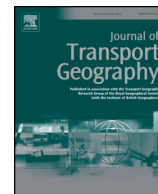




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Facilitating start-ups in port-city innovation ecosystems: A case study of Montreal and Rotterdam

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ABSTRACT

Facilitating start-ups located in the port-city interface is one of the current policy strategies of municipalities in many port-cities worldwide to encourage innovations in constantly evolving port areas. This could help the re-development of vacant ex-port land, while also offering new economic orientations for the city and the port. The aim of the paper is therefore to explore what conditions are needed to facilitate and encourage start-ups in innovation ecosystems in the port-city interface. The analysis is based on two in-depth case studies of the port-cities of Montreal (Canada) and Rotterdam (the Netherlands). The results indicate that government initiatives to actively facilitate start-ups in formerly industrialized port areas are quite successful. However, the functional linkages between start-ups and port activities remains rather limited, if not entirely absent, and the impact on the functioning of the innovation ecosystem at large is not substantial. Other factors such as capital, collaboration and proximity are valued more than the physical location of the start-up. In this, other actors in the ecosystem besides the municipality and the port authority also play a key role. Furthermore, start-ups often feel limited in their innovative capacity because of stringent regulations and institutional rigidity. Governments and port authorities could facilitate in this respect by working more demand-driven in terms of unburdening and creating more institutional support, instead of imposing top-down rules and regulations to try to govern the ecosystem, which in itself can be considered a contradiction in terms.

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1. Introduction

Port development and the evolution of the port-city interface has been at the centre of scientific attention for decades (see e.g. Bird, 1963, 1971; Hoyle, 1989, 2000; Hayuth, 1982, 1988; Norcliffe et al., 1996). The current scientific debate mainly focuses on the future spatial and institutional development of port-cities (e.g. Wiegmans and Louw, 2011; Daamen and Vries, 2013). In this, ports and cities can either compete for land or find a way to cooperate. In the competition case, the port and the city can be considered as spatially, economically and organizationally quite isolated and conflicting systems, in which port activities are more aimed towards the global economy, whereas the economic activities of the city are more related to the direct surroundings and the adjacent regions (Kuipers et al., 2015). In the cooperation case, the port-city interface can be considered a fruitful location for

innovation ecosystems, where successful cooperation between port and city can take place (Atzema et al., 2009).

This paper explores the conditions for successful cooperation between the port and city by looking at the potential of start-ups and innovation ecosystems in port-cities. Port-cities might be expected to operate differently towards innovation because of the economic importance of the port sector and the special role of the port authority in terms of (port) governance. In this light, facilitating start-ups located in former industrialized port areas could help the re-development of vacant ex-port land, while also offering new economic orientations for the city and the port. Or, as Hall and Jacobs (2012, pp. 203–204) point out: “Stronger ties between port business community, workers and research and education institutes may be encouraged, in which both the port authority and the local government can act as a facilitator. Policy-makers can set up policy platforms that bring a wide variety of local industries together, in particular knowledge intensive business services, to think about each other’s business problems. This cross-fertilization can be supported by encouraging spinoffs and start-ups, and not just focusing established firms”. Therefore, the aim of the paper is to explore what additional and

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different conditions are needed to facilitate and encourage start-ups in innovation ecosystems in port-cities as compared to non-port cities.

Facilitating start-ups located in the port-city interface is one of the current policy strategies of municipalities in many port-cities worldwide to encourage innovations in port areas (Duvivier and Polèse, 2016). However, start-ups are not a new phenomenon, for the starting-up and closing-down of businesses is a continuous process, and the failure rates of start-ups can also be as high as 90%. At the same time, recent research into spatial dynamics of start-ups confirms the highly stable locational pattern of start-ups in urbanized economies (Koster and Hans, 2017), which reinforces the urgency to analyse the potential of start-ups for port-cities. Especially in the light of challenges such as the energy transition, ICT developments (e.g. big data and Internet of Things) and new technologies like 3D printing, robotics and drones, it could be argued that port authorities and city governments could benefit from increased and long-term cooperation with start-ups in innovation ecosystems. However, the question remains whether and how port-city governance can or should promote and exploit these opportunities, and whether municipal governments indeed should actively promote start-ups in innovation ecosystems. This results into the following research question: “How can governments facilitate the potential of start-ups for port-cities?” The exploratory analysis of this paper is based on two in-depth case studies of the port-cities of Montreal (Canada) and Rotterdam (the Netherlands), in which over twenty interviews have been conducted with various stakeholders in the innovation ecosystems.

The paper is structured as follows. Section 2 develops the analytical framework for studying the geography of innovation ecosystems in the port-city interface. Also, the methodology and data collection is described. Section 3 describes the characteristics of the innovation ecosystems in the port cities of Montreal and Rotterdam. In Section 4, the potential of start-ups in the innovation ecosystems of the port-cities of Montreal and Rotterdam is analyzed. The final section contains the discussion and conclusions of the paper.

2. An analytical framework for innovation ecosystems in port-cities

2.1. Towards a framework for innovation ecosystems in port-cities

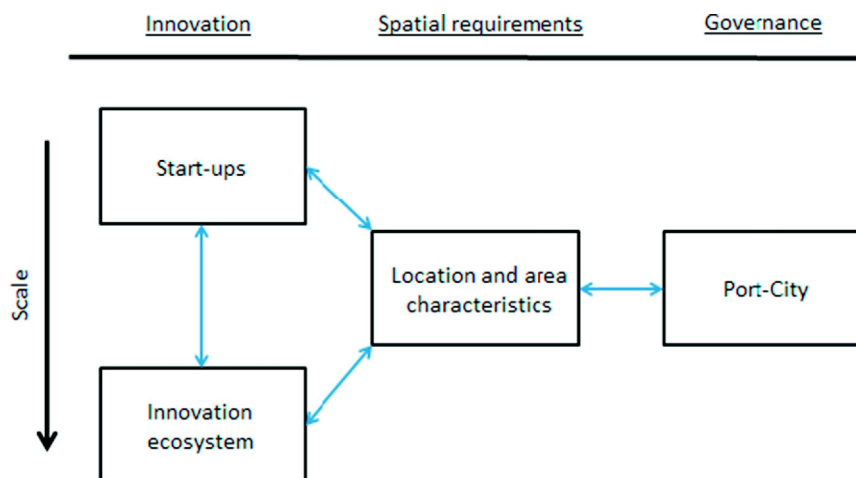
Ever since Bird (1963) published the first conceptual model of port development, spatial and transport scientists have continued analyzing and conceptualizing the relation between port form, port function and the port's spatial and functional relationships with adjacent cities.

Particularly the work of Charlier (1992) has made the links between ports and cities explicit by discussing waterfront redevelopment and the regeneration of port functions in derelict areas. The relation between ports and cities is also taken up by Olivier and Slack (2006) in their review of port research literature, in which they take a holistic view towards port-city development and suggest an interdisciplinary dialogue between transport and economic geography to deal with the new empirical realities in the port-city interface. The port-city interface has also been extensively studied by Hoyle (1989, 2000), Hayuth (1982, 1988), Charlier (1992) and Norcliffe et al. (1996).

More recently the main scientific interest focuses on the future spatial and institutional development of port-cities (e.g. Wiegman and Louw, 2011; Daamen and Vries, 2013). However, up to now in port geography literature, the potential of start-ups and innovation ecosystems in port-cities remain a relatively new and underresearched aspect of port development (cf. Ng et al., 2014). We argue that facilitating start-ups located in former industrialized port areas could help the re-development of vacant ex-port land, while also offering new economic orientations for the city and the port, for instance in terms of employment opportunities. As Hoyle argues, “[a port-city] interface may be conceptualized as an interactive economic system, especially in terms of employment structures” (Hoyle, 1989, p. 429). We propose a new analytical framework to better capture this. To this end, first, a definition of innovation ecosystems and start-ups is provided. Second, by examining location and area characteristics through the economic geography concept of proximity, start-ups and innovation ecosystems will be linked to the geography and governance of port-cities. These major aspects are joined in the framework below (Fig. 1).

We thus identify four components that are interrelated and of relevance: 1) start-ups, 2) the innovation ecosystem, 3) location and area characteristics, and 4) the port-city. To the left side of the framework, the innovation is determined by the start-up that develops the innovation and the wider innovation ecosystem that the start-up is embedded in. The start-up component is mainly based on factors such as availability of knowledge, ideas and talent (Luger and Koo, 2005). The innovation ecosystem stresses the importance of entrepreneurship and access to markets and other aspects of the innovation system needed to foster innovation (Stam, 2003; Cahoon et al., 2013).

The spatial requirements of the port-city interface have been added to the center of the framework to discuss location and area characteristics like accessibility, proximity, and locational preferences of start-ups (Boschma, 2005; Hall and Jacobs, 2010). This is the part which potentially can be facilitated by the municipal government and where the



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Fig. 1. Analytical framework for innovation ecosystems in port-cities.

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