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Study of Various General-Purpose Technologies and Their Comparison Towards Developing Sustainable Society

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ABSTRACT

Technology is used in many ways to solve many complicated challenges in the society. Certain technologies have grown and expanded their branches to many areas and sectors of practice in such a way that they have been designated as General-Purpose Technologies. General Purpose Technologies' (GPT) are characterized by pervasiveness where they have an inherent potential for technical improvements, and innovation complementarities, meaningthat the productivity through research and development in related sectors increases due to the consequence of innovative applicationsthrough such general-purpose technologies. Thus, as general-purpose technologies progress, they spread throughout the economy, eventually bringing about generalized productivity gains. Examples include the steam engine, railroad, interchangeable parts, electricity, electronics, materialhandling, mechanization, control theory (automation), the automobile, the computer, the Internet, and nanotechnology. In this paper, we have identified, analysed, and compared Information Communication and Computation Technology (ICCT), and Nanotechnology (NT) as two most important general-purpose technologies due to their abilities to solve both basic problems and advanced need of the society. The paper also contains a conceptual and predictive proposal on how various general-purpose technologies including ICCT and NT are potentially contributing towards creating a techno-society and based on further progress and spread of such technologies to every dimension of human life to reach the ultimate level of civilization in or around this earth. The analysis finally leads to the development of the concept of 'Universal Technology' model.

Keywords: General purpose technologies, Information Communication and Computation Technology (ICCT), Nanotechnology (NT), Technologies for social development, Universal technology.

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