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Developing the Fifth Generation Ports Model

Paul Tae-Woo Lee and Jasmine Siu Lee Lam

Introduction

Port functions including container ports have been dramatically developing since the inception of container transportation. The United Nations Conference on Trade and Development (UNCTAD) (1994), Van den Berg and Van Klink (1995), and Van Klink (1995) documented the function and role in the development of ports from the first generation stage to the fourth generation stage under the category of external environment, functional organization, spatial organization and port organization and strategy (see Table 8A.1). UNCTAD (1999) in its newsletter proposed the concept of “fourth generation port” (4GP), referring to vertical and horizontal integration port strategies. Following the above literature contribution, several studies contributed to classifying ports’ typologies and to elaborating their roles and functions in a comprehensive way (e.g., Beresford et al., 2004; Bichou and Gray, 2005; Flynn et al., 2011; Lee and Lam, 2014, 2015; Paixao and Marlow, 2003; Pettit and Beresford, 2009; Verhoeven, 2010). Flynn et al. (2011) proposed the “fifth generation port” (5GP) with the introduction of “port ladder” for customer centric community-focused port. Most existing literature has not focused on the types of container ports. Container ports are key facilitators of international trade development, being a critical node in the context of supply chain management. Therefore, we need to further develop the concept of 5GP from the viewpoint of container ports. Highlighting some glitches and missing points in the 5GP, Lee and Lam (2013, 2015) modified it and tested it empirically by descriptive and quantitative methods, taking cases of four major international ports, namely, Shanghai, Singapore, Hong Kong, and Busan ports. Their empirical test results and implications in tandem with the feedback from the field industry and the readers of Lee and Lam (2014, 2015)
have motivated the authors to revisit the 5GP. Therefore, this chapter attempts to purify and further elaborate 5GP, focusing on container ports and maritime logistics.

Literature review

To elaborate the conceptualization of 5GP proposed in Lee and Lam (2015), we first start to revisit the literature review and add relevant references for each item and minimize any ambiguity in it (see Lee and Lam, 2015, Table 2). UNCTAD (1994) coined the “third generation port” (3GP), referring to ports that focus on cargo handling in association with value-added services such as warehousing, packaging, distribution and other types of activities generation additional job opportunities and regional economic development. Paxiao and Marlow (2003) argued that the idea of 3GP would be sufficient if the world economic growth pattern could be forecasted with any uncertainty, but unfortunately, this is not the case. The external environment in the globalized economy having characteristics, among others, mega carrier and mega container hub-port development, relocation of manufacturing production lines in tandem with free trade agreements and growing China’s economic impact in Africa and South America, have been causing structural changes in maritime flow and supply chain management. Having said that, the authors maintained that port authorities and/or managers need to adopt a new logistics approach based on agility in order to cope with these developments and its pertaining uncertainties. Beresford et al. (2004) critically examined the 3GP model by UNCTAD and concluded that it was developed in discrete steps so that it had fundamentally glitches in it. A port is a kind of organic system in a national socio-economic-political system as well as the globalized economic system. Therefore, port devolution would be understood in the context of structural changes of the overall systems because a port is a dynamic and systematic organism. Developing countries have different economic, social, political systems from developed countries. As a social and economic organization, a port evolves continuously, adapting to changing economic and trading patterns, new technologies, legislation and port governance system. Even the critical comments made by Beresford et al. (2004) are sensible, in reality, it is not easy to develop continuous steps for port next generation models including the modified 5GP models to be proposed in this chapter.

Following 3GP in 1994, UNCTAD (1999) coined the concept of 4GP under the eight categories – that is, service quality, information