Transport Hubs as Loci of Multi-Layer Ecosystems of Innovation: Case Study of Airports

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Abstract : Urban mobility and the transportation industry are undergoing a transformation, shifting from an auto production-consumption model that has dominated since the early 20th century towards new forms of personal and shared multi-modality [1]. This is shaped by key forces such as climate change, which has induced a shift in production and consumption patterns and efforts to decarbonize and improve transport services through, for instance, the integration of vehicle automation, electrification and mobility sharing [2]. Advanced innovation practices and platforms for experimentation and validation of new mobility products and services that are increasingly complex and multi-stakeholder-oriented are shaping this new world of mobility. Transportation hubs – such as airports - are emblematic of these disruptive forces playing out in the mobility industry. Airports are emerging as the core of innovation ecosystems on and around contemporary mobility issues, and increasingly recognized as complex public/private nodes operating in many societal dimensions [3,4]. These include urban development, sustainability transitions, digital experimentation, customer experience, infrastructure development and data exploitation (for instance, airports generate massive and often untapped data flows, with significant potential for use, commercialization and social benefit). Yet airport innovation practices have not been well documented in the innovation literature. This paper addresses this gap by proposing a model of airport innovation that aims to equip airport stakeholders to respond to these new and complex innovation needs in practice. The methodology involves: 1 – a literature review bringing together key research and theory on airport innovation management, open innovation and innovation ecosystems in order to evaluate airport practices through an innovation lens; 2 – an international benchmarking of leading airports and their innovation practices, including such examples as Aéroports de Paris, Schipol in Amsterdam, Changi in Singapore, and others; and 3 – semi-structured interviews with airport managers on key aspects of organizational practice, facilitated through a close partnership with the Airport Council International (ACI), a major stakeholder in this research project. Preliminary results find that the most successful airports are those that have shifted to a multi-stakeholder, platform ecosystem model of innovation. The recent entrance of new actors in airports (Google, Amazon, Accor, Vinci, Airbnb and others) have forced the opening of organizational boundaries to share and exchange knowledge with a broader set of ecosystem players. This has also led to new forms of governance and intermediation by airport actors to connect complex, highly distributed knowledge, along with new kinds of inter-organizational collaboration, co-creation and collective ideation processes. Leading airports in the case study have demonstrated a unique capacity to force traditionally siloed activities to "think together", "explore together" and "act together", to share data, contribute expertise and pioneer new governance approaches and collaborative practices. In so doing, they have successfully integrated these many disruptive change pathways and forced their implementation and coordination towards innovative mobility outcomes, with positive societal, environmental and economic impacts. This research has implications for: 1 - innovation theory, 2 - urban and transport policy, and 3 - organizational practice - within the mobility industry and across the economy.

Keywords : airport management, ecosystem, innovation, mobility, platform, transport hubs
Conference Title : ICMM 2021 : International Conference on Mobility Management
Conference Location : Vancouver, Canada
Conference Dates : September 23-24, 2021