

GLOBALIZATION AND EMERGING ISSUES IN ENGINEERING

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ABSTRACT

Globalization refers to the absence of the walls of matchboxes that every country had, between themselves based on suspicion, mutual distrust and ambition. We were different countries, in fact divided into worlds, and therefore could never manage to deal with natural holocausts and deadly epidemics, which time and again challenged us. Globalization has strengthened the nexus and has helped us to know each other's need in a better way. It has helped to demolish those walls that separated us and curbed our natural identity of being fellow human beings. Globalization has primarily become a fiscal term but its impact is not limited to the economy of the countries only, the term globalization actually refers to every aspect of life like cultural, social, psychological and of course, political. It is true that the impact of globalization is visible and affects largely the politics and the economy of the country but its effect on the mindset and the culture is noticeable gradually in the way people think and react. In our rapidly shrinking world, countries and affairs that once seemed far away have ever stronger and more profound impact on our lives. This globalization process is undoubtedly technogenic. The size and complexity of the modern global economy, finance, manufacturing and engineering design present a great challenge to politicians, economists and engineers alike. Under the umbrella of such complex systems, decisions made by significant players may have effects that are profound and often difficult to predict. Therefore, particularly well-placed would seem the efforts aimed at identifying and developing network metrics, e.g. measures of impact of particular decisions on the global system.

Key words:

Globalization, suspicion, ambition, fiscal, cultural, social, psychological, economy, technogenic, finance, manufacturing, engineering, network metrics.

PREFACE:

The first vehicle for this phenomenon is the rise of rapid communications, highlighted by the degree to which the internet and wireless communications permeate our environment, providing email, web, IP telephony, video-conferencing, remote banking and other services. The second important technological contributor is air travel. This growth drives further globalization by accelerating the interchange of people and goods, but questions about the sustainability of such development also become more acute. The third crucial technogenic phenomenon is the globalization of manufacturing, services and engineering

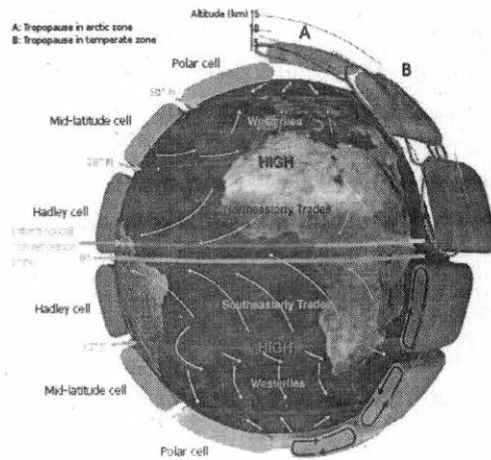
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development: remarkably, not only engineering technologies create the basis for globalization, but they themselves become involved in the resulting global pattern of research and development activities. Over the centuries, globalization progressively enveloped trade and economies, finances, manufacturing, ultimately incorporating the globalization of knowledge generally, and engineering design in particular. It is interesting to note the debate that arose in recent years regarding the relationship between investment and return within the British imperial system

GLOBALIZATION IN EMERGING ECONOMIES

The number of people living in high growth economies or in countries with per capita incomes at OECD levels has increased fourfold over the last 30 years – from 1 billion to 4 billion, according to the Growth Commission. The rapid integration into world markets by six of the largest non-OECD economies (Brazil, Russia, India, Indonesia, China and South Africa, together known as the BRIICS) was an important component of globalization during the past two decades. Economic incentives across world markets and in the BRIICS in particular, have been aligned more closely with countries' and businesses' genuine strengths



GLOBALIZATION OF ENGINEERING DESIGN IN THE 21ST CENTURY

As a consequence of the developments in the global trade, markets and finance, by the end of the 20th century the world arrived at a fundamentally new junction. For the first time the globalization process became applied now to the very source of wealth creation: the intellectual activity that creates added value by inventing, designing, manufacturing and marketing new products. Lynn and Salzman

describe this transition and introduce the concept of the 'new globalization of engineering'. Lynn and Salzman start by pointing out that in the second half of the 20th century, "the typical multinational (MNE) was vertically integrated and hierarchically organized. Key functions were headquartered in one of the triad economies of the U.S., Japan or Europe. In the case of technology development, for example, more basic R&D work might be conducted by central research laboratories, with more applied work done at triad production facilities. Some engineering activities were conducted in emerging economies, but these had little to do with the core engineering programs of the firm." Of course, some engineering design activities necessarily took place locally. However, the nature of such activities was peculiar and restricted. Lynn and Salzman give the example of a Whirlpool facility in India, where "washing machines were redesigned to keep out rats, to survive shipment on bad roads, and to cope with power ebbs and surges in electrical current". They further assert that engineering managers at an electronics firm in

India “did not consider doing work on their more advanced technologies at a site in India because, until recently, there was no market in India for products based on the newer technologies, and no sense that India provided a viable export platform.” The situation meant that “engineering teams in the emerging economies worked in relative isolation from their counterparts at triad facilities and provided little that was useful in the triad economies.”

THE COMPLEX SYSTEM OF WORLD ECONOMY

The dimension of globalization that concerns technology and engineering design is played out against the backdrop of company level and national and international level economic realities. The world economy is one of the most important and well-studied complex systems of great significance to the vast proportion of global population. Yet, as past and recent experiences show, despite extensive research effort and investment, all attempts at predicting or controlling this system appear to enjoy very limited success

IMPACT OF GLOBALIZATION

Globalization has made way for free trade and business and has communication between various parts of the globe. It has potential to make this world a better place to live in. It is changing the political scenario thus deep-seated problems like unemployment; poverty and shift in power are coming to the picture. The marginal are getting a chance to exhibit in the world market. The term "brand" is catching up in the Asian countries. It, however, is not only modernizing but also westernizing and to an extent also sinicizing the native cultures. The power play is leading to the linguini or linguistic, cultural and traditional genocide. That is probably where we need to keep a check and not let diffusion go wild. There has been significant de-localization that needs individuals to be more tolerant since face-to-face interaction is no more the order of the day.

CONCLUSIONS

The different aspects of globalization touched upon in the brief outline presented here stand in complex, interactive relationships with each other. The size and complexity of the modern global economy, finance, manufacturing and engineering design present a great challenge to politicians, economists and engineers alike. Under the umbrella of such complex systems, decisions made by significant players may have effects that are profound and often difficult to predict. Therefore, particularly well-placed would seem the efforts aimed at identifying and developing network metrics, e.g. measures of impact of particular decisions on the global system.

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