



Internet Diffusion

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Abstract— *The last few years has witnessed an exponential growth in the growth of the Internet. In spite of this growth, the global Internet diffusion or penetration has not been uniform but highly asymmetric. There are key differences in the pattern of Internet diffusion across nations. The issue of Internet diffusion is of great interest to policy makers and other constituencies since the Internet is regarded as a key tool for economic growth and development. The paper presents a brief introduction on Internet diffusion and discusses the factors that shape diffusion.*

Keywords— *Internet diffusion, global diffusion, economic diffusion*

I. INTRODUCTION

In the past, cities all over the globe are connected with railroads, highways, telephone lines, power grids, etc. We are now deploying the Internet and ICT (Information and Communications Technologies). ICT technologies facilitate the capturing, processing, storage, and transfer of information. Internet is the fastest diffusing ICT. Some sociologies have regarded ICT, with the Internet as their chief embodiment, as the heart and engine of societal change. The Internet has had a tremendous impact on our society. It changes the way people socialize and communicate with each other [1]. The adoption of the Internet is a fundamental antecedent to e-commerce, e-business, e-government, online education, web presence, and mobile services.

Internet diffusion (ID) (referring to the number of consumers of Internet or hosts) addresses the spread or penetration of the Internet around the world. Global Internet penetration is driven by literacy rate, telecommunication infrastructure, access cost, and content. In the US, the Internet has diffused faster than almost any other technology innovation. Internet diffusion/adoption benefits include: access to local and international markets, direct selling, improved company profile, the ability to train others, and indirect financial benefits [2].

II. FRAMEWORK FOR ID

The state of the Internet can be characterized along the following six dimensions [3,4]:

- *Pervasiveness*: This is based on the degree to which non-experts use the Internet.
- *Geographic dispersion*: This measures the availability or concentration of the Internet within a nation.
- *Sectoral absorption*: This measures the degree of Internet utilization in the education, commercial, health care, and government.
- *Connectivity infrastructure*: This is based on international backbone bandwidth, exchange points, and a high proportion of homes with last-mile access using technologies such as DSL.
- *Organizational infrastructure*: This is the degree of openness and competition in both the ISP and telecommunication industries.
- *Sophistication of use*: This measure characterizes the usage and application of Internet which may result in significant changes.

III. ISSUES WITH ID

Some factors that hamper Internet diffusion include income levels, government policies, government censorship, international diplomacy, economy, bandwidth availability and cultural preconditions of technological change. For example, if the Internet technology is perceived as culturally, socially, and religiously incompatible, its adoption could be disapproved, delayed or even stopped. Internet content that discredits religious beliefs may be distasteful to users. There is also a correlation between a nation's democracy and Internet connectivity [5, 6].

Governments still play a major role in determining Internet diffusion. While some governments support policies that encourage Internet diffusion, other governments see it as a threat to the political stability. It has been observed that non-government regulations contribute significantly Internet diffusion. Process and product innovations are related to employment growth and the use of the Internet by workers.

In Africa and Latin America, for example, the adoption of the Internet has been slowed down due to low income, poor telecommunications infrastructure, and shortage of IT professionals, government corruption, and the technological illiteracy of political leaders. The local economy and infrastructure cannot sustain an advanced technology as the Internet

because Internet diffusion requires large investment and advanced technical knowledge. As a result, African nations account for disproportionately fewer numbers of Internet users, creating a global digital divide.

Telecommunications companies are not motivated to provide rural areas with the needed Internet infrastructure because of their lower population densities. For example, in a developing country like China, the Internet is yet to be widely diffused in the cities, let alone the vast rural areas. Consequently, the rural-urban digital divide and social disparities are widening [7].

Given that the use of Internet is unequally distributed, there is the threat that technology can contribute to increase social-economic inequality or digital divide. Each nation must formulate their Internet and information integrated policy based on their economic development objectives for improving the quality of lives of their citizens.

IV. CONCLUSION

The Internet, as a supranational technology, has been credited for revolutionizing everything from consumer shopping habits to the practice of open government. It has become a major facilitator of global economic processes. An understanding of the global diffusion of ICT in general and the Internet in particular requires attention to multinational issues.

Internet access by mobile devices is experiencing rapid growth worldwide. Mobile devices enable wireless connectivity to the Internet wherever whenever. The easy accessibility of mobile phones relative to personal computers suggests that the mobile phone provides a means of overcoming unequal access to the Internet. The diffusion of mobile Internet is faster than computer-based Internet [8].

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