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Competitive Sustainable Globalization General Considerations and Perspectives

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Abstract

Globalization has essentially empowered both newly industrialized and early industrialized countries but also caused considerable global challenges on economic, environmental, and social stability. Trends and risks of globalization and sustainability are specified by reports of global stakeholders as IMF, OECD, UN and its related organizations, WEF, WTO, and WWF. Competitive Sustainable Globalization (CSG) is introduced as a new paradigm and as a means to cope with the respective challenges. Competitive Sustainable Manufacturing (CSM) can be a fundamental enabler for CSG, proposing a global as well as a local approach for manufacturing. Potentials of value creation by manufacturing with reference to business models, education, and innovation are presented.

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1. Introduction

Globalization is a highly complex process in progress, conceived and implemented by multilevel stakeholders, driven and constrained by forces concerning economy, society, environment, politics, and technology. It is a worldwide movement leading to economic, financial, trade, and communications integration. Globalization is bringing different levels of useful and harmful impacts to the early and newly industrialized countries. It is a change

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unavoidable for the time being: it is and will be affecting the life and activities of all multilevel stakeholders ranging from individuals to communities, companies, to universities and research institutions, governmental and civil institutions, to regional, national and to international organizations.

Globalization hosts the conflicting role of two different dynamic, but somehow interconnected, development paradigms, i.e. mere economic development and sustainable development including economic development both adopted, to different degrees, by early and newly industrialized countries. Mere economic development is based upon competitiveness and on an economic growth-oriented philosophy. Sustainable development is a development that aims at meeting the needs of the present while ensuring the ability of future generations to meet their own needs [1]. Sustainable development supports progress in economic, environmental, social, and technological domains. The sustainable development paradigm is slowly emerging, due to the growing support of global institutions as well as national and regional public administrations throughout the world. Within the International Academy for Production Engineering CIRP (www.cirp.net), Jovane has introduced the Competitive Sustainable Globalization CSG paradigm [2]. The following considerations set up a framework of challenges as described by international stakeholders i.e. IMF, OECD, UN, UNACTAD, UNESCO, UNIDO, WEF, WTO, and WWF to identify potentials of manufacturing to cope with them.

2. Framework

Stiglitz defines globalization as the “closer integration of the countries and peoples of the world brought about by the enormous reduction of costs of transportation and communication, and the breaking down of artificial barriers to the flows of goods, services, capital, knowledge, and people across borders” [3]. Globalization involves economic integration by transferring policies and transmitting knowledge across borders [4]. It is a phenomenon of increasing global interdependences of markets and value creation through the growing volume and variety of trade in tangible and intangible products in different countries, of increasing cross-border flow of capital, and of the rapid and widespread exchange and diffusion of technology [4,5,6]. The flow of capital, also called financial globalization, is characterized by the reduction of controls for the cross-border flow of capital combined with a simultaneous deregulation of the domestic financial sectors [4]. The process of economic integration has essentially deepened during the last decades through the increasing application of new information and communications technology (ICT), and by the rapid technological progress in general [4]. Interconnected economies benefit from global value chains [7]. According to the WTO, the global value creation can be currently characterized by [8]:

- Trade in goods, manufactured parts and components
- Emergence of new services throughout the value creation networks and the linkage of services with manufacturing (“Servicification”)
- Global investment in production facilities, education, technology, and business relationships
- The use of infrastructure services to coordinate the value creation networks such as the internet or air cargo
- Cross-border flow of know-how such as intellectual property

A further global integration is currently being pursued by the negotiations concerning new trade agreements such as TPP, TTIP, RCEP, the Pacific Alliance in Latin America and the Tripartite Free Trade Agreement in Africa [9]. All existing countries are affected, to a different degree, by globalization, as shown by ETH KOF Globalization Index [10].

Globalization is considerably based on mere economic development, driven by competitiveness. Nature has been and is supplying the necessary resources for men and technology’s life cycles as well as absorbing and metabolizing related waste. Natural as well as technological resources, not available locally, have been acquired through commercial exchanges, leading to early forms of globalization.

World population has been and may be growing through time thus inducing, along with technology, a continuous, fast increase in resource consumption and related waste generation. Globalization is contributing to making use of more resources than earth can renew [11], leading to the estimated use of the biocapacity of one and a half earths to support humanities current lifestyle [12]. This development had been predicted in the 1970s by the Club of Rome document: the limits to growth [13]. Further degradation of the earth’s capacity to generate resources, continuous

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