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The inclusive analysis of ICT ethical issues on healthy society: a global digital divide approach

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Abstract

The Global Digital Division remains as a rising focus that has to be brought into the notice of the United Nations UN. It is about the vast disparity in exposure to the existing digital knowledge by ICT information and communication technologies amongst developed and developing nations. The work outlined here seeks to acknowledge the effects and provide feedback of an ethical issue on key areas. The study also provides information about the several concrete solutions to this issue in order to ensure the sustainable development of society. In addition, a Digital Effectiveness Framework has been suggested which consist of five phases namely access, exploration, knowledge acquisition, adoption, and innovation and transformation. The study ends with the molds that leads to address the impact of the Global Digital Divide will continue at national level. National surveillance systems must be set to determine the digital opportunity index DOI for each country and track their role as tech giants in the information and communication technology environment.

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1. Introduction

The environment has seen an increasing gap and difference between poor and rich because of an imbalance in the distribution of wealth. This accumulation only tends to extend as the unequal prosperity and account distribution for the vast disparities in their ICT's information and communication technology ownerships called as a Digital Division. This division is unfortunately seen across several countries and the driving force behind is the tremendous income disparities between emerging and developed countries as a Global Digital Divide (GDD) issue¹. The digital division is the root of many ethical problems arising from information technology growth, which holds two aspects namely as vertical and horizontal. The vertical distance divides us from previous generations, which marks as the end of modernity and constantly growing in certain scientific and technological fields, such as molecular biology, engineering, biomedical, technology, and neuroscience; which is counted as too large with the differences between the normal and the artificial. In addition, the global divide is a new horizontal distance between insiders and outsiders within society. The infosphere was often associated to its current, digital area, and cyberspace, which is not a region of environment, economics, community, and language. But is the atopic zone of mental health, from schooling to research, culture to communication, commerce to leisure. Its boundaries range from North to South, East to West, from developed countries and developing countries, to religious and political structures, to younger and older generations, including communities^{2,3}.

The global digital division has attracted the United Nations attention, and scientists and scholars are currently looking at it as an ethics question for financial control of ICT administration. The study aims to offer an overview into the GDD challenges and give sustainable solutions to significantly reduce their impact. Technology has proved to be nearly aspects the daily life as the most important groundbreaking tool. In example, as modern banking also made it easier for people to survive with invention of automated teller machines (ATM) for cash and deposit withdrawals, reducing the traveling time to banks and expecting to face their turns. The related facilities regarding Electronic banking has facilitated fast and easy transactions, and without ICT's innovation, these would not have been feasible^{4,5}. In addition, another significant contribution by ICT in terms of access to digital databases and archives for accessing data can be found in the health education network, means the health educational platforms are enrich with the digital libraries for the researchers like IEEE explore, Science Direct etc. and repositories for accessing of medical datasets^{6,7}.

The quest for health information is one of the main Internet uses⁸⁻¹⁰. In the Pew Research Centre's research study¹¹, nearly (77%) of adults use the Internet now a days to seek the different information and 86 percent of users try seeking of healthcare-related information only. In other terms, (63%) of all people surveyed use the Internet for the purpose of finding health information. The information includes study activities for health information like link to forums or news groups, show on-line images, drugs information or recovery comments and read service feedback reports of different medical providers. Many Internet applications related to wellness include weight management, exercise, diet, social communication about fitness, and professional fundraising. Electronic health learning (EHL) can be defined as "Ability to search, identify, interpret and analyze facts regarding health from online media and to use the knowledge acquired to fix or solve a health hitches¹²." The research states that the online health education has a strong relation with the clinical outcomes and health mortality rate. It has also been shown that those who are well-informed and able to access electronic health information have a better self-handling of health and fitness habits and have a better understanding and contact with their doctor over the Phone^{13,14}.

It is a great pity that the above resources and many more that are available via ICT are implemented by a few organizations worldwide¹³⁻¹⁷. This research aims on exploring the cause of this global division, and how ICTs should be adopted globally and health education organizations to ensure their sustainable development through gaining the latest knowledge using the latest technologies. Furthermore, this work approach lies at: (1) Identifying and assessing the effect of digital sectors on the areas of technology management, and (2) Establish possible solutions to reduce the effects of global separation on maintaining socio-economic growth worldwide.

2. Impact of ICT on Society

Previously technology of communication, like Telephone, TV, and Radio, were "illiterate-friendly," while later creation of ICT demanded educational qualifications, which showed better social involvement^{18,19}. We very much agree with that statement because early communication technologies did not require extensive training but reached a large group of people and did not offer vast language barriers depending on the locations. ICT's vision is to enable every person to gain access to, share and use content which is the basis of a knowledge-rich society. In addition, the term ICT aims to digitize the global knowledge and makes it available or communicate through the best infrastructure available. The choice of this foundation is critical as the quality and accessibility of digital information will touch society. The higher the system or infrastructure is, thus, the greater the level of connectivity or contact. The technological improvement depends again on investments, which the rich communities therefore develop and deploy. Accordingly, accessibility is still a significant obstacle for ICT implementation among all communities²⁰.

In example of healthcare societies, the effective use by health professionals of ICT will produce age of knowledge and resources on patients and public health. By dynamically incorporating ICT tools can have the potential to improve the healthcare safety standards, performance, and the provision of public health services including strengthening the public health information technology, support community, home healthcare, facilitate decision-making at the clinical level, as well as develop health expertise and knowledge¹¹.

2.1. Ethical Global Digital Division

ICT has been an efficient tool to improve the economic progression and network connections. But technological progress in ICT has been observed at varying speeds and in varied ways to reach numerous areas of the world. An exploration of this discrepancy shows that the foundation of unsustainable growth globally has the costly infrastructure. Therefore, when latest technology becomes inaccessible, moderately incoming developing countries are forced to compromise service quality, which is made available to all by the adoption of a former, less expensive technology. The less developed countries are long way behind, though infrastructure remains a problem for many others^{17,21}.

The benefits gained from ICT are therefore not equivalent worldwide, and therefore digital divide is a powerful and effective barrier and obstacle between nations to understand. The internet dispersion figures provided by ITU's (international telecommunications union) indicates the lowest 10.9 percent in Africa which is out of 1.02 billion 111 million users followed by 21.50 percent in Asia (825 million users out of the 3.75 billion) and the highest rate in North America which is 77.40 percent²². This shows the technological advancements generated by tech giants such as North America in comparison to other developing countries, driven by Europe in the digital world.

Cultural gaps related to ICT delivery are still a significant problem for decision makers^{1,2,5}. We agree with this opinion, since ICT development at varying rates throughout the world will make it difficult to standardize ICT delivery policies internationally, because globally the dispersion frequency varies depending on social condition and economic also. Through appropriate management practices, global sustainable management of information and communication technology (GSICTM) is necessary to solve the problem.

3. Impacts of Global Digital Division

The study from the various researchers show the major factors for the global digital division includes inequality in the incomes, sprawl degrees, and the democratization hop^{2-4,11-13,17-19,21-23}. We agree with this statement, the potential impacts of socio-economic growth because of the expectation and investment of the ICT's which has the potential, cultural, and political impacts on the country's climate. Some of the focusing areas which has been affected by this division are:

- Web Access: The higher the level of communication, the greater the use of ICT and hence the sustainable growth of society would be. However, for two purposes, the current scenario affects access to the world wide

web (WWW) which is technical requirements and bandwidth cost. The lack of the appropriate framework to help the technical requirements, the required skills, the deployment climate, and the effective management of all these plays an obstacle role in internet accessing efficiently, and especially in the developing countries. In conclusion, although a large cost reduction deal seemed to be in effect in the years to come and the digital information access gap will remain same and can be high because of the fiber connections with high speed.

- Global Trade: Various companies has shifted towards the global market as partnerships worldwide that have shown competitiveness, efficiency and agility enhancements. In addition, technologies have changed the structure of global marketing in example of e-trading, by the different aspects especially the high-speed services capital flow which enables the economic contributors to play in a real time. We support this statement because fast marketing without internet penetration was not feasible and it also helped to react quickly. The fundamental hassle appears in the connectivity issues, which has been discussed earlier in regards of the participation of underdeveloped countries. However, business intelligence technologies (BIT) that helps to determine the rate of growth of companies with respect to market trading to reach to the customers are slow because of the ICT acceptance ratio in business.
- Software Mapping: The monitoring solutions are a mixture of different technologies to produce strategies that control inventory, track vehicles and sites etc. In recent times, the tracking of parts in stocks uses the technology called Radio Frequency Identification (RFID) that supports the company's remarkable growth through secure and world-class supply chain management. Another critical method for tracking locations through satellite communication is the Global Positioning System (GPS).
- Public Services: Any government body has the duty to give its dutiful citizens a broad portfolio of public services. Efficient services are essential for better understanding of policies and public confidence, which is significant for the development of economy. E-government are internet-based applications for cost-effective provision of various public services and better governance. Furthermore, the application is still popular in many countries in the field of fast adoption and a vision for the less established because of the inequality facing Internet access. We comply with this assessment and would also add that the apprehension of technology theft is yet another explanation for its sluggish adoption.
- Health Informatics: A recent analysis suggests that the difference will decline rapidly ⁸⁻¹⁰, and another found that the number of computer users with lower incomes increases more than the average number of computer users ^{13,14}. However, other work has shown that income and education have increased the digital divide between the whites and the blacks and the Hispanics. One study concludes that the digital divide is increasing even as 'Latest Technologies are adopted very progressively at low penetration rates, faster, and quicker again when they are saturated' with gaps between demographic groups examined by 'penetration latency' rather than by the actual size of the divide between groups. The increase of differences leaves it unclear how high the Internet penetration is achieved.

4. Triumphant Digital Efficacy

Efficient economies invest significantly in ICT to satisfy the increasing demands of globalization in order to achieve sustainable growth. Strong ICT expenditures in developing countries, which focus on economic development, have often not lead to domestic debt. This paper proposed the Digital Effectiveness Framework (DEF) introduced by Barclay et al. ²⁴, that focuses on the digital division and the diffusion of innovation and information management to ensure that developing countries are more successful to bridge the DD and to take advantage of its ICT costs. This study support the proposed DEF model of Barclay et al. ²⁴ and can further studied to maximize its futuristic aspects because of its efficient approach of implementing technologies that are feasible with the economy. This model therefore helps to analyze and evaluates the optimal ICT expenditure for a particular economy, which decreases debt.

In addition, the DEF model works in five steps namely acquisition of knowledge, access, adoption, exploration, innovation and transformation. According to Barclay et al. ²⁴, the first step of the acquisition of knowledge, relates to the acquiring of information regarding new economic opportunities which are essential in the analysis of

economy's acceptance of technology through research and meetings. The second step Access, relates to the economic classes that have application to ICT at their fundamental stages which is imperative in the study of economic development by the efficient usage of ICT. Further, implementation of third step requires strong knowledge of technology, its applications and economic capabilities, which is significant in terms of reliability and accuracy in technological improvement of economy. The exploration step is important for exploring the success ability and contribution of ICTs towards innovation. The stage of innovation and transition recognizes and analyzes new opportunities for ICT to develop new services to lead economic development and revolution, turning innovative ideas through meaningful changes.

4.1. Further Proposed Reforms

Some of the steps which might be taken within a nation to resolve the digital divide are:

- Government's Creation of Regional Policies: The government, as a responsible entity, will assume the ICT pledge and create a vision for a prosperous future especially for the community. The policies on National level must be formulated to educate the young generation with skills, to exploit ICT by schooling and by other initiatives. Legislation for unbiased approach of ICT tools, in particular on the Internet, must also be developed through wise investment and relaxation of deregulation on data access.
- Technical training Provision: Instead of recruiting an International Technical Consultant to handle the facilities that could be costly, investments must be made to educate the local people to provide them with the requisite technical expertise that would be cost-effective through organizing workshops.
- Telecom Privatization: Mobile subscribers are now growing because of the heavy competition by suppliers to market their products at an affordable price. Similarly, Internet Service Providers (ISP) privatization of the Internet service would create competition for consumer dominance that will enable ordinary people choose from a wide range of packages available at an affordable price.
- Foster Innovation: The fundamental success lies in creativity. Hence its promotion would help to provide meaningful solutions to existing problems of the digital divide and thus support a nation's sustainable development.
- Global Partnerships: Partnership of business and technology by Research and Development (R&D) with an economically developed countries are another way to leverage the advantages of ICT and to improve the under developing countries economy.
- Observatory Departments and Agencies: Per nation, national monitoring agencies should be set up to track their Digital Opportunity Index (DOI), a significant benchmark provided by ITU to assess the progress in ICT technology, incentives and consumption compared to developed countries.

5. Conclusion

GDD is a fundamental and significant matter, which requires consideration. There is no easy way out to this but its absolute indifference was the worst circumstance in which modern society 's survival is a serious problem. This study analyzes certain important areas that the global digital division actually affects and provide some solutions to the problem as economic growth shifts. It is necessary to bridge the modern division with their origins that rely on the regional divide, which will then be a stable and strong base for the reduction of the new Global Division. Global Sustainable Information and Communication Technology Management (GSICTM) is therefore vital to mold a knowledge-rich society and culture, which associated with its superlative management practices.

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