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A Quad Model for Assessing Innovation Potential: Toward a Theory of Innovation Orchestration Quality

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Abstract: The study draws on the prevalent theories for orchestrating cross-organizational innovation and new knowledge development processes, and proposes a new, epistemic perspective for contextualizing innovation with two management dimensions, namely, innovation complexity and innovation orchestration preconditions. Innovation complexity concerns the indeterminacy or contingency of new knowledge, or new competence, to be pursued during the course of organizational innovation. Innovation orchestration preconditions refer to the contextual innovation prerequisites that should be well meshed with one another to provide a sufficiency for innovation success. The preconditions include innovation units' structures and connectivity, behavior, and convenorship. The two dimensions describe a context map-an antithetic quad model-to imply four innovation orchestration qualities, namely, coherence, cohesiveness, congruence, and concordance. Based on the quad model, the study sets forth a measurement of the four qualities, which can assess innovation potential. To corroborate the quad model and the corresponding quality measurements, the study discursively observes a cross-sectoral innovation project. The observation results evidence the multi-finality of the four qualities for innovation success. The results reveal that it is necessary for these four qualities to be managed temporally and dynamically at different stages of innovation, and reject a fallacy that any one of these qualities is more necessary than the others. The study posits that if innovation units can be convened in accordance with the four qualities, the likelihood of innovation success will be sufficiently increased. The study finally discusses theoretical and practical implications of orchestration and convenorship.

Keywords: Innovation network; Innovation orchestration quality; Discursive theory development

1. Background

The theoretical discussions in large-scale innovation research have long been drawing academic attention for decades. Perhaps its significance commenced with the joint Anglo-French research and development project to build supersonic Concorde jet airliners in 1962. The project sought a technological

transcendence that would not only bring a new, unprecedented commercial value to market, but also establish a strong international identity of technological leadership. The Concorde project can be regarded as a triumph of modern aero-technology, but also a painful lesson from the entrepreneurial viewpoint (Rowbotham, 2016; Woolley, 1972). The vicissitude of this project still inspires academics to study theories and approaches to manage and examine large, complex innovations. Numerous related research interests in innovation exist, but the research results are not easily coalesced for prescriptive conclusions. In early instances, innovation management research seeks evidence of determinant causes and conditions for innovation success, or antithetically, innovation failure (Jenson, et al., 2016; Löffsten, 2014). These studies build on a conception that a number of significant factors influence the success of an innovation project, and that the success of innovation is also determined by an appropriate orchestration of these factors (Bendoly, Bharadwaj & Bharadwaj, 2012; de Jong & Vermeulen, 2006; Evanschitzky, Eisend, Calantone & Jiang, 2012). The corroboration of these orchestrated factors can provide management implications for innovation practices. This is a phenomenalist corroboration. These innovation theory studies have broad management implications and issues concerning a wide variety of organizational dimensions, such as innovation process tasks, structures, resource control, facilities infrastructure, commitment and determinations, cultural contexts, governance, and risks (Ferreira, Fernandes, Alves & Raposo, 2015). Some discussions are related to theoretical sets of psychological and information processing factors, including coordination and monitoring of innovation units' interactions, interdependence, behavior, trust, consensus, and recognition of individual contributions from collective efforts (Brazeal, 1996; Draca, Sadun & van Reenen, 2007; To & Ko, 2015). This stream of the literature attempts to witness and provide implications to enhance management practice and innovation process efficacy.

In the meantime, the subtlety of innovation theories also attracts another stream of research that has interests in theorizing the strategic choices of innovation policy. As such, the theoretical considerations attempt to inspire management to make strategic decisions, such as cross-organizational alliances, knowledge and technological transfer, innovation network building and orchestration, and organizational learning and competence building. This stream includes a number of popular theorizations: (1) transaction cost (Macher & Richman, 2008; Wolter & Veloso, 2008); (2) resource and resource dependence theory (Hillman, Withers & Collins, 2009); (3) organizational governance and morality (Gray, 1996, 2000; Thomson & Perry, 2006); and (4) organizational learning and knowledge prominence (Beamish & Lupton, 2015; Huxham & Vangen, 2005; Palmer & Hardy, 2000). As these research orientations and designs are theory-driven, results are at large theory-generated, tending to give different corroborative results, even in similar cases and analytic contexts.

These years, theories in sustainable knowledge and innovation management emerge as a new epistemological discussion arena. Sustainability theorizes cross-organizational or cross-sectoral collaboration as a social, collective action that can assure fair, transparent corporate behavior, and resolve misunderstandings or misconduct across organizations and institutions. The outcome is to arouse a wider scope of shared values for all society stakeholders to agree and pursue innovative policies and infrastructure development (Huxam & Vangen, 2000; Sakarya, Bodur, Yildirim-Oktem & Selekler-Göksen, 2012; Thomson & Perry, 2006). Such large-scale innovation would emphasize proper orchestration to link hundreds of innovation stakeholders in loosely networked structures.

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