Computing For Sustainable Global Development

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Abstract :*This research paper investigates computing for sustainable global development. From the contemporary world, it is asserted that using information technology (IT), nations are experiencing exponential expansion in their economic, social, and political areas. However, the expansion comes with costs such as pollution and a widening gap between the rich and the poor. Addressing these challenges will ensure sustainable global development. This paper explores the importance of innovation and research and computer science education to incorporate technology and achieve sustainable international development. In investigating the research question, the research will review the existing literature to reveal the trends, current applications, challenges, and strategies applicable to ensure effective use of technology for sustainable global development. The investigation revealed that nations are continually using IT to achieve their growth despite the noted sustainability issues. That is because the use of technology has more benefits than harm. As such, it is concluded that nations should embrace measures to address the associated challenges. They should use the recommendations such as the Best eEurope Practices (BEEP), a European Commission, and INDIACom, an Indian program focused on promoting technology to maintain sustainable global development.*

1. INTRODUCTION

Over the years, nations have encountered exponential economic, social, and political developments. The advancements, catalyzed by information technology (IT), have improved sustainable development through efficient governance, empowerment of the citizens, and improved life quality. However, advancement has brought some sustainability challenges, threatening future generations' ability to meet their needs. Although the challenges, as faced in different nations, are technical, they need specialized solutions and profound economic, cultural, and political adjustments and lasting commitments to substitute the technical solutions (Millett, & Estrin, 2012). Moreover, technological knowledge advancement will significantly enhance the changes where information technology will bridge the technical and social solutions. These will improve communication and transparency that will foster the essential political, economic, and cultural adjustments. Assertively, innovation and adequate research in computer science will introduce approaches to ensure sustainable global development. Computing sustainable global development will efficiently eliminate isolation, promote scientific advancement, and prevent redundant efforts, accelerating international development.

Literature Review

Nations strive towards advancing their economies. As such, they engage different technological and scientific approaches are to ensure continued improvement of their operations. However, the expansion risks the destruction of the ecosystem and other natural resources. There is, therefore, a need for measures to promote sustainable development. That is confirmed by Heeks (2010), who opines that the development is not sustainable. He

explains that the rate at which technology is changing operations, especially in developing nations, and the extent of the failure of different projects that use ICT demands extra precaution and measures to ensure sustainable development. From the article, sustainable global development requires proper alignment between the available infrastructure and its need. Henry (2012) adds that knowledge is an essential resource when advancing, as it allows nations to prosper and flourish in meaningful ways. Information and communication technology (ICT) change how society thinks, acts and works where its introduction has financial viability. Therefore, adequate knowledge will allow the introduction of the relevant measures to bring sustainable development.

An informed introduction of ICT facilitates sustainable development where the globe benefits without causing an imbalance in the ecosystem. Singh (2003) confirms that ICT provides opportunities to the literate with proper education and resources. The knowledge of ICT has played a significant role in speeding economic activity globally (Henry, 2012). However, ICT has widened the gap between the poor and the rich as the earlier, without the needed knowledge, have no chance to benefit from the technology Singh (, 2003). There is, therefore, a global challenge on using ICT in ways that will advance economic, cultural, political, and social aspects in advancing nations' sustainable development.

 Despite the associated challenges, ICT has a significant role in ensuring sustainable development, requiring measures to address its problems. That is confirmed by Ezz (2005), who explains that opportunities affecting sustainable development demand evaluations and integrated assessment of its economic, ecological, and social features. It is elaborate that sustainable development takes time but had rewarding benefits. For instance, ICT has facilitated globalization, supporting international businesses such as e-government, e-commerce, and e-business. Due to the benefit, governments should develop strategies to counter the challenges of ICT to promote globalization.

Further, the use of technology assumes a significant role in achieving the United Nations Millennium Development Goals (MDG), an aspect that will encourage sustainable global development. That is confirmed by Clarke, Wylie, and Zomer (2013), who argued that in tackling the MDG, nations must integrate and prioritize ICT. From the review of the existing literature, it is asserted that although computing for sustainable development has some challenges, governments should engage measures to address the issues due to the associated benefits.

2. RESEARCH METHODS

Computing for sustainable global development is one of the most debated and researched topics. In investigating the use of ICT in driving sustainable development, the study will involve an extensive review of existing literature. A literature review will reveal the current application, trends, challenges, and strategies to ensure the effective use of the technology for sustainable global development.

3. FINDINGS AND TRENDS

From the review of the existing literature, it is assertive that countries have continually adopted information technology that has acted as a catalyst for their economic activity over the years. The introduction of computing to ensure sustainable development has improved the overall governance, empowered citizens and improved the overall quality of life. However, it was found that a successful introduction and implementation of ICT requires proper technological knowledge. Lack of computing knowledge widens the gap between the poor and the rich since the earlier lack the knowhow, hence cannot benefit from the information and communication technologies. In dealing with the challenge, nations provide relevant education to ensure that all the citizens benefit from the technology.

Further, there are different methodologies to ensure the successful implementation and effectiveness of the ICT. For instance, the European Commission introduced and funded the Best eEurope Practices (BEEP) that documents practical solutions, giving planners and implementers the capacity to engage the appropriate practices and ensure proper evaluation, earning, and analysis (Germanakos, Christodoulou, & Samaras, 2005). These allow the creation of effective knowledge management systems for sustainable deployment and development. Odamtten and Millard (2009) reveal that Mediterranean and Eastern Europe have benefitted significantly from BEEP. Likewise, developing nations are constantly adopting the use of computing to ensure their sustainable development. For instance, India introduced INDIACom, a program to encourage scientific advancement, eliminate isolation, and reduce redundant fuel economic advancement (Hoda, 2015). Although ICT has some associated sustainability issues, its benefits are more; hence nations are continually embracing the technology.

4. SUMMARY AND CONCLUSION

Although computing for sustainable development has significant challenges, especially during its initial steps, it has more benefits; hence, nations should engage in measures to address the issues. That will facilitate sustainable development in the long run. Despite the associated challenges, countries are continually adopting technology as it has encouraged globalization that has improved nations socially, economically, and politically. Undeniably, the benefits of information technology in promoting sustainable development surpass the challenges. Therefore, governments should engage in measures to deal with issues brought about by its introduction. There are existing proposals such as BEEP that can be engaged to guide the overall process of implementation. Nations, especially the developing ones, should adopt the proposed practices to guide their overall implementation process and help address their challenges.

5. REFERENCES

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