Chapter 7
Suggestions for Adoption of Cloud Computing from Economic Perspective
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SUGGESTIONS FOR ADOPTION OF CLOUD COMPUTING FROM ECONOMIC PERSPECTIVE

7.1 Suggestions in a Nutshell

As per the patterns observed in the research work, it can be stated that the state of economic development and rate of growth of different countries are prominently affecting the growth of cloud computing technology. It is also reflected in the analysis that the growth pattern of cloud in developed countries is different from that of emerging economies. Considering all these factors, the suggestions are made accordingly.

- As a path-breaking technology, cloud computing is affecting individuals, businesses and governments likewise. Macroeconomic policies for the advancement of economy are formed by the government; hence it is the responsibility of the respective governments to formulate these policies encompassing the technological aspect. There is dearth of substantial initiatives in this direction as most of the governments are still not making required expenditures for cloud adoption.

- The growth of cloud technology is not reflecting proportionate increase in employment opportunities. The benefits of this technology are going to be washed away if its affect is not inclusive and sufficient employment opportunities are not generated. The requirement is to increase the supply of knowledge workers and it cannot be achieved
until and unless technology specific skills are imparted to the existing and future workforce.

- Knowledge processing skills are different from the traditional job skills. It requires both analytical skills and creativity. These skills need to be adopted in the core educational system and organizational culture, especially in the emerging economies.

- Knowledge plays the most important role in the growth of cloud technology. The channels of knowledge creation and dissemination need to be clear and hurdle free. The economic agents involved in the whole processes and actors of the cloud ecosystem should have thorough knowledge about the concurring circumstances in which the transactions are carried out.

- Both developed economies and the emerging economies have their own strengths and weaknesses. The infrastructure (both basic and ICT) is more sophisticated in the developed countries but due to not-so-good performance on the economic front, their growth rates are trailing behind. On the other hand, though in the emerging economies the infrastructure is not so robust, their growth rates are decent thanks to sound economic performance reflected through various economic indicators. Developed and emerging economies should adopt a collaborative approach in the development of robust cloud systems addressing the individual country problems related to cloud infrastructure.

- The developed economies need to share their experiences and expertise regarding adoption of cloud with the emerging economies. Such efforts are the requirement of current times as because of cloud the virtual world is boundary less and the limiting factors are blurring.
• In emerging economies policies and strategies, though based on the experiences of developed nations, should not be mere reproduction of the policies of developed nations. Emerging economies should formulate the policies based on their own experiences, society, and their endogenous factors and problems. ‘Replication process’ in policy matters results in creating more problems than solving the existing ones because the economic agents in these economies behave and respond differently.

• Just like different countries work on the framework of rules, regulations and laws concerning international taxation and international trade, likewise there is need of such infrastructure and framework for convenient and secured usage of cloud (universally).

• In the construction of policy framework, efforts should be bilateral and multilateral. Today no country can work in isolation. Even the non-democratic countries form alliances. To tackle the problems in a realistic way, different parties should work with shared commitment. Cloud is just an extension or a special case of international trade. For smoothening out the complex processes of international trade, countries go for bilateral as well as multilateral treaties. Now the need is to design these treaties keeping scope for the cloud technology and its affiliated issues.

• Committees should be set up at country level, including experts in cloud technology, international trade rules and regulations, international financial transactions, Economics and security, to work on the formulation of strategies for enhanced adoption of cloud technology while minimizing the economic and technological hindrances.
• World is becoming increasingly globalised. Economies face the coupling effects as the fates of economies are intertwined. There is requirement of such international forums where problems of different economies arising because of virtual world are addressed. Different governments should pitch for joint management of such issues, giving customized solution to respective problems. It further requires root deep analysis which is free from prejudices and unbiased in nature because matters related to data security can become headache for anyone.

• Emerging economies lag behind the developed economies in the field of proper legislation and structures related to cloud computing. The country specific laws should be in conjugation with the existing laws in other countries of the world. Their scope should be well defined without any ambiguity, comprehensive in nature and elastic enough to deal with the changing global scenarios.

• For new technology adoption many a times it is mere jumping on the bandwagon. Countries/Businesses do not investigate the prospects and challenges of the new technology properly and just imitate others. If the system is not mature enough to implement all the provisions of cloud then such sophisticated measures and solutions should not be pushed too hard or too fast. The pace should be set according to the local conditions.

• Market based solutions/instruments should be developed, incentives should be provided to bring about required change in behaviour and for encouraging innovation. This task needs to be carried out both in the public and private sector. Products and services are increasingly becoming IT-intensive but there is still a lot more products/services that are still lacking on this front, especially in the emerging
economies. Rather it would be more appropriate to say that there are complete sectors which are deficient in such technology. To enhance the usage of cloud (whether through public/private/community/hybrid cloud) in such sectors, encouragement should be a joint effort of the government and industry.

- For sustainable development, security is indispensable. The increasing use of cloud/cyber technology by international terror outfits is a matter of deep concern and requires serious efforts in the direction of enhancing internet security measures. As the boundaries of the virtual world is difficult to define, therefore, new ways of security need to be formalized and implemented. Global terror outfits make use of social networking for recruitments of terrorists/jehadis, dissemination of information about their operations and conducting terror attacks. Monitoring of such activities is a herculean task which should be carried out through a consolidated approach involving not only the different security agencies of a country but international security agencies as well. The need of the hour is to set up a separate cloud service model for combating this increasing threat.

- Cloud technology leads to erosion of national boundaries, which leads to several violations by the multinational corporations. Multinational corporations are good at finding loopholes in the system and less developed economies where the structures are not so robust, become easily vulnerable. In order to be benefitted by the technological advancement, maintain quality of services and side by side dealing with the aforesaid problem, the less developed countries need to improve their basic infrastructure and encourage indigenous IT-intensive businesses.
- The practices which are still in experimental stage should be handled cautiously. Not every variant is suitable to every economy. And different economies should work in the direction of innovating cloud practices addressing their indigenous demand and harnessing their full potential.

- In India, there are structural problems in the adoption of cloud technology. Advancement is in pockets and not holistic in nature. These discrepancies can be removed by two way action, both on demand side and the supply side. People should be made aware that superficial knowledge about cloud could be detrimental. They should be more aware about the service conditions of cloud and quality of service. Similarly government should team up with industry to remove the supply side bottlenecks.