



# Virtualization of Universities in Iran

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## ABSTRACT

*Establishment of virtual universities in Iran is considered an Innovation in Iran's traditional higher education system and it been made possible Due to information technology. Iran as a developing country has-initiated a project called "development of virtual higher education centers" from the year 2001 , in order to reach such goals as : Making higher education available for every one , development of social Justice, provide answers to existing demands concerning higher education, Reduction of governmental expenses , making Universities smaller, coordination with other countries , not staying far behind the competitors , increase in Quality of educational services and decreasing of prevalent bureaucracy in higher education . Result of this project has been four governmental virtual universities and one private virtual university for providing educational services. Statist Traditional based on complex rules and regulations in running higher education combined with the lack of sufficient telecommunication infrastructures in Iran have made the operation of designed virtual universities a non-starter. Evaluations have shown that possibility of having virtual universities in Iran in short term is very little due to not having necessary conditions but in middle term has better chance.*

## INTRODUCTION

Emergence of Information and Communication technologies (ICT) and their innovative usage in training of people have resulted in establishment of virtual universities.

The wave of virtualization and its early concepts was formed in the end of 1980's and entered organizations and trading companies in 1992 and resulted in concepts such as virtual organizations and companies [1]. This wave reached educational organizations in the mid 1990's and thus provided for establishment of virtual universities . From its inception, developing and developed countries with more or less similar goals have taken steps toward establishing virtual universities. Islamic Republic of Iran too, as a developing country in Asia has taken such steps. Virtual university is a university based on internet; this university lacks physical structure and uses synchronous and asynchronous technologies for transferring of information and offering of educational services to the students.

## MAIN PROBLEM OF RESEARCH

The main problem of research is whether the goals that are being followed by Islamic Republic of Iran concerning establishing of virtual universities are achievable in present time or not?

## METHODOLOGY

In this Article, secondary and internet sources along with expert's opinion have been used for data collection.

## VIRTUAL UNIVERSITIES IN IRAN

Despite the fact that Wave of virtual universities was first introduced in the middle of 1990's in the world, Islamic Republic of Iran As a developing country joined this wave with little delay based on Articles of third – 5 year Iran – economic development plan (1999-2003) and words of Iranian president as stressing virtual universities and spreading of E- learning. Iran's ministry of science has defined a project of expansion of virtual universities centers. Results of such project have been the following:

- 1 - Tehran virtual university [2]
- 2 - Payame noor virtual university [3]
- 3 - Sharif virtual university [4]
- 4 - Isfahan virtual university [5]
- 5 - Iran virtual university (U.S.A) [6]

In this section above mentioned universities get evaluated:

### 1 – TEHRAN VIRTUAL UNIVERSITY

Tehran Virtual University has recently changed its name to Tehran university center for electronic training. The mentioned university is the first virtual higher learning center in Iran and has started its activities since 2001 within the following evolutionary phases:

- **STUDY PHASE (BEGINNING OF 2001 TILL MID 2002):** in this phase needed rules, regulations, standards and organizing were implemented.
- **TRAIL PHASE (FROM MID 2002 TILL MID 2003):** In this phase some non-virtual university courses were offered to students on virtual basis. Goal of this phase was to evaluate the students and making Sure Virtual university software and Hard ware are in good order.
- **IMPLEMENTING PHASE:** This phase which has started since mid 2003 Includes 2 steps. Step 1) admitting students at graduate level. Step 2) admitting students at undergraduate level which has not yet started

In the 1<sup>st</sup> step of implementation phase, six majors have been offered and for each of these majors 5 to 7 students have been admitted.

The six offered graduate level majors for Tehran virtual university include the following majors:

- 1) Hydrography
- 2) Geographical Information systems (GIS)
- 3) Designing
- 4) Energy Conversion
- 5) Calculations
- 6) Algorithms

Tehran virtual university students have been admitted according to national entrance exams. Admitted students adhere to all rules and regulations set by ministry of science, and degrees offered are same as regular curriculums registration. Taking courses and the actual Learning process of virtual university students only done all by Electronic means . Students only, attend university when they have to take exams and or defend their thesis.

### 2– PAYAME NOUR VIRTUAL UNIVERSITY

In 1988 payame Nour University as first distance learning Iranian university was established by government in order to use new educational methods. This university at the present time has more than 400000 students and more than 200 university branches in Iran and has been chosen by the ministry of science to do a pilot plan for virtual universities in Iran. Iranian government has allocated a big budget for

turning this university to a virtual university. Payame Nour Virtual University implements its activities in two phases:

- Phase 1) Offering of some courses to students on virtual basis
- Phase 2) Activities as a virtual university and offering of classic university courses on virtual basis

The mentioned activities in phase 1 are already being done in Payame Nour University. This university is at this time trying to provide the needed hardware and software for implementing phase 2.

### 3 – SHARIFF INDUSTRIAL UNIVERSITY

Shariff University operates in two ways regarding expansion of virtual Training in Iran.

- 1) Helping other universities in Iran regarding establishing of virtual universities through their information and Communications Technology center.
- 2) Establishing virtual training class in Shariff University for those students and universities wishing to use some of the courses offered by the faculty members of Shariff Universities, these courses are offered on-line or in the form of a videotape through Internet. Establishment of a Virtual university is among the future plans of Shariff University.

### 4 – ISFAHAN VIRTUAL UNIVERSITY

Isfahan Virtual University with the aim of "Public Education for Everyone from Everywhere at anytime" as created on 1 May 2002. Isfahan virtual university activities are as follow:

FIRST PHASE) Offering of single course on virtual basis to Current students of non – virtual Isfahan University.

SECOND PHASE) Offering of practical terms (technical - professional) to applicants whether students or institutes and offering of professional certifications.

THIRD PHASE) To start as a virtual university in the real sense of the word .

"Isfahan Virtual University" due to some restrictions including infrastructure has not been able to implement the third phase.

### 5 – VIRTUAL UNIVERSITY OF IRAN

This University as a non-governmental virtual university has been designed by international University of Iran (IUI) in 2000 with the goal of providing needs Iran and Middle East.

This University is organized into the following research and study areas:

- 1- **ADVANCED SCIENCE AND TECHNOLOGY:** Artificial Intelligence, Information and Communication Technology, Robotics, Biochemistry, Genetics, Medicine, Aeronautics, Physics, Satellite and Space Technology, Environmental Control and Recycling Technology.
- 2- **IRAN AND MIDDLE EAST HERITAGE:** Arts, Archeology, Architecture, History, Language, Literature, Philosophy, Religion.
- 3- **ENVIRONMENTAL MANAGEMENT:** Air, Desert, Forest, Sea, Soil, Water.
- 4- **NATURAL RESOURCES MANAGEMENT:** Oil and Gas, Mines, Marine.
- 5- **PRODUCTION MANAGEMENT:** Agriculture and Fisheries, Oil and Gas, Petrochemicals, Rug , Textile
- 6- **REGIONAL STUDIES:** Social, Economic, Political, Physical.
- 7- **PUBLIC POLICY AND PLANNING:** Strategic Planning, Middle East Union, Conflict Resolution, Political Development

This virtual university implements its activities in two phases.

PHASE1) Offering of supportive services to university centers, scientific institutes and research centers.

PHASE2) To act as a virtual university and offering of classical

Table 1 : number of participants and admitted students to universities of Iran through the entrance examination

	2000-2001	2001-2002	2002-2003	2003-2004
Participants	1274804	1593483	1628566	1450000
Admitted students	151942	170702	195282	190000
Surplus demand	1122882	1422781	1433282	1260000

Generally speaking there are a number of reasons for increase of the demand for higher education and decrease in its supply in Iran.

university courses . Since the mentioned university has not been able to get the needed permits from ministry of science, thus its activities are limited to refer services in phase one.

If needed permits are obtained from ministry of science, this university intends to admit 300 students at undergraduate level for computers (software), Farsi Literature and English Literature through national entrance exams. Establishment of graduate level courses and also adding more undergraduate level courses are among future plans of this university.

Goals of the Iranian Government for development of Virtual Universities:

### 1- DECREASING OF NUMBER OF STUDENTS WISHING TO ENTER UNIVERSITIES THROUGH NATIONAL ENTRANCE EXAMS.

Iran has a population of 67 million the most populated country in Middle East region. More than 50% of population is under the age 30. Demand for universities is much more than supply. Table1 shows number participants and admitted students to universities of Iran through the national entrance exams 2000 to 2003. [7]

A) Reasons for increase in demand for higher education in Iran:

**A-1– high rate of population growth:** according to statistics the average rate of population growth between 1967 and 1986 has been 3.9%. From 1989 till 1991 the rate dropped to 2.46% and in the following five years reached 1.45%. It means between 1976 till 1996 population of Iran on average witnessed a growth rate of 2.9%. The highest growth rate pertains to middle of 1980's and those born in that decade have joined the students wishing to enter universities from 2000 , therefore because of high rate of those born in middle of 1980's is one of the reasons for high demand .[8]

**A-2– Increase in Rate of unemployment:** because of revolution in Iran in 1979 and then 8 year war and its negative effect on economy, unemployment rate from 10.2% in 1976 rose to 14% at present.[9] Because of increase in unemployment only those with higher university degree and experts alike can obtain jobs and that's why we have a higher demand for higher education .

**A-3– A high social value on higher education in Iran:** due to history of Iranian culture, educated people were more respected than uneducated people. This is another reason for high demand of education.

B) Reasons for decrease in supply side of Higher education in Iran:

**B-1– Limited financial resources of government for expansion of universities:** since higher education is in public sector and Iran's economy is based on oil sales, [revenues from oil sales due to some restrictions are about 24 billion dollars per year], so therefore government can not allocate much for expansion of higher education. For example in 2003 from total 968000 billion Rials revenues Resources seen in budget, about 48 billion Rials (\$ 6000000) was allocated for higher education.

**B-2– Not having enough university instructors:** Ratio of student to instructor from 33.9 in 1989 has reached 34.9 in 1997. Meaning in 1997 for every 35 students we had one instructor. [10]

**B-3– limited educational spaces:** most universities both physical wise and human resource wise have reached maximum growth rate.

As A result due to many factors demand for higher education has exceeded supply for it. Since government can not provide for existing demands thus it hopes by establishing virtual universities to remedy this problem.

## 2 – EXPANDING SOCIAL JUSTICE IN HIGHER EDUCATION

One of the specifications of developing countries is big gap between different classes in society (between rich and poor). And the existence of these wide gaps in developing countries is due to lack of social justice and unequal distribution of wealth.

In developing countries most people live under poverty line and higher education is looked upon as luxury good and expensive. Therefore most people can not afford it. Thus only the rich can afford to get higher education. 85% of total wealth in Iran is in the hands of 20% of people; and 80% of people have only 15% of wealth.

Due to cost of education in virtual universities is less than Regular universities, Also virtual universities allow students in far-away and rural areas to have access to higher education. Therefore many developing countries in order to shorten distance between social classes and development of social justice have established virtual universities and online educational services.

## 3 – LOWERING GOVERNMENT EXPENSES AND MAKING UNIVERSITIES SMALLER

In developing countries, governments themselves offer social services instead of acting in a managerial capacity and higher education is a government monopoly. Since establishing a traditional university needs supportive services and they are expensive, thus one of the goals of developing countries in relation with virtual universities is lowering the cost of establishing traditional universities. Studies show the cost of education in a traditional universities is much higher than virtual university and or distance Learning. In U.S. there are 3500 colleges which have about 14 million students. Average cost of education in these colleges is 12000 dollars. While in U.S. mega universities which use new educational methods, about 3 million with average cost of 350 are studying. [11]

## 4 – NOT STAYING BEHIND THE ADVANCED COUNTRIES

One of the reasons many investments and struggles in developing countries result in failures is due to their imitations. For example when we see establishment of virtual universities in developed countries; it means these countries have provided all the needed infrastructures and needed conditions so that this phenomenon can do its work. Developing countries without providing the necessary infrastructures just follow the developed countries and imitate them. Success in virtual universities and on-line educational services need telecommunication and technological infrastructure.

## 5 - DECREASING EXISTING BUREAUCRACY IN SOCIETIES

Establishment of virtual universities cause many unnecessary regulations to go away and make for more effective educational system, thus many developing countries take measures to make for establishment of virtual universities in order to go away with bureaucracy.

## 6 – BRINGING QUALITY TO EDUCATIONAL SYSTEMS

The used technologies including advanced information and communication technologies cause increase in the quality of educational services.

Since in, Virtual University concentration is on learner, educational services try to attend to the needs of individual. So it is different from traditional universities that a unified system of education is exposed to students.

Evaluation of Iran's telecommunication infrastructures as a prerequisite for establishing virtual universities:

Table 2 : Internet Hosts and users by Region as April 1.2001

Region	Internet HOSTS (1000)	Internet users (1000)
Africa	265(.2%)	2901 (.7%)
Asia	8929(7.86%)	70073(17.8%)
Europe	20309(17.9%)	89066(22.6%)
Oceania	2062(1.8%)	17227(4.0%)
Central America	467(0.4%)	1538(4.0%)
South America	1264(1.1%)	16593(4.2%)
North America	80299(70.7%)	194556(49.3%)
Total	113595(100%)	394573(100%)

Since virtual universities are based on internet, thus internet is a necessary factor so that everyone could have access to it. Different countries share of internet based on number of "internet users" and "internet hosts" are mentioned in table 2. [12]

A review of table reveals about 88.6% of total internet Hosts that produce knowledge is located in North America and Europe, the rest of the world has a share of 11.4%. Asia's share of internet hosts of is about 7.86%. Also 17/8% of total internet users are in Asia.

The reason for internet Hosts being low in Asia is due to low level of knowledge production in this continent and or not having telecommunication infrastructures and not having public access.

Now we take a look at Iran's telecommunication indexes (see table 3) [13]

Since prerequisite for using virtual university is having computers and having internet connection, thus analysis of Iran's statistics can be of much help to us. Above mentioned figures show less than 3% of Iranian families have access to internet. Also number of internet users to total population says less than 5% of total population has access to internet or 95% of people still don't have access to it. Number of existing computers (7000000) means only 10% of population has computers.

Important point that needs to be made is good portion of computers are used in offices, only a small percentage is used by families.

A great portion of internet users in Iran are connected to internet through dial-up (fixed telephone line). Important point is using dial-up lines to got connection is no longer used in advanced countries. These countries use broad band and cable modem, DSL and XDSL.

Table 3: Iran's telecommunication status

Approximate number of internet users	3168000
Percentage of connected families to internet	2.6%
Number of existing computers	7000000
Percentage of female internet users	49%
Number of customers with usage of modem	2500000
Number of cable-modem customers	None
Number of XDSL Lines	15000lines
Number of DSL customers	1051
Number of other lines Customers (broad band)	120
Number of dial- up customers	2500000
Width of international band (Imported)	550 mega bites
width of international band (Exported)	180 mega bites
Investment in telecommunication infrastructure	1.5 billion \$

## EVALUATION OF POSSIBILITIES OF REACHING GOALS OF ESTABLISHING VIRTUAL UNIVERSITIES IN IRAN

- 1) One of the main goals of establishing virtual universities in developing countries is coordination between Higher education and spread of social justice. In Iran too this is the case. Only people with PC's can use virtual universities and also be connected to internet. At the present time there are seven million personal computers in Iran (majority of which are used by government organizations and offices).  
About 33% of Iran's population or 22 million people live in rural areas, whose access to computer dose not get even a fraction of one percent. [13]. It can be said in short – run people of rural areas can not have access to personal computers. On the hand other let's suppose all of 7 million computers are used by private Individuals (Resident of cities), the total ratio of computers to city dwellers is about 15%. This figure means only 15% of city population have PC's or 85% don't. Of course this figure is not real because majority of total available computers in Iran belong to public and private sectors. Therefore we can see that actual ization of social justice in relation to availability of PC's for city residents in short run to use is not feasible. One of the pre-requisite for using virtual – universities, is being connected to internet. Evaluation of statistics show that about 2.6% of total families are connected to internet or 97% of them don't. Most users of internet use dial-up, while this method is no longer used in world today. Because users in Iran don't use cable modems, DSL, XDSL, broadband lines, using virtual universities is not possible.
- 2) Other goal of establishing virtual universities in Iran is to provide education for those who can not pass national entrance exams. 85% of those wishing to enter universities are not successful. (Refer to table 1)  
Of course an important condition for virtual universities is having PC and internet connection. Due to lack of communication infrastructure in Iran we can not achieve this goal in short term.
- 3) Another objective is lowering government expenses. However, insufficient investment on telecommunication infrastructure necessitates huge government investment in the short – term making virtual university a costly enterprise.
- 4) Not staying behind advanced countries is another reason for establishing virtual universities. To establish just a few virtual universities, can not help us achieve success of virtual universities, we need to have telecommunication infrastructures.
- 5) To decrease bureaucracies in country's higher education system is another reason for establishing virtual universities. Of course it can't be done now because Iranian government tends to stick with fixed and established rules and regulations that govern traditional universities. The existing bureaucracy dose not and can not and will not allow for introducing bureaucracy reduction ideas.
- 6) Improving the quality of education is another goal. Because most of Iranian users use dial-up to access internet, these users can only use text –based materials and are deprived from visual resource such as film resulting in a lower quality education.

## FUTURE TRENDS

All we have said so far is that due to shortcoming in telecommunication infrastructures, widespread use of virtual universities is not possible. But future looks optimistic because:

- 1- Government is trying to establish necessary telecommunication infrastructures and also encouraging private sector in this regard. So we can be hopeful towards having needed infrastructure in middle term.
- 2 - There has been an increase for higher education in Iran and the current capacity is not enough to meet demand. Thus importance of virtual universities becomes increasingly important.
- 3 – Third economic development plan of Islamic republic of Iran (1999-2003) and the forecasted plan for 4<sup>th</sup> economic develop

ment plan show government of Iran is seriously considering virtual universities.

- 4 – Existence of Iranian experts all over the world is indicative of Iran's potential strength that is needed for the successful imple mentation of this project.
- 5 – The world trend towards establishment of virtual universities has accelerated so much that countries have to pay more important attention to this issue and keeping their competitive edge intact. with due attention to Iran's experience in educating qualified university Instructors and in regard to the need for establishing virtual universities we will witness expansion and progress of virtual universities in future in Iran .

## CONCLUSION

The need for virtual universities has been felt since ever 2001 in order to expand social justice, making higher education available for everyone , meeting demand concerning higher education , reducing government expenses , making universities smaller, not to stay behind other countries and promotion of quality of higher education . In this regard five virtual universities, payame noor, Tehran, Shariff, Isfahan and virtual university of Iran have been designed. Above mentioned universities due to lack of telecommunication infrastructures in Iran have not been able to start their activities. The studies have shown that at the present time reaching the goal of implementing virtual univer sities is not attainable, but in middle term due to the following reasons it is possible:

- Government aggregate investments for providing telecommuni cation infrastructures.
- Ever increasing demand for higher education in Iran.
- Lack of sufficient capacity of existing universities to meet demand for higher education.
- Emphasis of Iran's third and fourth national development plans on development of virtual universities.
- Support of Iranian experts in and out of the country for the establishment of virtual universities in Iran.
- Coordination with the world trends in regard to establishing virtual universities.

However, it is inevitable that we should see development of Virtual Universities in Iran.

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