within Governments.
5. Improve interface with business and industry.

The report recognized the existence of ongoing e-Government initiatives in India at that time and recommended them to be consolidated under NeGp for co-ordinate implementation.

The vision of NeGP is “Make all Government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man.”

As per the website of National Informatics Center (NIC), Government of India as detailed on the national e-Governance plan (2003-2007) of Indian Government seeks to lay the foundation and provide the impetus for long term growth of e-Governance within the country. The plan seeks to set up the core infrastructure and polices and implements a number of Mission Mode Projects at the Center, State and integrated services levels to create a citizen centric and business centric environment for governance. In 2005 The World Bank signaled its willingness to increase funding further for a range of e-Governance initiatives in India as part of the first phase of the countries NEGP.

NeGP Approaches:
a) Focus on public service Delivery and Outcome:
   i) Process reengineering and change management are critical.
   ii) Radically change the way government delivers service.

b) Centralized Initiative, Decentralised implementation:
   i) Implementation framework accordingly.
   ii) Project implementation in Mission Mode.
   iii) Empowered mission terms professionals and domain people.

“Think Big, Start Small and Scale Fast”

K.M. Chandrasekhar told to the newperson that the Government expects all the 27 Mission Mode Projects under the NeGP envisaged under the e-Governance blue print to take off live by the end of 2014. Projects such as MCA21, Pensions, Central Excise, Income Tax, Passport, Banking and Insurance, Land records and Common Services Center have already been flagged off and other such as modernization of employment exchange are next in the line.

4.12 e-Governance in Maharashtra

Article publish by Anoop Verma on Elets News Network stated that Maharashtra is not only a geographical expression, it is only an entity on collective effort of its people. There is thrust on ICT solutions for processing information and delivering service. A range of E-Governance project which make Maharashtra a great place to live in, have been launched. The well-developed social, physical and industrial infrastructure in Maharashtra is a prime attraction for business from around the world last few years Improving the level of private investment in the states IT industry, 457 private IT park have been approved, out of these 107 have started functioning with an investment outlay of 2107 crore. The remaining 344 IT Park with proposed investment of 6345 have also been given letter indent cities like Nashik, Aurangabad and Nagpur are also emerging as major hubs for industrial in ICT space.
One of the pioneers in promotion of ICT and E-Governance in India, the government of Maharashtra has been at the forefront in implementing e-Governance imitative that on citizens’ needs and ensure superior service delivery. The e-Governance in the state is forced on bringing greater transparency and providing everyone with access to information on public administration processes. In order to provide faster and more efficient governance and easier access to information the state got its MSWAN (Maharashtra State Wide Area Network) implemented. The state government has been making impressive efforts to facilitate the reach of high speed broadband to all parts of the state including rural areas.

4.13 Maharashtra State

According to e-Governance policy of Maharashtra-2011 specified\textsuperscript{23}, Government of Maharashtra is one of the pioneers in promotion of ICT and e-Governance in India. Greater transparency and access to information on public administration processes has been the trust area of e-Governance in the state. The state policy aims to maintain and strength the leadership of the state in the area of e-Governance and take it towards M-Governance. Policy vision is to avail of various services online or at a place near their home, without having to visit government offices at minimum possible cost. So each, department has told to define its e-Governance vision for the next few years. The state shall make an Endeavour to work out a time bound approach to incorporate and encourage the use of UID for various e-Governance projects to provide the delivery of services of the right beneficiary.

As mentioned\textsuperscript{24} in background paper “Infrastructure in Maharashtra”. The state is major contributor to the nation’s economy accounting for almost 21% of the industrial output, 13% of the national GDP, 13.7% of total factory employment. Mumbai, the capital also contributes about 60% of custom duty collections and around 40% of income tax to the national exchequer.

Education sector is concern the number of primary school in the state has risen from 44,535 in 1970-71 to around 69,330 in 2006-2007 and has a in ratio of 34 student per teacher. Similarly the numbers of Institute offering higher education has been a rise from 547 in 1970-71 to 1,677 in 2006-2007. The enrolment rate is the main indicator of the
progress in higher education and is measured in Graduate Enrolment Ratio (GER). The GER form different countries show that developed countries have GER invariably above 50% and the world average is 23.2%. Maharashtra as per the data available for 1999-2000 has a GER of 14.14% and is 7th ranked with Chandigarh leading at 26.24% followed by Delhi at 21.16% and Kerala at 18.08%.

Maharashtra stands 4th in the number of Universities (44) after Tamil Nadu (59), Uttar Pradesh (58), and Andhra Pradesh (45).

The state economic progress as mentioned in Maharashtra state economic review per capital income at current price is INR 1,01,314 as compare to the national average INR 60,663 in 2012. Per cent share in India’s GDP is 14.62%. Literacy rate is above 82.9% as compare to national figure 74.04%. The state has 35 revenue districts which are grouped into 6 divisions.

According to Vishwas Tripathi on view of e-Governance in Indian States, he gives his opinion on Maharashtra state. The state is considered among the most progressive state in India due to its history of social reforms and economic progress. The mission statement of Government of Maharashtra’s IT policy formulated in 1998 is, “Empowerment through connectivity” and this forward looking documents aims to give citizens, “Anytime, Anywhere, Anyhow” access to government service, while keeping low administrative cost.

The IT term of GoM has developed a database, groupware and office application suits. This suits being rolled out access 380 locations in Maharashtra. The government applications developed by government of Maharashtra are:

1. Kosh vahini (Treasure management)
2. SETU (computerized of citizen facilitation centers)
3. LMISC (LAND RECORD MANAGEMENT SYSTEM) etc.

As specified in the book, Maharashtra: Background of Elementary Education, the Maharashtra has an area of 3,07,713 sq. km. It’s population at the 2011 census was 11,23,72,972 (an increase of 15.99% since 1991). Literacy rate in Maharashtra is 82.91% (Men 89.8% and Women 75.5%) which is much higher than the national literacy rate of 74.04%. The rate of women literacy in state 75.5% is higher than the national women
literacy rate of 65.467%. The National comparisons with state of Maharashtra with respect to population, growth, sex ratio, Literacy and per capita are shown in following Table No 4.1.

Table No 4.1

<table>
<thead>
<tr>
<th>National and State</th>
<th>Population</th>
<th>Growth</th>
<th>Sex Ratio</th>
<th>Literacy GER</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>1,21,0,193,422</td>
<td>17.64%</td>
<td>940</td>
<td>74.04%</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>11,2,372,972</td>
<td>15.99%</td>
<td>946</td>
<td>82.91%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>National and State</th>
<th>Per Capita Income in Indian Rupees.</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>60,972 in 2011</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>1,07,670 in 2011</td>
</tr>
</tbody>
</table>

On the portal of National Informatics Center (NIC) has long been committed to provide state of the art solution to address the Governance need at all levels. It provided network backbone and e-Governance support. It also offer wide range of ICT service including Nationwide Communication Network for decentralized planning, improvement in Government service and wide transparency of national and local Governments.

Listed below are the few important product and services support by the NIC to e-Governance in India.

- AGMARKNET
- e–Post
- Passport Website
- Value Added Tax (VAT)
- Gyandoot e- Governance Project
- Rural Bazar

4.14 Introduction of Higher Education

According to Sushma Beelia said on “Higher education means an education beyond the school level. She also stated education has been around for as long as man has been, through its structure and perception has varied over centuries and civilizations. The
beginning of historically documented higher education began with the *Nanjing University* founded in 258 AD in China which is generally believed to be the oldest higher education institution in the world, later becoming the first modern Chinese university in the early 1920's.

The objectives of higher education may range from primary objectives, such as employability, enhancing the earning potential, seeking and advancing knowledge and wisdom, research and experimentation to more serious secondary objectives like attaining mental and spiritual growth, engaging in quest for the unknown, facilitating better lifestyle and developing scientific outlook.

As mentioned in UNESCO “Education should provide the skills for ‘learning to know, learning to live together, learning to do and learning to be.” Education not only provides the motivation, justification, and social support for pursuing and applying them.

In the above perspective looking to the role of higher education, one needs to go beyond the role of the traditional universities and degrees and the teaching learning process”. So, finally education is a dialogue among the past, present and the future so that the coming generations receive the accumulated lessons of the heritage and carry it forward”.

As specified in Wikipedia "Education in India”, in the article almost half the district in the country, higher education enrollment are abysmally low, almost two-third of our universities and 90% of our colleges are rated as below average on quality parameters. In any states university appointments including that of vice-chancellors, have been politicized and have become subject to caste and communal consideration, there are complaints of favoritism and corruption. Indian higher education system is the third largest in the world after China and US. The main governing at the India’s National level is the UGC, which enforces its standards, advises the government and helps co-ordinate between the center and the state many private colleges and universities do not fulfill the required criterion by the Government and governing bodies and taking students for ride. Indian government aware of the difficulties of higher education sector and has been trying to bring reforms, But 15 bills are still awaiting discussion and approval in the parliament. Out of it most talked about bill is Foreign University Bill, which is supposed to allow entry of foreign universities to establish in India. The bill is still under discussion.
According to the census of 2011 the National Literacy Rate to be around 74%, as per Government statistics of 2001, the literacy rate increase more in rural areas than in urban areas. Female literacy was at a national average of 65% whereas the male literacy was 82%. Within the Indian states, Kerala has shown the highest literacy rates of 93% whereas Bihar averaged 63.8% literacy. The access to higher education measured in terms of Gross Enrollment Ratio (GER) increased from 0.7% in 1950-51 to 1.4% in 1960-61. By 2006-07 the GER increased to about 11 percent. Notably, by 2012-13, it had 19.4%.

Shailja Singh stated in her article in University News, “The enrollment ratio in higher education; is about 100% in Canada, 80% in USA, 50% in France and 30% in UK. Whereas, our higher education hardly covers 9.35% which is lower even than that of Indonesia (11%), Brazil (12%) and Thailand (19%).

Summation is that Higher Education is a place an excellence. Is reflects countries growth and prosperity and at the same time its contribution to prosperity and economic growth cannot be over looked. The UGCs vision is to develop skills among the people for achieving excellence. Its mission is to act as a catalyst in the management of change and its objective is to encourage self-development and learning and to impart attitudinal skill, effective communication skills to develop total quality human.”

4.15 Origin of Education

Education in its general sense is a form of learning in which the knowledge, skills, and habits of a group of people are transferred from one generation to the next through teaching, training, or research. Education frequently takes place under the guidance of others, but may also be autodidactic.

Education began in the earliest prehistory, as adults trained the young of their society in the knowledge and skills they would need to master and eventually pass on. In pre-literate societies this was achieved orally and through imitation. Story-telling continued from one generation to the next. As cultures began to extend their knowledge beyond skills that could be readily learned through imitation, formal education developed. Schools existed in Egypt at the time of the Middle Kingdom.
Plato founded the Academy in Athens, the first institution of higher learning in **Europe**. The city of **Alexandria in Egypt**, founded in 330 BCE, became the successor to Athens as the intellectual cradle of Ancient Greece. There mathematician **Euclid** and anatomist **Herophilus**; constructed the great Library of Alexandria and translated the **Hebrew** Bible into **Greek**. European civilizations suffered a collapse of literacy and organization following the fall of Rome in AD 476.

**In China, Confucius** (551-479 BCE), of the State of Lu, was China's most influential ancient philosopher, whose educational outlook continues to influence the societies of China and neighbours like Korea, Japan and Vietnam.

After the **Fall of Rome**, the **Catholic Church** became the sole preserver of literate scholarship in Western Europe. The church established cathedral schools in the Early Middle Ages as centers of advanced education. Some of these ultimately evolved into medieval universities and forebears of many of Europe's modern universities. The medieval universities of Western Christendom were well-integrated across all of Western Europe, encouraged freedom of enquiry and produced a great variety of fine scholars and natural philosophers, including **Thomas Aquinas** of the **University of Naples**, **Robert Grosseteste** of the **University of Oxford**, an early expositor of a systematic method of scientific experimentation; and Saint **Albert the Great**, a pioneer of biological field research. The **University of Bologne** is considered the oldest continually operating university.

As published in Wikipedia^32 “Education in India” under topic history they clarifies Monastic order of education under the supervision of a GURU was a favored from of education for the nobility in ancient India. The knowledge in these orders was often related to the task a selection of the society had to perform. The society is divided into 4 classes.

The **Secular Buddhist**, institution increasingly visible from the period 200BCE to 400CE. The important urban centers of learning were Taxila (in Pakistan) and Nalanda among others. By the time of the visit of the Islamic scholar **Alberuni** (973-1048 CE), India already had a sophisticate system of Mathematics.
4.16 Higher Education History

Shaiija Singh stated in her article\textsuperscript{33} in the University news “India has a glorious post in the field of higher education. It has a great philosophical foundation which was built by the person of higher knowledge and perfection. Due to this only Indian culture has survived even through its periods of decline. India culture believed in fraternity an entire human race, ‘\textit{Vashadaiv kutumbakam}’ hence its educational objective is the creation, strengthening and developing of the national system of education that should be geared to the highest ideas of universal love, unity and harmony.

On the recommendation of \textit{Wood’s Dispatch} (1854) the first three universities were set up in Bombay, Calcutta and Madres. These universities were established on the model of university of London.

It was Indian University Act (1904) which envisaged the establishment of teaching in universities. In 1948 under the chairmanship of Dr. Radha Krishanam, University Education Commission was formed and it recommended the establishment of UGC as an apex body in 1953. The number of Universities has increase from 20 in 1947 to about 450 in 2008. The number of colleges increased from 500 in 1946 to 20,700 in 2008.”

Stages of education\textsuperscript{34} in India has explained in Wikipedia, “After passing the Higher Secondary Examination, students may enroll in general Degree programs such as bachelor's degree in Arts, Commerce or Science, or Professional degree programs such as Engineering, Law or Medicine. India's higher education system is the third largest in the world, after China and the United States. The main governing body at the tertiary level is the University Grants Commission, which enforces its standards, advises the government, and helps coordinate between the center and the state. Accreditation for higher learning is overseen by 12 autonomous institutions established by the UGC. In India, education system is reformed. In the future, India will be one of the largest education hubs.

Some institutions of India, such as the \textbf{Indian Institutes of Technology (IITs)}, Indian Institute of Science and University of Mumbai have been globally acclaimed for their standard of undergraduate education in engineering. The IITs enroll about 10,000 students annually and the alumni have contributed to both the growth of the private sector and the public sectors of India.”
4.17 World History of Education in Ancient Civilization

Starting in about 3500 BC, various writing systems developed in ancient civilizations around the world. In Egypt fully developed hieroglyphs were in use at Abydos as early as 3400 BC. Later, the world's oldest known alphabet 35 was developed in central Egypt around 2000 BC from a hieroglyphic prototype. One hieroglyphic script was used on stone monuments; other cursive scripts were used for writing in ink on papyrus, a flexible, paper-like material, made from the stems of reeds that grow in marshes and beside rivers such as the River Nile.

In China, the early oracle bone script has survived on tens of thousands of oracle bones dating from around 1400-1200 BC in the Shang Dynasty. Out of more than 2500 written characters in use in China in about 1200 BC, as many as 1400 are identifiable as the source of later standard Chinese characters.

In ancient India36, during the Vedic period from about 1500 BC to 600 BC, most education was based on the Veda and later Hindu texts and scriptures.

Vedic education included: proper pronunciation and recitation of the Veda, the rules of sacrifice, grammar and derivation, composition, versification and meter, understanding of secrets of nature, reasoning including logic, the sciences, and the skills necessary for an occupation. Some medical knowledge existed and was taught.

The oldest of the Upanishads - another part of Hindu scriptures - date from around 500 BC. These texts encouraged an exploratory learning process where teachers and students were co-travelers in a search for truth. The teaching methods used reasoning and questioning. Nothing was labeled as the final answer.

The Gurukul system of education supported traditional Hindu residential schools of learning; typically the teacher's house or a monastery. Education was free, but students from well-to-do families paid "Gurudakshina," a voluntary contribution after the completion of their studies. At the Gurukuls, the teacher imparted knowledge of Religion, Scriptures, Philosophy, Literature, Warfare, Statecraft, Medicine, Astrology and History.
Two *epic poems* formed part of ancient Indian education. The *Mahabharata*, part of which may date back to the 8th century BC, discusses human goals, attempting to explain the relationship of the individual to society and the world (the nature of the ‘Self’) and the workings of karma. The other epic poem, *Ramayana*, is shorter, although it has 24,000 verses. It is thought to have been compiled between about 400 BC and 200 AD.

4.18 History of Education in India

The first millennium and the few centuries preceding it saw the flourishing of higher education at Nalanda, Takshashila University, and Ujjain and Vikramshila Universities. Amongst the subjects taught were Art, Architecture, Painting, Logic, mathematics, Grammar, Philosophy, Astronomy, Literature, Buddhism, Hinduism, *Arthashastra* (Economics and Politics), Law, and Medicine. Each university specialized in a particular field of study\(^37\). Takshila specialized in the study of medicine, while Ujjain laid emphasis on astronomy. Nalanda, being the biggest centre, handled all branches of knowledge, and housed up to 10,000 students at its peak.

Chinese scholars\(^38\) such as Xuanzang and Yi Jing arrived in Indian institutions of learning to survey Buddhist texts. Yi Jing additionally noted the arrival of 56 scholars from India, Japan, and Korea. However, the Buddhist institutions of learning were slowly giving way to a resurgent tradition of *Brahmanism* during that era. Scholars from India also journeyed to China to translate Buddhist texts. During the 10th century a monk named Dharmadeva from Nalanda journeyed to China and translated a number of texts.

With the advent of Islam in India the traditional methods of education increasingly came under Islamic influence. Pre-Mughal rulers such as Qutb-ud-din Aybak and other Muslim rulers initiated institutions which imparted religious knowledge. Scholars such as Nizamuddin *Auliya* (1238 – 3 April 1325) and *Moinuddin Chishti* was born in 1141 and died in 1236 CE became prominent educators and established Islamic monasteries. Students from *Bukhara* and *Afghanistan* visited India to study humanities and science.
Education was widespread for elite young men in the 18th century\textsuperscript{39}, with a school in most regions of the country. The subjects taught included Reading, Writing, Arithmetic, Theology, Law, Astronomy, Metaphysics, Ethics, Medical Science and Religion.

The current system of education, with its western style and content, was introduced and founded by the British during the British Raj, following recommendations by Lord Macaulay. Traditional structures were not recognized by the British government and have been on the decline since.

The colonial era\textsuperscript{40} saw huge differences of opinion among the colonialists themselves about education for Indians. This was divided into two schools - the orientalists, who believed that education should happen in Indian languages (languages like Sanskrit or Persian) or utilitarian like Thomas Babington Macaulay, who strongly believed that India had nothing to teach its own subjects and the best education for them should happen in English.

The British Raj, often working with local philanthropists, opened 186 colleges and universities. Starting with 600 students scattered across 4 universities and 67 colleges in 1882, the system expanded rapidly. More exactly, there never was a "system" under the British Raj, as each state acted independently and funded schools for Indians from mostly private sources. By 1901 there were 5 universities and 145 colleges, with 18,000 students. The curriculum was Western. By 1922 most schools were under the control of elected provincial authorities, with little role for the national government. In 1922 there were 14 universities and 167 colleges, with 46,000 students. In 1947, 21 universities and 496 colleges were in operation.

4.19 Higher Education in India

Vision of Higher education, the latest 12\textsuperscript{th} FYP vision\textsuperscript{41} for Indian higher education is to “Creating new Universities and increasing the intake capacity of existing Universities and Colleges. Remove the caste, category and regional imbalances in higher educational
institutions. The initiatives will be capped with enhancing inputs for quality and excellence in all spheres of higher education – student intake, faculty enrichment, curricular and evaluation reform, revamping governance structure, greater emphasis on research and innovation by creating efficient regulatory framework.”

4.20 Structure of Indian education

The different levels/stages\textsuperscript{42} of education i.e. school education and higher education systems have been described below:

**School Education:**

- **Primary, Secondary and Higher Secondary education**

**Higher Education:**

- **Under-Graduate/ Bachelor’s level education**
- **Post-Graduate/Master’s level education**
- **Doctoral studies/ Ph.D level education**

**Vocational Education & Training:**

**Certificate and Diploma programs:**

**Distance Education:** Open and Distance Learning (ODL) system is a method of learning in which teachers and students do not need to be present at the same place.

According to Murli Dhar Tiwari in his book on Higher Education he explains\textsuperscript{43} “India has one of the world’s largest higher education system, which is managed by the UGC. The aim and objective of UGC is to improve the standards and quality of education, removes the social disparity and regional imbalances in higher education.”
He specified there are three levels of qualification in the higher education system:

A. Bachelor / Undergraduate Level  
B. Master’s / Post-Graduate Level  
C. Doctoral / Per-Doctoral Level  
D. Diploma courses are also available at undergraduate and post graduate levels.”

Makkar and et al specified in their article in the present era of knowledge driven economy, “The role of higher education becomes crucial in the overall socio-economic development of any region or country. The fast pace of globalization has further increased the complexities in the academic ambience.

The Globalisation and Privatisation has brought another significant change in the way of managing the performance of higher education institutions. These institutions are increasingly relying on the modern management method to survive in the globally competitive market place.”

According to statistics of higher and Technical Education, Government of India, as per UGC Act 1956, “University means a university established or incorporated by or under a central Act, a Provincial Act or a State Act and includes any such institution as may, in consultation with the university concerned, be recognized by the commission in accordance with regulation made in this behalf under this Act.”

The following Universities are covered:

1. Central University  
2. State University  
3. Open University  
4. Private University  
5. Deemed University  
6. Institute of National Importance  

**Gross Enrolment Ratio (GER):** - Is the total enrolment in a specific level of education, regardless of age, expressed as a percentage of the eligible official age population
corresponding to the same level of education in a given academic year? It is calculated by dividing the number of students enrolled in given level of education regardless of age by the population of the age group which corresponds to the given level of education and multiplying the results by 100.

4.21 Pillars of education

According to Murlidhar Tiwari in his book, “Since 1947, India has been able to construct one of the largest education system in the world. Following are some of the important objectives of Indian education:

a) Bridge between the past, present and future.

b) Integral development of values inherent in physical, emotional, rational, aesthetic, ethical and spiritual education in society.

c) Promoting environmental protection.

d) Provide the professional expertise and leadership in all walks of life.

e) Universal peace, International Co-operation.

“Higher education is paramount importance for economic and social development. Institution of higher education has main responsibility of equipping individual with advanced knowledge and skill required for position of responsibility in government, business and professions.”

Over 75% of Indian population is domiciled in rural sector. The thrust of technological and professional education should be for the development of rural sector because the urban population has options. It should be directed towards the development if technology that will facilitated e – Government and e – Governance”.

4.22 Education Definitions

J C Agrawal specifies in his book “It is clear that there are as many concepts of education as there are thinkers. Thinkers like Aurobindo, Mahatma Gandhi, Tagore and Vivekananda of India and Aristotle, Nunn, Pestalozzi and Plato of the west.”

According to Vivekanand, “Education is the manifestation of divine perfection already existing in man – Education means the exposition of man’s complete individuality.”
Mahatma Gandhi says, “By education, I mean an all-round drawing out of the best in the child and man – body, mind and spirit.”

Aristotle speaks of education as “The creation of a sound mind in a sound body.” Education, according to him, should develop the body i.e. the physical capacities of the child and the mind which means his intellectual, emotional, moral and spiritual capacities.

Plato said, “Education develops in the body and in the soul (of the pupil) all the beauty and all the perfection which he is capable of”.

At the time of Ramayana that ‘Vyavahare’ (Law) was a specialized subject at Taxila (Taksasila). The Mahabharata also refers to Taxila. Chanakya, The Prime Minister of Chandragupta Maurya is said to have had his education at Taxila.

On the recommendation of the Education Commission 1964-66, the Natural Policy on Education call upon to have a uniform pattern of education 10+2+3 (3 year Degree course). Higher educational institutions include colleges, universities, ‘Institutions Deemed to be Universities’, ‘Institutions of National Importance’ etc. There are government colleges, aided as well as non-aided colleges affiliated to universities.

The functions of the universities in the modern world may be called objective of universities are as follows:

a) To seek and cultivate new knowledge, to engage vigorously and fearlessly in the pursuit of the truth, and to interpret old knowledge and benefits in the light of new needs and discoveries.

b) To provide the right kind of leadership in all walks of life, to identify gifted youth and help them develop their potential to the maximum.

4.23 Objectives and Purposes of Higher Education

Prof. Jagannath Mohanty claimed in his book “In the higher education, students and teachers have reached a stage where they can develop their knowledge and interest to such an extent that they can develop plan their career and set their goals. The educational
institutions must provide all kinds of facilities for human resource developments. Students and teachers must utilize these resources to the optimum.” As he explains that true education, particularly higher education also should deepen out insights, widen our horizons and create a meaningful outlook.

According to Kochhar he said that “One of the important aims of institutions of higher learning is to prepare youth for work, to equip them for occupation, as well as prepare them for cultivated intellectual and human lives. The institutions of higher learning – the universities and colleges come into contact with students in the formative stages of their life. One of the important life problems before them is to enter into the world of work. That is why it is said that even though preparation for the employment is not the sole objective of higher education, it is one of the main objectives.”

4.25 Objectives and Purposes of Higher Education

The Vision specified in UGCs 12th FYP is to create new Universities and increasing the intake capacity of the existing universities and colleges. And Objectives are:

1. Expansion of Higher education
2. Correcting Regional, Disciplinary and Gender Imbalances
3. To setup College Cluster Universities
4. Eliminate gender disparities, and Urban-Rural, Inter-Regional and Inter-Social group disparities.
5. Generating Knowledge Society

The main Purpose is by the end of the 12th FYP Gross Enrollment Ratio (GER) may be expected to be either 23.5% or 27%. And, a large number of initiatives have been launched by the UGC for improvement of the quality and promotion of excellence in higher education institutions. Some most significant concerns are as follows:

1. Regulatory Reforms
2. To bring the target or setup 20,000 Government/Government-aided colleges as against the present 6,811 Government Colleges.
3. Introduce new models of Private Sector Participation in Higher Education.
4. To create 400 “College Cluster Universities”.

4.26 Quality of Higher education

Suggestion’s given by M.S. Kurhade, senate Member of University of Mumbai. He said,"The quality of education in the Indian Universities can be judged on the basis of following important criteria.

a) The Governance system of the University
b) Visionary leadership
c) Educational programmes offering & services
d) Teaching standards
e) Educational level of the university workforce
f) Social responsibility
g) Focus on the future
h) Curricular revisions
i) Examination system
j) Research
k) Student Teacher Ratio etc.

UGC published its recommendation on governance is that “The University administrative structure was run in the pre-independent period seems to be still continuing. The new challenges facing the Indian higher education system can’t fulfill the expectations of the stakeholders because of globalization, which requires talent, competence, drive, initiatives and innovations at several levels. Therefore several recommendations are made by UGC. They are as follows:

1) Government must give autonomy to Universities and Institutions of higher education their accountability are strengthened and all academic decisions are taken on merit.

2) A better coordination of stakeholders in their working of activities is required as well as complete transparency should be maintained in the working of academic / executive bodies, other governing councils of higher education.
So, higher education should be developed as an infrastructure for social and economic growth of the Nation. It’s not possible for bigger country like India to introduce ICT and e-Governance to obtained administrative efficiency, quality, accountability and transparency.”

4.27 Issues and Expectations from stakeholders

As included in Wikipedia\textsuperscript{53} “Higher Education” in India higher education enrollment are abysmally low almost two third of our universities and 90\% of our colleges are rated below average on quality parameters India’s higher education system is the third largest in the world after China and the US. The main governing body at the tertiary level is UGC, which enforces its standards, advises the government and helps coordinate between the center and the state. Regulatory authorities like UGC and AICTE have been trying very hard to extirpate the menace of private universities which are running courses without any affiliation or recognition. Many private colleges and government and central bodies (UGC, AICTE, MCT, BCT etc) and take students for a ride.

As mentioned in Inclusive and Qualitative Expansion of Higher Education\textsuperscript{54} of UGC’s yearly publication. “Higher Education is very important sector for the growth and development of human resource which can take responsibility for Social, Economical, and Scientific development of the country.

Indian Higher Education System is one of the largest in the world. There were only 20 universities and 500 colleges with 0.1 million students at the time Indian attained independence. This has increased to 611 universities and university level Institution and 31,324 colleges as an August 2011.

Faculty mobility and faculty networking is one of the factors which promotes interaction and also quality of teaching. Student’s mobility as an integral component of the quality enhancement can be facilitated by opening up admission to students of the other states with a minimum of 20\% intake from other states. Similarly, the faculty should not be entirely from the products of the same university, on the country, at least 20\% of the faculty should be from other state of the country. Encouraging the universities to
facilitates international students joining the university by creating office of International Relations and foreign student Facilitation center.

UGS recommended some of the important suggestions like create college cluster universities. Newer Models of Private sector Participation in Higher Education, Reducing regional imbalances. Utilize technologies like ICT’s and e–Governance for administrative purpose because higher education in India suffers from quality deficits in all these respects.”

4.28 National Strategic, Polices of Higher Education

According to Suresh Garg said, “Knowledge is disseminated through the education system and it is important that we prepare ourselves to responds to the enormous changes of knowledge era. In the words of Dr. Manmohan Singh, Ex. Prime Minister of India, “The time has come to create a second wave of institution building and excellence in the field of education research and capacity building. So, we are better prepared for the 21st century”.

Emerging technologies provide a useful interface for offer of education anywhere on the global, across national boundaries, oceans and continents; virtual classrooms, individualized instruction and m-learning are now a reality. In fact, these technologies seem to provide solutions to all our genuine concerns by equalization decentralizations and liberalization of various provisions for breaking isolation and improving learning motivation.

It is therefore extremely important that as a nation aspiring to be developed nation by 2020. Our IT capabilities (highly trained professionals, growing infrastructure, well developed IT industry) indigenous ICT base and pro-active policies to support growth provide as head-start in this direction.”

4.29 Recent Development in Higher Education
Vasu Deva stated in his book on Education he clarified \(^5\) “Education and health for all are identified as the basic area of concern for government. Both are primarily knowledge activities. The government of India’s IT action plan appears quite confident of reaching internet enables computers to all students. It has launched operations, knowledge, which aims at universalizing IT and IT based education at all levels of the education pyramid in India.

E-governances are alert more about delivering services on line. Government need to come up to speed on the delivery of electronics services. It is how government and citizens interact on a going basis, Internet technologies enable government to explore new ways to creating knowledge and getting citizen involved in the decision making”.

UGC’s recommendation \(^5\) on Higher education in India, Today the world economy is experiments an unprecedented change. New development in science and technology are revolutionizing the education scene. It is true that enhancing social access to higher education is still important in the country. But, the major challenge before the Indian higher education system is to bring equity in quality of education across the length and breadth of the country. This is more close to the heart of students in ruler, semi and urban areas, because they also wish to be able to participate in the new economic revolution.

According to K.P. Singh, Joint Secretary, UGC, New Delhi in his article Higher education in India: Major Concerns \(^5\), he stated in University News vol.49 No. 29, July 2011; “Higher education plays a vital role in the overall development and growth of a country. It imparts in-depth knowledge and understanding so as to expose the students to new frontiers of knowledge in different walks of life. In the present day knowledge society where the world is highly competitive, it is only the higher education that provides qualified and trained human resources to keep the pace with the fast changing world. Therefore, investing into higher education is highly rewarding in order to strengthening the society and the nation as a whole.”

He also affirmed that “As on date, as many as four bills are pending before the parliament, i.e. The Foreign Educational Institutions (Regulation of Entry and Operations) Bill 2010, The Educational Tribunals Bill 2010, The National Accreditation
Regulatory Authority for Higher educational Institutions Bills, 2010 and Prohibition of Unfair Practices in Technical, Medical Educational Institutions and Universities Bill, 2010. Once these Bills see the light of the day, they will have far reaching implications and the higher education scenario in the country will no more remain same. Thus today the system of higher education is in a traditional phase and is expected to establish in due course of time.”

As he is prove higher education institution in India is presently working in the traditional phase now it’s a time to adopt the new technological changes to adopt so provide the better services to the stakeholders. So it is in transitional phase.

4.30 Need of Information Technology in Education

Straightforward automation of the existing process is considered as one of the main reasons for failure of ICT led transformation efforts. This happens when designers consider ICT tools as mere facilitators for existing processes in which electronic tools said gathering, processing, storing and dissemination of data and information rather than looking at fundamental factors that lead to the creation of processes. This approach lead to automation of inefficient administrative processes and results in inefficiency and reality gap, as implementation of ICT only creates an assumption of being more efficient and effective but they do not result in significant changes. They remained the same as they did prior to computerisation. Also, without process reforms, ICT may be used to prop up existing inefficient organizational processes rather than radically transforming them. Hence a re-engineering of the existing process is an unavoidable requirement for e-Governance project implementations. This need for supporting factors is evident from existing literature. Implementation of IT in government departments without enacting the necessary reforms will result in wastage of resources.

A report submitted by the National Knowledge Commission to the Government of India also refers to this particular aspect. E-Governance projects in India are restricted to computerisation of existing paperwork procedures without simplifying them, resulting unnecessary delays and red tape. There is a need to have government processes re-engineered by eliminating unnecessary steps and by reducing the time taken in each step.
In-order to enable real e-Governance there is a requirement to have “radical shift” in public government interaction processes (National Knowledge Commission, 2005).

4.31 ICT and e-Governance, Legal Issues

According to Pankaj Sharma puts his view on Role of ITC in e-Governance. “ICT can help Governance to create avenue and opportunities to enable people participate in the Governance process. ITC are changing the power equation based on access and control to information and knowledge. ICT will change the old ways of Governance.

Legal issue plays an important role in determining the growth and advancement of the ITC infrastructure and its relative impact on the entire e-Governance System. Legal issues forms a base for governance infrastructure as they are the inherent management and control tools for the e-Governance initiative.

There are the various challenges faced by the government proper implementation of the e-Governance infrastructures major among them are issue like Cultural difference, digital divide and low level of ICT infrastructure”.

4.32 Role of e-Governance in Education

Article published by Rajeev Singh in eGov-CoE a Governance Center for Excellence, “The higher education system in India, which caters to needs approximately 99.54 lacs of students, definitely deserves applause for its commendable work so far. Despite having the largest Higher Education System, the quality of education, massive student base brings with it a number of challenges both at operational and strategic level as described below:

1. Operational Challenges
   a. Duplication of Procedures
   b. Long Funding Cycle
   c. Long Approval Process
   d. Fraudulent Practices
2. Strategic Challenges
   a. Deteriorating Quality of Education
   b. Outdated Curriculum
   c. Unemployed Students

E-Governance has played a major role in reducing operational inefficiency and improving decision-making in many areas of governance. An integrated “Higher Education Service System” (HESS) is one such concept that can empower the governing bodies to administer the progress of the education plan in the whole country and serve various stakeholders in much better manner.

Despite its great potential of Higher Education Service System to help the higher education in India the success of this concept will be based on great coordination and support from governing bodies, universities and colleges.”

Dr. Rajan Welukar, Vice Chancellor of the University of Mumbai elucidated in his speech\textsuperscript{61} “We must use new technologies in education sector not only for teaching and learning but also for e-Governance. Now indeed e-governance should be part of higher education which will helps in bringing about Transparency, speedy decision making and accountability. He claimed that during the last 20 years, the electronic storm has changed the entire education system”.

Rev. Fr. Paul Rajkumar clarifies\textsuperscript{62} in his paper “E-Governance and Impact in Educational Sector”. The purpose of implementing E-Governance is to enhance good governance is generally characterized by participation transparency and accountability. He define the impact of E-Governance in education during 1990, use of technology in the classroom, however is more sporadic; few teachers use technology to office educational experiences previously unavailable. So, the quality and power of technology will continue to increase to the point where it will be able to deliver practically anything that can now be imagined.
Finally to implementing e-Governance in educational system not eliminated because today IT has become an integral part of life of the people in the world. India is one of the world leader in IT sector and therefore the talent in this field is abounds. It is the time to applying the skill for the betterment of Indian educational system as well. The implementation of e-Governance in education is merely to increase the productivity of players of the field.”

4.33 Types of Learning

As stated by Bucherla Murahari in his article,"New technologies like Web based PC’s, Mobile Phones, satellites and wireless technologies and Internet etc., are helping the teachers and students to gather and disseminate information which is normally not possible through any other means. Today’s society has accepted the new technologies for faster development and growth due to the global competition. The technologies include use of computers, IT, audio & video conferencing, computer conferencing, networks, Internet and MM in teaching for all levels of education. While these technologies can be used to reach geographically dispersed students, minimum attention is being paid to the effectiveness of each and a combination of technologies for education. There are certain advantages and disadvantages of these technologies. But advantages are always scoring over disadvantages every technology is two edge swords.”

As stated by Murlidhar Tiwari in his book on IT initiatives,"Education Television: Instructional video and television are powerful medium for education. Television was introduced in India as an experimental TV service. It was launched in Delhi on 15 August 1959. At present, In India, more than 350 million viewers watch program on Tele Vision. Educational Television (ETV) began with curriculum-limited and level/class –specific programmes – first in Delhi, and then in other metropolitan cities.”
Published on website relate to “Web conferencing refers to a service that allows conferencing events to be shared with remote locations. These are sometimes referred to as webinars or, for interactive conferences, online workshops.

Web conferencing is a form of Real-Time Communications (RTC) in which multiple computer users, all connected to the Internet, see the same screen at all times in their Web browsers. Some Web conferencing systems include features such as texting, VoIP (voice over IP) and full-motion video. There are so many advantages of web conferencing.”

4.34 Roles of e-Governance in Higher Education

Pankaj Sharma stated in his book “e-Governance means to fundamentally change as to how the government operates and this implies a new set of responsibilities for the executive, legislature and citizenry.

Following are the benefits of e-Governance:

1. e-Governance provides integrated government services through a single window by re-engineering of government process.
2. e-Governance is capable of not only speeding up transactions but also transparent functioning.
3. e-Governance might help control corruption and increase participation of people in policy decision process by improving the degree of communication between government and public.
4. e-Governance helps common man getting governed with minimum red tape and zero corruption.”

As stated by Vivek Sawant and et al in their article Digital University Framework. Through implementation of framework across the various universities and colleges many services are provided to stakeholders. Following benefits achieved through following services have been offered as one stop services for students, colleges and University.

1. Services offered at the doorstep of students.
2. Reduction in data duplication at various levels. i.e. removes redundancy
3. System generated output with no errors.
4. Personalized services to students.
5. Customized SMS for faster service delivery
6. Profile correction requests
7. Personalized login to students for various application
8. Single click application and forms generation of students studying in university.
   For example: Examination Forms, Hall tickets etc.

4.35 E-Governance framework

**Lack of necessary legal framework:** Implementation of a supporting legal framework is a basic requirement for successful implementation of e-Governance. Moving to a digital government required supporting laws; for example, governments need to enact usage of digital authentication and digital signatures as legally valid. However, this is not an easy task as enacting laws alone is not sufficient. Implementing a digital signature and approval systems (OECD, 1998) within government organisations can be implemented in a fast way but implementing a Public Key Infrastructure (PKI) for issuing digital signatures for all citizens may prove difficult and/or expensive. This is especially true for developing countries with a large population base like India. Existing laws in most developing countries still require the presence of physical files for decision-making.

Pankaj Sharam explained in his book regarding the “Legal issues play an important role in determining the growth and advancement of the ICT infrastructure and its relative impact on the entire e-Governance system. Legal issues forms a base for governance infrastructure as they are the inherent management and control tools for the EC initiative.

Author Pankaj Sharma will view three nations namely US (which has a pretty stable and an extremely good infrastructure for e-governance in place), South Africa (which I would place in the moderate category) and India (which is in initial stage of implementing e-Governance).

Government of India passed Act in this regard called Information Technology Act 2000 which partially supports to run e-governance activities in the country.”
4.36 e-Governance Models

UGC published its recommendation on PPP:

1) National human resource Development Fund is create for accepting the principle “no tattled person shall be denied access to higher education opportunities in the grounds of economics and social backwardness.”

2) Industries may be encouraged to be partners with educational institutions. Must involve in the areas of create infrastructure funds.

3) Private universities are part of higher education now a days but ensuring quality & social accountability must be monitor and control.

4) States should now withdraw the responsibility of higher education but they must spend at least 3% of the total GDP on highest education. At last a healthy PPP can do much in this regard by way of exchanging good practices. A management system lean but professional, making use of modern ICT’s it required to facilitate quality higher education.

As Published in Financial Express by Kirtika Suneja. A new parading of Public Private Partnership (PPP) in the rapidly growing higher education sector is on the cards, with a role for corporate in developing the necessary infrastructure. In parallel, the norms for public funding of education as a whole which is set to be increased form roughly 1% of GDP at present to 1.5% would be revamped with the inclusion of performance incentives.

Recently the UGC has recommended four models of Public Private Partnership to the planning commission these different model are being looked at:

a) Basic infrastructure
b) Outsourcing
c) Equity or hybrid
d) Reverse outsourcing

Sudhanshu Neema stated in his published paper, “The report highlights that public-private partnerships in higher and technical education would bring benefits of saving
resources and time; improve efficiency of the system; improve performance and promote autonomy which will ensure high quality in higher education. The report also identified four possible models of public-private partnerships to be made applicable in the higher education sector.

4.37 Architecture of e-Governance

As standard formulated by Dept of Information Technology for e-Governance they set objectives to describe basic rules, principles and procedures to be followed for formulation of e-Governance standards, means a process of evolving and documentation of a standard, which consist of:

- **Adoption** of an already existing national global standard which fulfills the need or
- Need based **Adaptation** (Customization / Extension) of an existing national / global standard or
- Need based development of a **New Standard** based on best practice / global solutions.

As stated by Suchitra Pyarela, Technical Director, in her article in Technical Standards & e-Governance Architecture. There is need of standard e-Governance Architecture because present system is largely based on proprietary standard that provide limited scope for information exchange and integration with other system. Technology advances make it necessary to migrate to new system and platform, in which case locked in to a particular technology or platform happens most often.

A large number of e-Governance application developed in isolation, result in self-contained islands of information. Every application followed its own standard with the main objective of delivering process-centric results irrespective of the other application. Hence, at the outset there is need for an architecture that is aimed at reuse and customization. So its covers:
a) Reusability  
b) Middleware and Technical Standard  
c) Service-Oriented – Architecture (SOA)

Vasu Deva in his book e-Governance specifies\textsuperscript{74}, “There are elements of e-governance Information, Teaching, Process and People. They constitute information e-governance can’t operate in institutional vacuum. It can succeed only in any enabling institutional environment and a set of influencing factors that may be Political, Legal, Economical and even Social and Cultural, Putting all this together, the basic framework for e-Governance.”

According to Vivek Sawant and at el Digital University framework\textsuperscript{75} has been implemented in Major regular Universities across Maharashtra to provide ‘e-Suvidha’ to student, colleges and universities at large. In the way services have been reached to every associated district, city, Tahsils which comes under the purview of University. The framework provides various services and benefits providing to stakeholders through ICT interventions.

4.38 Security of e-Governance

United Nations, Department of Economic and Social Affairs published in their survey\textsuperscript{76} that, “Information Security is a central challenge of e-Government service is how the new technology can be used not only to increase efficiency for public administration, but also to strengthen confidence in privacy measures by creating mutual transparency between public administration and citizens.”

Data security requires a set of security requirements:

a. Authentication  
b. Authorization  
c. Integrity  
d. Traceability  
e. Non-repudiation.
Shailendra Singh et al. clarified in his paper entitled “e-Governance: Information Security Issues”. ‘The rise of e-government has been one of the most striking developments of the web. In an e-government project, a substantial amount of documentation is done like maintenance of land records, police records and so on. Each department is critical so that only authorized people get into the network and access the information.

An understanding of the information security technology and the need for its implementation is keys for safer, secured and smooth functioning of e-governance undertaking.

Following are the information security threats for e-Governance projects:

a) Packet Sniffer  
b) Probe  
c) Malware  
d) Internet infrastructure attacks  
e) Denial of Service (DOS) attack  
f) Remote to Local (R2L) attack  
g) User to root (U2R) attack

Following measures has been taken for Improving Security in e-Governance:

a) Security policy  
b) Security Practices  
c) Security Procedures

Varieties of Technologies have been developed to help organizations secure their systems and information against intruders. These technologies help protect systems and information against attacks, detect unusual or suspicious activities, and respond to events that affect Security.

a) Operational Technology  
b) One-Time Passwords  
c) Cryptography  
d) Firewalls  
e) Analysis tools  
f) Monitoring tools

Continuous monitoring of network activity is required if a site is to maintain confidence in the security of its network and data resources. In Indian e-governance scenario, however, the security aspects are not being taken as seriously. Digital security is critical
in e-Governance initiatives. Confidentiality of any transaction or information available on the network is crucial.”

4.39 m-Governance

Rameesh Kailasam expressed his views on m-Governance78, “The extension of e-Government to mobile platforms, as well as the strategic use of government services and applications which are only possible using cellular/mobile telephones, laptop computers, personal digital assistants (PDAs) and wireless internet infrastructure.

m-Governance is not a replacement for e-Governance, rather it complements e-Governance. M-Governance use of mobile or wireless technologies like cellular phones, laptops and PDA’s with wireless Internet connections to improve Governance service and strengthen people “anytime, anywhere”.

m-Government can be applied to four main purposes in the public sector, as summarized below:

1. m-Communication (G2C2G)
2. m-Services (Transactions and Payments)
3. m-Democracy
4. m-Administration.”

4.40 Benefits of m-Governance

Mobile Government can be defined79 “as a strategy and its implementation involving the utilization of all kinds of wireless and mobile technology, services, applications and devices for improving benefits to the parties involved in e-government including citizens, businesses and all government units” (Kushchu and Kuscu, 2003)

_The researcher has taken review of literature related to e-Governance and its role in different specialized areas. The roles in this area are not yet specified blearily. But the topic entitled “A Study of e-Governance in Higher Education Institutes in Maharashtra” is totally new and different from the about literature. The researcher has got scope to enrich and flourish the above topic, by refereeing above references. Therefore its study is essential and that’s the why researcher has selected above topic._
References:

5. US E-Governance Act of 2002 or http://fewebgate.access.gpo.gov/cgi-bin/getdoc.cgi?
6. Dr. A.P.J. Abdul Kalam, Ex President of India, in augural address of ITI Delhi during international conference on E-Governance.
7. Paula Dobriansky, Ex US Secretary of State for Global Affairs, “Principles of Good Governance”.
19. WWW.mit.gov.in, Department of Information Technology, Gov, National e-Governance Plan, website.
22. Anoop Verma, May 2012, Elets News Network, Maharashtra the hub of cutting Edge ICT.
Maharashtra: Background of Elementary Education, from website extracted on 25 May 2012.
41. 12th Five Year Plan, UGCs, Inclusive and Qualitative Expansion of Higher Education, pp 30.
42. Ref: https://sites.google.com/site/tostudyinindia/home/indian-education-system/the-different-levels-of-education.

UGC’s, 2012, Principal Objectives, Goals and Strategies of the 12th FYP, New Delhi.


UGC, 2003, Higher Education in India, “Management of higher Education”.


UGC’s, Annual Report, 2009-2010, “Inclusive and Qualitative Expansion of Higher Education”.


UGC, 2003, Higher Education in India: Issues, Concerns and New Directions.

K.P. Singh, July 2011, UGC, New Delhi in his article Higher education in India: Major Concerns, University News vol.49 No. 29.


Fr. Paul Raj Kumar, E-Governance and impact in Educational sector Bev.


Vivek Sawant and et al, “Digital University Framework”.


UGC, 2003, Higher Education in India, “Management of higher Education”.

kirtika suneja, Financial Express, Jun 01, 2011 New Delhi, Coming PPP model for Higher Studies in India.


Suchitra Pyarela, Technical Director, NIC, Gol, Department of Information Technology or http://egovstandards.gov.in
75. Vivek Sawant and et al, “Digital University Framework”.
78. Rameesh Kailasam, m-Governance ...Leveraging Mobile Technology to extend the reach of e-Governance. Or http://www.mgovworld.org/libra/mgovernance/papers/m-governance-leveraging-mobile-technology-to-extend.