Corporate Strategy and Technological Innovation Systems: Integrating Individual Agency into the systems' approach

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Abstract

Recent contributions in the literature have criticized the Innovation Systems approach for neglecting individual agency and overly relying on structuralist explanations for motivating behaviour (Smith et al. 2005). Often, actions are interpreted in functionalist terms with regard to the overall system, providing a quasi-deterministic narrative for systems dynamics. For example, Jacobsson et al.'s (2004) technological innovation system frame considers the behaviour of incumbent energy companies mostly in the context of blocking the emergent renewable energy innovation system. However, where incumbents begin to invest in renewables, they become part of the associated innovation system and consequently their strategic options are more ambiguous.

This paper argues that the innovation systems approach needs to reconnect with the level of individual actors and provide a coherent rationale for their motivations and actions with regard to the system level. In reviewing some of the first principles of the systems literature, it is argued that in particular more attention needs to be paid to the strategic involvement in knowledge networks and the formation of markets. Consequently, this paper provides a novel framework, which integrates the evolutionary approach to strategy making into the innovation systems approach. Both approaches share some common underlying assumptions and thus provide a fruitful basis for further integration. Specifically, evolutionary approaches to strategy recognize the incremental nature of change and the role of routines in the process of strategy formulation and implementation, which underlie much of the innovation systems perspective. Yet, they take specific account of learning within a company. This is important, for example in relation to incumbent companies, as it shifts away from a strictly functionalist perspective of incumbents as blocking the formation of new innovation systems, towards a notion of incumbents learning new routines to address such challenges. Thus, it offers a perspective that integrates the analysis of the external environment of companies with ongoing processes within the organization by focusing on the development of organizational capabilities.

In the final section, a brief application of the framework is provided in the case of the behavior of incumbents in the electricity industry in two countries, UK and Germany. It is contended that the design of policy has to connect markets with the set of capabilities of the actors it targets. Furthermore, the role of competitive pressure as a catalyst for innovative activity has been neglected in the innovation systems literature

so far. Successful innovation policy drives the co-evolution of markets, technologies *and* organizational capabilities.

Jacobsson, S. & Bergek, A. 2004, "Transforming the energy sector: The evolution of technological systems in renewable energy technology", *Industrial and Corporate Change*, vol. 13, no. 5, pp. 815-849

Smith, A., Stirling, A., & Berkhout, F. 2005, "The governance of sustainable socio-technical transitions", *Research Policy*, vol. 34, no. 10, pp. 1491-1510.