Assembling Industrial Ecosystems for a Knowledge City: Case of the Sustainable Housing Industry

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ABSTRACT

Economic forces and industrialization are determinant factors in wealth creation; however, an important part of the equation has been omitted by most of the industrial and social players, especially in developing countries. The business cycle’s impact on the environment, on the life cycle assessment, and on the biocapacity of the earth has had a tremendous effect on the equilibrium of all the sub-systems (economic, social, and environmental resources). Based on these systemic requirements, a synergistic approach involving all the stakeholders has been collated and a systemic framework, the Sustainable WIT Model has been developed, and is designed to build “sustainable clusters of high value, globally competitive industries” for developing regions. This paper discusses how the Sustainable WIT Model has been applied to one of the most important industries currently having an impact on economic, social, and environmental ecosystems worldwide - the sustainable construction industry - in a region where it is creating suitable conditions for a city to become part of a knowledge-based economy. The SWIT Model considers the economic growth of the industrial life cycle as a priority, but also includes other external forces that have previously been ignored, such as societal impact, human well-being, and bio capacity, in such a way that the sustainability cycle can be economically viable.

Keywords: Industrial Ecology Clusters, Industrial Ecosystems, Knowledge-Based Cities, Sustainable Housing Industry, Sustainable Value Chains

INTRODUCTION

Globalization has brought severe changes on the way regions formulate their development strategies. Emerging economies continue to introduce new entrants into the economic system, imposing new rules on global competitiveness strategies, forcing social structures to be adapted to the market forces, and preventing local ecologies from fulfilling their natural capacities. Cities are trying to achieve the so called “knowledge-city status”, a term that describes cities with the aim of achieving an economy driven by high value-added experts, created through research, technology and brainpower (Carrillo, 2006).
It is evident that economic forces, industrialization and knowledge technologies are determinant factors in wealth creation especially for developing countries; however, an important part of the equation has been omitted by most of the industrial and social players. This is the business cycle’s impact on the environment, on the life-cycle assessment, and on the biocapacity of the earth which has had a major affect on the equilibrium of all the other sub-systems (economic, social, and environmental) (Scheel, 2010).

The business ecosystem concept (Moore, 1996) has been part of management practices since the mid-1990s and has had some impact on the design of the better economic models, most of these being centered on entrepreneurial performances for industrialized countries. However, it has not been sufficient (neither has the invisible hand of the market) to achieve the new vision as defined by several organizations, such as the World Business Council for Sustainable Development, nor has it achieved the new social order that links business effectiveness to impact on the sustainability of the geosphere, the biosphere, and the sociosphere (Goleman, 2009; World Business Council for Sustainable Development, 2009).

Based on the systemic requirements imposed by the environment and by “value-driven commerce” (Laszlo, 2009), a synergistic approach involving all stakeholders (economic, social, and environmental resources) has been developed and a framework, the Sustainable WIT Model (wealth creation and sharing, based on innovation and enabling technologies, see Scheel, 2010), has been developed. The Sustainable WIT Model has been designed to build “sustainable centres (or centers) of high-value competitiveness” for regions that are not normally very attractive for foreign funds input, or technological partners; or that have industries that perform poorly and under hostile conditions; and also for enterprises that operate with scarce resources and are not productive compared to world-class players, and that may also work in isolated schemes of collaboration and association; all of which can be typical situations for the business environments in most developing countries.

This paper discusses how the Sustainable WIT Model is being applied to one of the most important industries currently having an impact on economic, social and environmental ecosystems worldwide - the sustainable construction industry - in a region where it is building the proper conditions for a city to become part of a knowledge-based economy (Scheel & Parada, 2008).

**CREATING ENABLING CONDITIONS FOR SUSTAINABLE INDUSTRIAL ECOSYSTEMS**

From isolated business models to industrial-environmental ecosystems, the traditional concepts of vertical and horizontal integration fail in the new world of cooperating communities (Moore, 1996). For some economic structures, most competitive advantages do not come only from scale and/or scope in economies, but also from networks of sustainable industrial ecosystems (Scheel, 2010; Scheel, 2009), where value is incrementally generated in these knowledge-based networks.

The greatest successes of high-performance regions rely specifically on the dynamics of their relationships (networking) between the active economic actors, the business process units, enterprise value chains, industrial systems, which are all embedded in supportive, attractive regions, and which form highly related structures of Processes, Enterprises, Industries and Regions - the PEIR Structure. These actors are components of an extended value system structure, in which all the stakeholders transform their resources at any level: processes, enterprises, industries or regions; into products of greater value through a strong, linked structure that is robust and efficient, and has a strategic common goal: to increase the economic value added of the product life cycle of an industry developed in a particular region, to world-
Real-Time and Social Media in Trans-Atlantic Writing/Translation and Translation/Editing Projects
Steven Hammer and Bruce Maylath (2014). *Emerging Pedagogies in the Networked Knowledge Society: Practices Integrating Social Media and Globalization* (pp. 144-161).
www.igi-global.com/chapter/real-time-and-social-media-in-trans-atlantic-writingtranslation-and-translationediting-projects/96058?camid=4v1a

The Progress of the Internet
www.igi-global.com/chapter/progress-internet/29109?camid=4v1a