Globalization and the Right Adoption of Technology in Pakistan

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Abstract - This paper focuses on brining out the facts about how Pakistan can benefit from globalization by right adoption of technology. Our main claim in this paper is that Pakistan has adopted globalization but has not been able to improve its economic condition because of lack of proper planning and lack of right adoption of technology. As without right adoption of technology no country can make progress. The main reasons of why Pakistan is not getting benefited from globalization are also discussed in this paper. A comparative study has been done on the developed and developing countries that have benefited from globalization. After a detailed analysis key points have been mentioned, as an answer to what needs to be done by Pakistan, in order to get successful in race of globalization.

Keywords : *globalization, cloud computing, technology, economic analysis.*

I. Introduction

This research paper is about globalization and how it's affecting Pakistan and other developing and developed countries. In this paper we are going to discuss the main causes of why globalization is affecting developing countries negatively. The paper will also review that globalization can only be embraced by the right adoption of technology and how different cultures and lack of governance in different developing countries is causing them to lag behind in progress.

Different authors have discussed that globalization affects the culture. The culture of countries who fail to get benefited from globalization gets dominated by the countries that are in power. As in case of Pakistan we see domination of western culture is very common now days. But the main reasons of failing to adopt globalization have not been defined anywhere. So in this paper we are going to provide analysis and conclusions that why Pakistan fails to get benefited from globalization and what type of attitude is required by Pakistanis in order to get successful in the race of globalization.

II. Literature Review

Philemon talks about the African countries and its youth bulge and gives major reason of slow growth is due to government's lack of retaining talented resources that are already scarce [1]. As a conclusion author says that it is poor governance that Government invests too much money in education without any plan for return on investment. The author states that government sector lacks the ability to retain talented resources as they provide no incentive for them to stick around or invest in their own country. Pakistan and HEC (Higher Education Commission of Pakistan) is investing a lot in Education. This is a very positive step but there needs to a system to retain this talented work force after they have completed their education. Steps need to be taken to ensure that there are Jobs present in the government or private sector that attract highly educated and talented people. As mentioned by Author in [7] that a countries tax revenues are hampered by brain drains and emigrations. Author in [8] says that the reason for such a high number of brain drains is because of the low pay rates of developing countries as compared to developed countries.

Krishn A Goyal in his paper explains how India took part in globalization. The strategy adopted by India was to devalue its currency in order to handle the early nineties crises of foreign exchange crunch [2]. Second step was to privatize the public institutions, focusing on foreign direct investment and then convincing the NRIs (Non Residential Indians) to have confidence on Indian economy and invest in India by giving Tax privileges. This leads to the NRIs investing in IT and different other sectors in their own country without fear of government hampering their targets and progress.

Jagdish Bhagwati says that in order to take part in Globalization each and every developing country needs to understand that future and success lies in adopting international outsourcing [3]. As claimed in other papers reviewed that developing countries could not take part in globalization because of lack of transfer of technology, so a developing country must go for handling outsourced projects. The biggest problem with Developing countries is that they are consumers, not developers therefore they should grab outsourced projects to attract revenues meanwhile also working on attaining the transfer of technology. Most of the developing countries are taking part in international outsourcing and opening their gates to international investors and attracting them with fewer taxes and other privileges. India has done the same with IT and other call centres. China is also following the same trend. By allowing other countries to operate their business from across the border they are not only creating jobs in their homeland but also creating awareness in the people

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regarding the true nature of the technology dominating the world.

Mr. Ghulam Ali claims that Globalization is affecting the culture of Pakistan negatively [4]. According to Mr.Ghulam Ali Globalization is something that should be beneficial for any county that adopts it positively, but in case of Pakistan, globalization has affected negatively because Paksitan's main focus is on culture and not IT. They are more focused on avoiding the adoption of Western culture rather than focusing on adopting their technology. As discussed in [3] they are more focused on consuming technology instead of learning how to produce it. As pointed out by Mr. Ghulam Ali that only adoption of the western culture alone will not be helpful where as the adoption of tools and techniques is required which will be helpful in getting benefited from globalization.

Ishrat Husain talks about the nations that have benefited from globalization in real sense which includes China and India as best examples [5]. According to his research Pakistan should be following the footsteps of China and India. In his paper he has discussed the achievements of China. China has increased its exports more than 10 times in the last 15 years. China is the largest single beneficiary of Foreign Direct Investment flows. Similarly India's exports have almost doubled in last few decades and FDI flows are doubling every year. IT revolution in India has brought about millions of investments helping the country in improving its economic conditions and generating employment opportunities on mass scale. Even Bangladesh is catching up with us in exports and reducing its dependence on foreign exchange. Author says that in order to get benefited from globalization, Pakistan needs to adopt and groom its youth bulge for latest Technologies that are emerging all over the world. Today Less developed countries get negatively affected by globalization as they lack to understand its strategies and policies, because of lower literacy rate. So we need to understand the tools and techniques being used by other countries who are developed and continuously grooming themselves in Technology Sector.

ZHOU Jia discusses that globalization in IT industry makes the market competition more fierce and environment more intricate [6]. Chinese enterprises have to face the competition environment changing from relatively inward to open. Based on the analysis performed in the paper, it recommends that in IT projects, throughout its lifecycle, management commitment and monitoring should involve throughout the lifecycle. For this purpose separate management organization should be established. It is also suggested that an appropriate budget is allocated for the projects and it should be monitored throughout the project lifecycle. Also, paper suggests that Change Management should be performed cautiously and for that proper planning is required for any IT-related changes. Author in [9] says that the decline in the early 90's in banking sector was due to less profitability in conventional banking as IT was becoming more integrated in the sector. However this started to improve and even help in the early 2000's because of adoption of IT.

III. COMPARATIVE STUDY OF ECONOMIES

For further analysis four other developing and developed countries are analysed. As these economies vary in population, culture, technological advancement and education therefore they provide useful information. For analysis most of the data has been extracted from [12], [13], [14] and [15].

If we compare the GDP and revenues of the following 5 countries then there is obviously a big gap between the developed and developing countries. USA has the highest GDP and revenue followed by China here. Brazil being a developing country is close behind China. It is noticeable that GDP is not directly relatable for Brazil as its GDP is low but its revenues are high as compared to India and China. India's GDP is almost equal to that of Brazil but its revenues are quite less.

Similarly if we look at Fig.4 which shows the labor force of these countries we see that China has the highest labor force. In fact it has the highest ratio of working labor force percentage to total population than any other country in comparison. 62% population is considered as skilled labor force in China. For Pakistan this figure is just 30% which is quite less. It means that normal households in Pakistan have only 1 or 2 persons who are working and making a living while providing for the entire family.
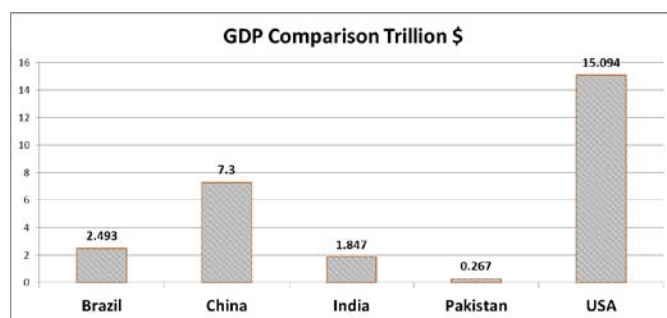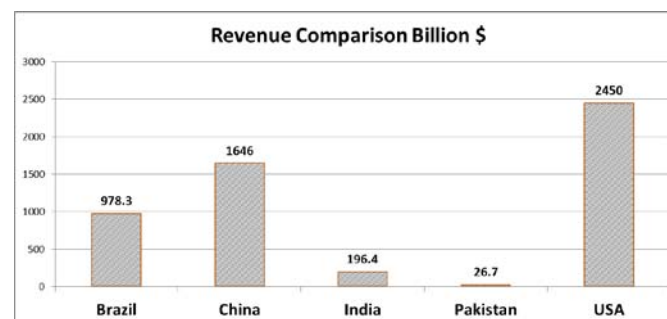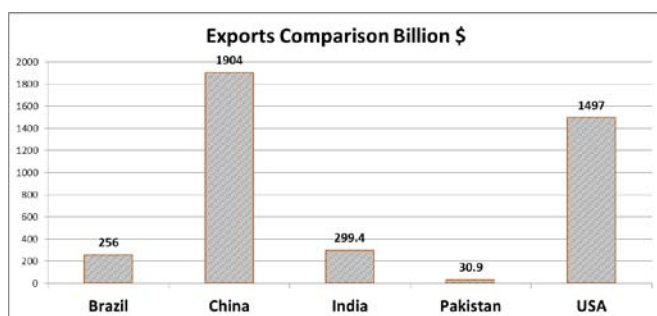
Fig. 1

Fig. 2

Exports Comparison Billion $

Fig. 3

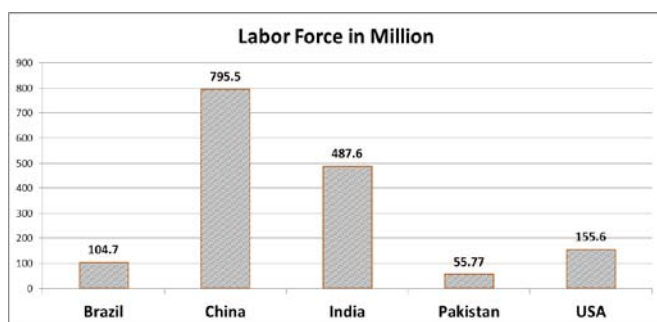**Labor Force in Million**

Fig. 4
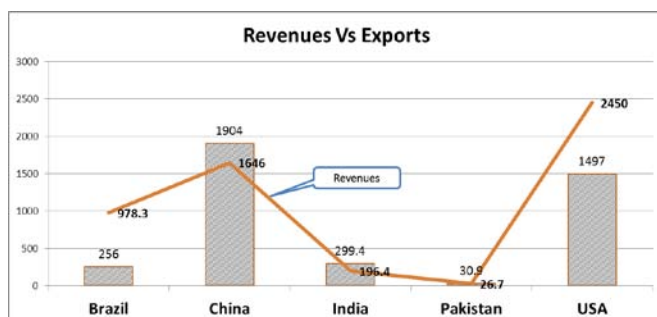
Revenues Vs Exports

Fig. 5

If we compare the Revenues to the exports than there is an anomaly in the more developed countries and few developing countries. The difference is that the revenues don't match the exports. In some cases the revenues are quite high whereas the exports are moderate. This can only be accounted by the services that these countries are providing in the form of IT and other related services.

IV.   Observation and Analysis

As discussed in above section the most important observation is that 60% plus population of Pakistan includes youth which shows that Pakistan has youth bulge phenomenon going on. As compared to China in our literature study, Pakistan needs to train its nation especially youth to adopt and learn the latest technologies and bring up the level of competency just like other developing countries discussed in literature review.

As we talk about adopting and learning latest technologies, in this paper we propose that "**Cloud**

Computing" is a Technology that a developing country can easily adopt and learn in order to speed up the learning curve and competence level of its youth.

"**Cloud Computing**" is the latest technology that can be learned and mastered in less time and this is where Pakistani nation can come into innovation. This technology is still emerging and being practised all over the world.

V.   Introduction to Cloud Computing

This latest Technology is about virtualization. It's about having your data, your office environment accessible to you anytime anywhere you want, you just need internet access and make money based on the services you provide online.

This technology has three different modes also shown in Fig.6:

- SAAS (Software as a Service)
- PAAS (Platform as a Service)
- IAAS (Infrastructure as a Service)

Fig. 6 : Cloud Computing Service Modes

Software as a Service is the most basic mode of cloud computing that can be learned by the developing countries initially in order to adopt this Technology.

SAAS includes development of web based software where one can use open source development tools to avoid licensing prices. This is the ideal mode of Cloud Computing for a developing country. Different commonly know examples of SAAS are Microsoft office 365, Salseforce.com etc.

Platform as a service is another mode of cloud computing where one can develop application online and then launch them online for web use and earn money based on the services being provided.
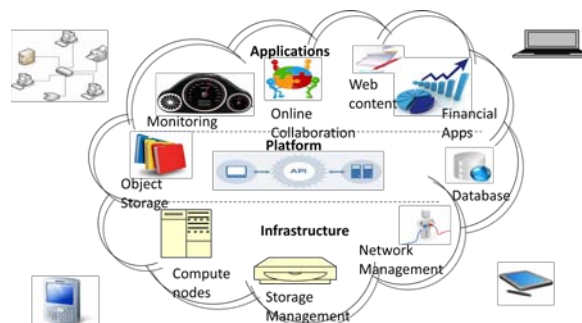

Fig. 7 : Cloud Computing Big Picture

Infrastructure as a Service is the most expensive mode of Cloud Computing which includes virtualization of infrastructure. Commonly known examples of IAAS are RackSpace, Amazon etc. Providing the infrastructure means one can have his all office environment in the cloud. All your data, Network, Higher computing resources, security are managed in the cloud and you just need internet access and internet enabled device with internet browser to access your virtual office.

Fig. 7 represents the big picture of cloud including three different layers of applications, Platform layer and Infrastructure layer. The picture shows that application layer is about web based softwares that includes HRM softwares, financial applications, web content related to online data stores etc. Layer 2 includes application programmable interfaces for development of one's own software based on already developed web libraries. Layer 3 is about Managing high computing node / server having 100s of CPUs, Terabytes of memory, Terabytes of disk spaces and high bandwidth network management for efficiently managing a virtual environment.

Fig. 7 also show that how one accesses this cloud. As shown in figure you can access this cloud by your Laptop, IPad, Mobile, or over the virtual private network.
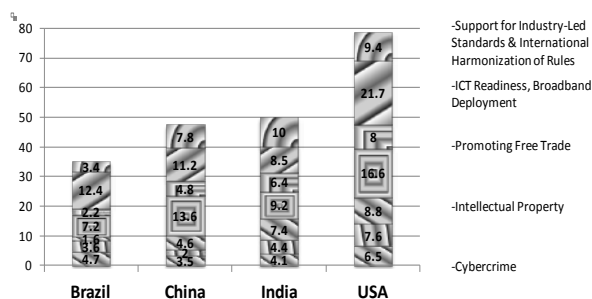

Fig. 8 : Percentage of usage of cloud computing based on its components

Above figure shows the comparison of different developed and developing countries who have been actively taking part in globalization and using cloud computing to grow and improve their economy.

Figure 8 shows different components that need to be considered when adopting this technology. These are the components that are standards set in the industry in order to compete with other developed countries. Components include:

- Recognition of Support for industry led standards.
- Broadband infrastructure
- Promotion of free trade
- Focus on intellectual property
- Control on cybercrime

Figure 8 data has been collected from [10] and it shows that USA is leading in the cloud computing as its major service provider. India as discussed in analysis

above has a revenue less than China but India is actively taking part in cloud Computing and has higher rating as a Cloud computing service provider then China. Brazil is also a developing country adopting this new technology in order to take part in Globalization.

VI. What Paksitan Has Today and What is Required

As we have discussed in above sections key components have been mentioned with respect to, what is required for the adoption of this technology. Now we need to identify what Pakistan already has in order to adopt this technology.

The most important asset that Pakistan has is 60% plus youth of total population that can be helpful when adopting this technology.

Pakistan has a mobile broadband infrastructure having 69% of its population that uses mobiles. According to [11] following figure it shows the countries that were discussed in economic comparison. So figure 9 shows negligible difference in mobile and broadband infrastructure of Pakistan in comparison with other developed and developing countries.
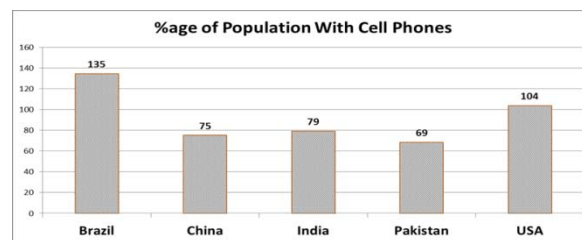

Fig. 9 : Population with Cell Phones

- In order to support this technology what Pakistan needs and already has is High Speed internet.
- Then the communication infrastructure that Pakistan already has as show in above analysis and study.
- In order to produce skilled labor force Pakistan has 145 universities.
- Pakistan is also under process of introducing 3G technology.
- Pakistan has ICT (Information and Communication Technologies) Research and Development Fund in order to support the development and adoption of such technologies that are beneficial for the economy of Pakistan.

Here when we talk about the 3G introduction, the main benefit of this technology in Pakistan would be access of high speed internet but currently in Pakistan the major concerns are about the ROI of this 3G implementation. So if we adopt this Technology then Cloud Computing could be a Key factor in helping out Pakistan in right consumption of 3G with Cloud Computing services.

Today the adoption of Cloud Computing would help Pakistan ICT RnD fund in developing vision and

direction of investment. It would help this institution to focus on positive economic activity helpful for generating jobs and revenues in Pakistan.

VII. Conclusions

Globalization means exchange of technologies, culture, economical and political strategies. If a nation is not up to the standards of understanding technologies, strategies being traded then it cannot be benefited from globalization. Such a nation will become only consumers and followers NOT the Leaders. So a developing country like Pakistan needs to change its attitude towards learning and mastering new technologies. So based on our detailed analysis authors have given following recommendations:

- Pakistan needs to get itself groomed in this latest technology of Cloud Computing.
- Pakistan Already has the infrastructure for Universities to train students, so this should be an initiative by every university to focus in this domain.
- Pakistan already has mobile communication infrastructure that would be helpful in adopting the latest technologies of 3G.
- What Pakistan government needs is to ensure that Universities focus on educating students and train them with skills essential for taking part in development of Cloud Computing Technology.
- As 3G is also under process but major concerns are meeting its ROI so adopting this technology, Pakistan can generate different opportunities/projects that would help in successful implementation of 3G in Pakistan.
- The most important is to adopt the attitude of learning and adopt culture of research and development.

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