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INVESTIGATING THE ROLE OF KNOWLEDGE SOCIETIES IN ACHIEVING SUSTAINABLE DEVELOPMENT: CHALLENGES, SOLUTIONS AND FUTURE DIRECTIONS

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Abstract

The main objective of this research papers to investigate the role of knowledge societies in achieving sustainable development. In a constantly changing and globalized reality, building knowledge societies is a complex desideratum that transcends the geographic dimension. The integration of knowledge is an essential aspect in building sustainable knowledge societies. A prerequisite for implementing effective strategies on sustainable development requires the metamorphosis or basic transformation of traditional societies in knowledge societies. The concepts of sustainable development and knowledge societies are inter-conditioned, interlinked and interdependent.
Keywords: sustainable development, knowledge societies, inequality, social exclusion, poverty

I. INTRODUCTION

This research paper aims to provide a comparative analysis on information society and knowledge society. Human society has evolved over time due to a process of continuous change. The role of knowledge society is very complex and involves a variety of complementary aspects. The quintessence of the knowledge society concept involves the use of a diversified terminology. Nevertheless, the knowledge asset is an essential concept in the proper understanding of knowledge society paradigm. The knowledge based society has the potential to improve the chances of future generations to fair living standards. Moreover, it is very

important that all the knowledge sources to be optimally preserved in order to ensure a fair level of living for future generations. In other words, the relationship between information and knowledge is multidimensional, with major implications in reaching a higher level of development.

A knowledge society is based on solid principles that promote human rights, information diffusion and social inclusion. Nevertheless, the rapid scattering of news on technologies, information and communications lead to easy access to knowledge. All the citizens of a society can improve their living standards based on access to knowledge. A knowledge society provides a new socio-economic paradigm with numerous benefits for society members. The multiple benefits of this innovative approach generate an improvement in decision-making process transparency. The post - industrial society represents an important stage in the evolution of human society. In other words, a knowledge society is beyond any elaborate definition a transition area with various significant implications, especially at a global level.

The dynamic challenges of the knowledge society are characterized by a high level of heterogeneity, especially in the context of globalization. It is very interesting that Drucker (1993) has anticipated the importance of knowledge society in the context of new changes and has suggested an approach of great significance, ie : "… knowledge as a utility, knowledge as the means to obtain social and economic results." As an analogy, the industrial revolution has represented a significant stage in social evolution, with various dimensions of improving the living conditions of the members of society. In the context of Industrial Age, productivity has played an important role in the evolution of society.

The social well-being is a strongly interlinked goal of effective sustainable development strategies. Moreover, education, research and technological innovation are essential elements in the context of knowledge society. The transformation of society is a dynamic process that highlights social evolutions both contractions and expansions, each with implications and consequences that cannot be ignored. Moreover, the term knowledge - workers highlights the scale of social transformations embedded at economic, social, and cultural level. Knowledge is a very complex concept whose understanding depends to some extent on an interdisciplinary approach. Global knowledge is a very important aspect in the efficient management of development.

II. LITERATURE REVIEW

Bedford, Donley and Lensenmayer (2015) provided a comprehensive framework on the importance of librarians in a knowledge society and highlighted an interesting definition for knowledge society by suggesting the necessity of applying a particular prerequisite ie, that all members of society to be involved in the so-called knowledge transactions. Welch (2013) has implemented a detailed empirical analysis based on the hypothesis that Southeast Asia, particularly Southeast Asian states of Indonesia, Malaysia, Philippines, Thailand and Vietnam can be perceived as knowledge society. In addition, Pe Symaco (2013) has conducted an interesting research study on in terms of education implications in the knowledge-based society

based on the case of the Philippines and indicated an ample framework on internationalization and globalization.

Noor and Crossley (2013) have investigated relevant aspects on the relationship between educational innovation and the knowledge society based on an elaborate empirical evidence study on Malaysia and have provided interesting conclusions about the possibility of this country to become a leading knowledge society. Moreover, Daniel (2013) discussed topical issues regarding science education in a knowledge society in the Asia-Pacific region based on a detailed analysis focussed on challenging issues such as science accomplishment, the qualitative dimension of science education and frameworks of teaching science. Harris, Jones, Sharma and Kannan (2013) investigated relevant issues regarding the impact of knowledge society on education and education systems and highlighted the significant importance of "disciplined, collective and inter-dependent learning".

On the other hand, Minati (2012) has discussed challenging issues on achieving the suitable knowledge in order to manage the knowledge society and has highlighted the importance of management education. Tsuruta (2013) has provided a comparative analysis between knowledge society and the internationalization of higher education in Japan and has concluded certain very important aspects such as the measure of the disparty between policy and practice. Duff (2002) has investigated relevant aspects of the impact of information society studies in the information science curriculum and has concluded that "information professionals have a duty to enter the public debate on important information society issues". Corazza (2017) has investigated the process of transition from industrial society to the post-information society and the author has also concluded the essential importance of organic creativity with regard to the interconnectivity between humans and machines.

Nath (2017) has conducted a theoretical analysis on the implications of the concept of information society and the author identified five key influencing factors in the context of a information society, ie technological, economic, sociological, spatial, and cultural. In addition, Pinto, Doucet and Fernández - Ramos (2008) has conducted a research study on the significant implications of information competencies and skills in learning to abstract information based on the distinct approach of general skills and specific skills. Anderson (2008) has provided a comprenhensive and challenging framework on understanding the importance of the information and knowledge society for education considering the significant impact on learning and teaching processes. Furthermore, Hilbert (2013) has analyzed the impact of big data in the transition process from information societies to knowledge societies and the author has also highlighted the essential role of data-based knowledge in order to achieve a higher level of development improvement.

Fuchs (2012) led a research study that attempted to answer rhetorical questions about choosing between capitalism or information society and concluding about the importance and the various implications of transnational informational capitalism. Radin (2017) has investigated the effects of the evolution of information society and its implications on the traditional paradigms of contract and the inherent interactions. Similarly, Feltynowski (2012) has conducted a comparative empirical study on the impact of development of the information society in Czech Republic, Poland and Slovakia (all selected countries are members of the European Union) in order to find solutions for achieving an improved level of socio-economic development.

Samuelson, P. (2000) has conducted an interesting research study on identification relevant aspects regarding legal framework and regulations on global information society especially considering the scale of Internet-based activities. Moreover, Kang and Martin (2018) has investigated very important issues on improving learning opportunities for special education needs (SEN) students based on the use of certain strategies such as efficient and appropriate teacher education programmes. As a practical approach, Hoter, Shonfeld and Ganayim (2009) have conducted an original empirical research study on information and communication technology (ICT), considering the impact of online and distance learning (ODL) in the complex context of multiculturalism.

Drucker (1993) has reached some essential aspects of the concept of knowledge society, by temporarily surrounding the era of capitalism and technology evolution and providing an exhaustive analysis of social features. Moreover, Drucker (1993) has provided a complex definition that is designed to improve the general understanding of the concept of knowledge, ie : "Knowledge is the only meaningful resource today. The traditional 'factors of production' - land (i.e. natural resources), labour and capital—have not disappeared, but they have become secondary."

Freeze and Kulkarni (2007) has conducted a research study on knowledge management and has also provided a broad perspective on knowledge assets, by using in this regard the term of knowledge capabilities (KCs). Moustaghfir (2008) has provided a detailed overview on organizational knowledge assets by referring to a relatively new concept such as knowledge - value chain in the context of the so - called dynamic capabilities. As a similar approach, Mvulirwenande, Alaerts and Wehn de Montalvo (2013) has performed an interesting review on knowledge and capacity development (KCD) and the authors reached relevant conclusions on the complementarity relationship between technical performance-based assessments and capacity-based assessments.

On the other hand, Lerro, Linzalone and Schiuma (2014) has investigated relevant issues on the relationship of interdependence between essential concepts such as intellectual capital (IC), innovation, performance improvement and competitive advantage both in the public sector and in the private sector of organizational activity. McConnachie (1997) has approached a significant issue on intellectual assets and provided a detailed insight by underlining the fact that this particular concept, ie intellectual asset includes the following components, namely : patents, trade secrets, trademarks and know-how. In addition, Lerro, Iacobone and Schiuma (2012) have investigated certain essential aspects of the multidimensional implications of knowledge asset assessment and the authors have also highlighted the major importance of a intellectual capital of companies.

Mehralian, Nazari, Akhavan and Rasekh (2014) has investigated the interconnections between knowledge creation and intellectual capital (IC) based on an empirical research study in the pharmaceutical industry. Kamath (2008) has conducted a research study on the relationship between intellectual capital (IC) and corporate performance in Indian pharmaceutical industry and the author has identified the underlying main pillars of the intellectual capital, ie human capital, structural capital, and physical capital. Similarly, Boekestein (2006) highlighted a highly argued analysis on the interconnection between intellectual capital valuation and intangible assets of pharmaceutical companies based on an empirical research study which includes the

evidence of 52 globally operating pharmaceutical companies. Moreover, Boekestein (2009) has also investigated relevant issues by expanding research on intellectual capital in the field of mergers and acquisitions for pharmaceutical companies.

Gault and McDaniel (2002) have approached a very controversial topic of great interest, respectively continuities such as "continuous change" and transformations such as "radical transformation" in the case of information society and the authors have suggested that all these aspects still forming a social process. In addition, Kornienko (2015) has provided a very elaborate framework for conceptual analysis of knowledge society and the author has suggested the great importance of high-complexity implications especially with regard to hazards and risks.

Becla (2012) has conducted a detailed research study on the development of information society and knowledge - based economy and the author concluded on relevance of changes to the level of civilization transformations. As a complementary approach, Gashi (2015) has investigated key issues on knowledge society considering the implications of economic development education focused on certain main directions such as research development and information technologies based on a case study of Kosovo and the author has provided some possible solutions for government authorities in this respect. In a complementary manner, Schiller and Miège (1990) have analyzed issues of great importance with regard to the concept of information society considering the impact of new information technologies, computerization and telecommunication and the authors have also linked the notion of knowledge to the welfare of the members of society.

Pantzar (2000) has conducted a research study based on an interdisciplinary approach regarding the concept of information society and has provided a very interesting definition of the term of knowledge, ie "a phenomenon that is larger than information but uses information as its building material". Moreover, De Pablos Pons (2010) has investigated relevant issues on the various interconnections between higher education and knowledge society and has highlighted the importance of information competencies. Smutny and Reznicek (2013) has performed a complex analysis on human knowledge in the context of information society and the author suggested some current drawbacks such as the so called fragmented knowledge which does not provide adequate support in the decision-making process.

III. AN INTERDISCIPLINARY APPROACH ON KNOWLEDGE SOCIETIES

A knowledge society is a very complex conceptual construction with multiple socio-economic implications. Metaphorically speaking, a knowledge society can be perceived as a commodity whose essential role is to achieve socio economic development. Moreover, knowledge influences not only one country but the whole world at a global level. This new theoretical approach highlights the importance of distributing knowledge, especially in the context of globalization. Understanding knowledge societies is an important aspect in achieving economic performance but its various social implications should not be ignored. A knowledge society is focused on spreading knowledge in order to improve people's living conditions.

An information society fundamentally differs from a knowledge society based on various criteria. Nevertheless, although there are significant negative side effects of the expansion of

information technology, especially with regard to the Internet, global development is strongly connected to this aspect. An important issue regarding knowledge society highlights the considerable link between social structures. The access to knowledge is an essential attribute of the information society since all members of society are able to benefit from this particular facility. However, the challenges of the information society involves a multidimensional approach. in another train of thoughts, information technology (IT) provides an overview of the implications of knowledge societies.

A knowledge economy is a variation of the basic idea of knowledge society. This category represents a practical construction specifically for developed countries. A knowledge economy is focused on using knowledge to achieve economic growth. Moreover, a knowledge-based economy is capitalizing in particular the importance of available information in order to add value to society as a whole. In 2005, the UNESCO World Report - Towards Knowledge Societies – suggested that „A knowledge society should be able to integrate all its members and to promote new forms of solidarity involving both present and future generations" (UNESCO, n.d). However, the understanding of the knowledge societies concept involves an open view regarding negative social phenomena such as inequality, social exclusion and poverty. It is very important to highlight the features of a genuine knowledge societies.

A knowledge society is based on intellectual capital which is the most representative benchmark for achieving development. All members of the knowledge society can have access to information, technology, know how and others in order to ensure an optimum living standard. Sustainable development provides an efficient alternative for preserving limited natural resources. The Industrial Age had a significant role in the development of society but social evolution is a dynamic process. The development of knowledge societies can lead to the achievement of certain major social objectives in terms of improving the living conditions of the members of society (citizens). Moreover, the post - industrial society represents another stage in the evolution of society as a whole, with many economic implications.

Certain sectors of activity have the potential to achieve major increases due to knowledge - based capital (KBC). Knowledge intensive activities (KIA) have stimulated economic growth due to new approaches based on innovation at all access levels. Various forms of knowledge involve the incorporation of information and technologies in order to achieve a satisfactory standard of living for the members of society. As a positive consequence, a high level of knowledge implies increased productivity. In spite of the fact that the term productivity reached the peak during the industrial age considering the significant implications generated by the industrial revolution, it has not yet exhausted its value potential but with various social implications. Nevertheless, the conceptual foundation of knowledge society emphasises an inherent evolving need at a cyclical scale.

The future of knowledge societies is a dynamic variable that depends on a variety of factors of influence. Given the importance of knowledge in increasing productivity, is not even convenient for certain countries, especially those developed to allow the free access to intellectual capital. The intellectual property rights play a significant role in court litigation involving major indemnity costs in case of violation of the legal framework. As the phenomenon of social exclusion exists, so knowledge is sometimes distributed in a discriminatory and unequal manner.

IV. A GENERAL FRAMEWORK ON THE CONCEPT OF SUSTAINABLE DEVELOPMENT

In specialized literature there is no universally accepted definition of sustainability despite various theoretical approaches and points of view. A theoretical analysis on the concept of sustainable development provides an applied insight into the various implications of knowledge societies. As a landmark in time and space, the Brundtland Commission "Our Common Future" has been convened by the United States in 1987 in order to establish the level of global environmental recrudescence degradation, used for the first time the innovative expression "sustainability". The concept of sustainability or sustainable development has been defined by the The Brundtland Commission "Our Common Future" such as "a development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

Birau (2017 a) has provided an exhaustive theoretical analysis on sustainable development in public administration in Romania and suggested that "Sustainability is a profound challenge for low-and middle-income countries given their prevailing characteristics, such as population growth, poverty, migration, environmental degradation, poor quality education or social inequality." In another train of thoughts, Birau (2016) has highlighted relevant aspects regarding the multidimensional implications of social integration based on empirical evidence on immigrants in European countries. In addition, Birau (2017 b) has investigated the negative phenomenon of social exclusion and concluded that it is a major limitation in achieving sustainable development, economic growth and poverty alleviation.

Gorun and Birau (2018) have investigated relevant aspects of globalization and sustainability and suggested the following theoretical approach, ie : "Sustainability is also a broad concept focused on the preservation of the environment and exhausting natural resources without affecting the equal chances of future generations." Birau (2017 c) has also reached a particular dimension of the concept of sustainability based on a research study on implementing sustainable strategies to combat social exclusion of children with special educational needs (SEN) which are essential issues in preventing and combating marginalization, discrimination and segregation.

The European Union – EUROSTAT 2015 monitoring report of the EU Sustainable Development Strategy, sustainable development indicators (SDI) include representative fields which is based on the economic, the social, the environmental, the global and the institutional areas, ie :

- Socio-economic development
- Sustainable consumption and production
- Social inclusion
- Demographic changes
- Public health
- Climate change and energy
- Sustainable transport
- Natural resources
- Global partnership
- Good governance.

Sustainable development allows for every human being to acquire the knowledge, skills, attitudes and values necessary to shape a sustainable future (UNESCO, n.d). Furthermore, according to the UNICEF and the 2030 Agenda for Sustainable Development "eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development" (UNICEF, n.d) .

The United Nations official website reveals that on September 25th 2015, the member countries adopted a set of 17 goals in order to end poverty, protect the planet and ensure prosperity for each and everyone as part of a new sustainable development agenda, namely "Transforming our world: the 2030 Agenda for Sustainable Development" based on Sustainable Development Knowledge Platform. In concrete terms, the 17 sustainable development goals have an essential role in identifying the main priorities for humanity in the near future by considering the following enumeration:

Goal 1: End poverty in all its forms everywhere.
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
Goal 3: Ensure healthy lives and promote well-being for all at all ages.
Goal 4: Ensure inclusive and quality education for all and promote lifelong learning.
Goal 5: Achieve gender equality and empower all women and girls.
Goal 6: Ensure access to water and sanitation for all.
Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all.
Goal 8: Promote inclusive and sustainable economic growth, employment and decent work for all.
Goal 9: Build resilient infrastructure, promote sustainable industrialization and foster innovation.
Goal 10: Reduce inequality within and among countries.
Goal 11: Make cities inclusive, safe, resilient and sustainable.
Goal 12: Ensure sustainable consumption and production patterns.
Goal 13: Take urgent action to combat climate change and its impacts.
Goal 14: Conserve and sustainably use the oceans, seas and marine resources.
Goal 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss.
Goal 16: Promote just, peaceful and inclusive societies.
Goal 17: Revitalize the global partnership for sustainable development.

The European Union – EUROSTAT, Sustainable development in the European Union 2015 monitoring report of the EU Sustainable Development Strategy highlighted the Europe 2020 strategy's key priorities, headline targets and flagship initiatives focused on achieving sustainable growth based on the following main directions :

As targets:
- Reduce greenhouse gas emissions by 20 % compared to 1990 levels.
- Increase the share of renewable in final energy consumption to 20 %.
- 20 % increase in energy efficiency.

Flagship initiatives:
- Resource efficient Europe.

- An industrial policy for the globalization era.

Another important perspective is evidenced by the fact that the outcome document of the United Nations Conference on Sustainable Development, entitled "The future we want" (Rio de Janeiro, 2012) as a common vision of the member states highlights that : "poverty eradication, changing unsustainable and promoting sustainable patterns of consumption and production and protecting and managing the natural resource base of economic and social development are the overarching objectives of an essential requirements for sustainable development." Moreover, the outcome document of the United Nations Conference on Sustainable Development, entitled "The future we want" (Rio de Janeiro, 2012) also reveals the significant fact that : "democracy, good governance and the rule of law, at the national and international levels, as well as an enabling environment, are essential for sustainable development, including sustained and inclusive economic growth, social development, environmental protection and the eradication of poverty and hunger".

V. THE IMPACT OF GLOBALIZATION ON KNOWLEDGE SOCIETIES EVOLUTION

The requirements for the development of the concept of knowledge societies exhibit a strong interconnection with the concept of globalization. Birau & Co (2018) have provided a complete definition of the notion of globalization, namely "Globalization is the modern term used to describe changes in the structure of societies and the world economy, but having a major impact in the context of an accelerated informatization". On the other hand, Gorun and Birau (2018) have provided an interdisciplinary approach and suggested the following broad definition, ie : "Globalization is a complex phenomenon that exceeds international boundaries and requires interaction, diffusion and integration thus amplifying differences and diversity in spite of any cultural influences". In addition, Harvey, Fisher, McPhail and Moeller (2009) has provided an overall framework on globalization and its impact on global decision-making processes of global managers by concluding with innovative and challenging ideas.

Popli and Kumari (2012) have investigated aspects of great social importance based on an empirical research study on the effects of globalization and sustainable development in India and have concluded in terms of achieving poverty reduction targets and sustainable development objectives "public action must be an integral part of development strategies, which should not be forgotten along with the enthusiasm for markets and globalization". Moreover, the authors Gorun and Birau (2018) have concluded that "globalization is a dynamic and integrated alternative to certain policies such as protectionism, socio-economic dirigism, isolationism and extreme economic nationalism".

Official statistics suggest worrying facts, namely nearly 800 million people now live in extreme poverty – earning $1.90 per day or less. For the first time, the world has set a deadline for ending extreme poverty -- by 2030 (World Bank, n.d). Simultaneously, the World Bank classify countries (economies) in four main groups according to the income criterion, ie low, lower-middle, upper-middle, and high based on gross national income (GNI) per capita, value calculated in the the currency of United States (dollars) by using the World Bank Atlas method. Synthesising this aspect we can emphasize the following classification of countries for the

current 2019 fiscal year by using as a criterion the GNI per capita level for 2017 fiscal year : low-income economies ($ 995 or less), lower middle-income economies (greater than or equal to $ 996 but but less than or equal to $ 3,895), upper middle-income economies (greater than or equal to $ 3,896 but less than or equal to $ 12,055) and high-income economies ($ 12,056 or more) as a strictly quantitative approach (World Bank, n.d).

The most recent FTSE Annual Country Classification Review released on September 2018, provides the following classification categories, ie : developed, advanced emerging, secondary emerging and frontier. The developed countries category includes the following: Australia, Austria, Belgium/Luxembourg, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Poland, Portugal, Singapore, South Korea, Spain, Sweden, Switzerland, UK and USA. The advanced emerging countries category includes the following: Brazil, Czech Republic, Greece, Hungary, Malaysia, Mexico, South Africa, Taiwan, Thailand and Turkey. Moreover, the secondary emerging countries category includes the following: Chile, China (to be reclassified as Secondary Emerging, commencing from June 2019), Colombia, Egypt, India, Indonesia, Kuwait (reclassified as Secondary Emerging, effective in two tranches: 50% on 24 September 2018 and 50% on 24 December 2018), Pakistan, Peru, Philippines, Qatar, Russia, Saudi Arabia (to be reclassified as Secondary Emerging, commencing from March 2019) and UAE. The last category, namely the frontier countries category includes the following : Argentina, Bahrain, Bangladesh, Botswana, Bulgaria, Côte d'Ivoire, Croatia, Cyprus, Estonia, Ghana, Iceland (to be reclassified as Frontier, effective with the annual review of the FTSE Frontier Index in September 2019), Jordan, Kazakhstan, Kenya, Latvia, Lithuania, Macedonia, Malta, Mauritius, Morocco, Nigeria, Oman, Palestine, Romania, Serbia, Slovakia, Slovenia, Sri Lanka, Tunisia and Vietnam.

In the context of a globalized world, it is naturally concluded that education for sustainable development requires far - reaching changes in the way education is often practiced today (UNESCO, n.d). Moreover, the concept "Education for Sustainable Development" (ESD) includes another particular meaning, namely that it integrates essential sustainable development aspects into teaching and learning, such as : climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption (UNESCO, n.d).

VI. CONCLUSIONS

Investigating the role of knowledge societies in achieving sustainable development is a very complex research topic of high interest. The new challenges for knowledge societies depend on globalization based on various propagation channels. Specifically, a general framework on information society exhibits a strong interconnection with the implications of globalization concept. The transformation process from traditional societies in knowledge societies generates significant implications for achieving economic development, especially in the case of emerging countries. This chapter intended to provide a broad overview on the concept of knowledge societies and its multidimensional implication. Emerging countries exhibit a higher capacity than developed countries to provide investors certain attractive opportunities in order to obtain higher profits.

The social well-being is a strongly interlinked goal of effective sustainable development strategies. Moreover, education, research and technological innovation are essential elements in the context of knowledge society. The transformation of society is a dynamic process that highlights social evolutions both contractions and expansions, each with implications and consequences that cannot be ignored. Moreover, the term knowledge - workers highlights the scale of social transformations embedded at economic, social, and cultural level. Knowledge is a very complex concept whose understanding depends to some extent on an interdisciplinary approach. Global knowledge is a very important aspect in the efficient management of development.

The future of knowledge societies is a dynamic variable that depends on a variety of factors of influence. Given the importance of knowledge in increasing productivity, is not even convenient for certain countries, especially those developed to allow the free access to intellectual capital. The intellectual property rights play a significant role in court litigation involving major indemnity costs in case of violation of the legal framework. As the phenomenon of social exclusion exists, so knowledge is sometimes distributed in a discriminatory and unequal manner.

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