


Chapter 11

Supply Chains Sophistication in “Smart” Local Communities

Yaroslav Zhalilo

 <https://orcid.org/0000-0002-8825-2880>

National Institute for Strategic Studies, Ukraine

ABSTRACT

The chapter discusses the specific changes in supply chains, conducted by the establishment of “smart” local communities as the result of comprehensive implementation of digital technologies. The author distinguishes the main drivers of these changes, derived from the activization of knowledge spillover used for commodification of locally supplied goods and services. The emphasis has been done on the institutional framework, enabling to expand the scope of beneficiaries of supply chains, associated with the provision of services, basic for local communities, based on networked consumption. The sophistication of supply chains in “smart” local communities the author explains by the expansion of business-local communities’ partnership, integrating “smart” solutions into local governance and supplementing digital technologies with reformatting of managerial practices and everyday behavior patterns.

INTRODUCTION

Dynamic changes in business ecosystems’ organization, associated with the expansion of Industry 5.0 technologies, open the new opportunities for supply chains’ development. The shifts, launched by economic internationalization and permeability of economic borders, digitalization of production processes and corresponding communications, based on this operational autonomization of business capacities, have got further progress towards strengthening of local economic players and local institutions in tailoring the supply chains based on their specific values. UN Sustainable Development Goals (2015) state the crucial role of local communities in the inclusive development of territories, by provision of services, necessary for quality of life, ecosystems’ protection, mobility of population, territorial integration, cities and communities’ development and fostering communities’ cohesion. Smart technologies’ implementation in everyday local communities’ life resulted in the emergence of “smart” cities and communities

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(SC&C) as a new institutional reality, sophistication of the traditional supply chains and introduction of the new ones, associated with the integrated sets of services, demanded by community members.

The objective of the chapter is to discuss the preconditions and principal drivers of supply chains' modification in the process of SC&C emergence and development, to identify the features of sophisticated value chains, their performance criteria, stakeholders and their prospective partnerships. Finally, to suggest the ways to optimize business and local communities' partnership realizing the potential of SC&C.

BACKGROUND

The issue of supply chains' modification is widely discussed in the studies of technological and economic progress. Nagurney (2006) stresses on the tight interconnection between supply and value chains. In fact, supply chains link value chains, thus, their design truly depends on the technological shifts, changing value creation process – namely, new sets of tools, productive equipment, appropriate technologically determined production factors, data and methods of data processing and usage in management etc. Indeed, supply chains as an external “interface” of the company, reflect the changes in the market environment and should be much more reactive and flexible compared to production itself.

The researchers of a community of sustainable business experts BSR (2017), based on the studies of practical experience of leading companies' procurement offices, identified the key priorities that shape the procurement processes and should influence supply chain management till 2025, namely:

- The comprehensive adoption of modern technologies at all the length of a value chain;
- Global climate changes and shortage of resources;
- Massive migration processes;
- Shifting consumer demand towards personalization and on-demand economy, exploring new markets and new customer groups;
- Fundamental changes, influencing supply chains – both international, such as reshoring, changes in supply and delivery geography, changes in main economic partner countries, and domestic - uncertain prospects of changes in regulations.

New drivers enable to engage more resources and modify the structure of demand, consumers' pools, location, needs and purchase behavior. This expands the supply chains, provides new chances for their sophistication, building their proper design. Janjevic, Winkenbach, and Rice Jr. (2016) derive the modern methods of supply chains' building, reflecting the changes in supply chain design:

- Switching from cost minimization to wider variety of value creation factors in order to obtain a proper market share;
- More emphasis on tactical, continuous market reviews – due to uncertainty, volatility, complexity of the markets;
- Turning to supply networks' localization in order to mitigate risks;
- Using artificial intelligence and data analytics to optimize supply chains, reflecting a massive increase in the volume of available data;
- Prevalence of interdisciplinary supply chain design processes.

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