

Knowledge Networks, Proximity and Technology Dynamics of High-Tech Industries

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Abstract

The paper aims to explore the role of different types of proximities in the formation of the regional innovation networks in the high-tech industries. Innovation networks are classified into three forms: vertical value chains, horizontal intra industry chains and Triple Helix networks. The study assumes that certain types of proximities and the related network externalities assist the industry along its life-cycle - from a young to a more mature stage. The three major research problems are being discussed: 1/the structure and types of knowledge flows and technology dynamics of high-tech industries, 2/ the role of proximities - geographical, social, cognitive, technological, institutional and cultural in stimulating Triple Helix networks externalities, and 3/ relationship between technology dynamics, knowledge spillovers and types of proximities. The study applies qualitative research and case study methods in the two high-tech industries: life sciences and aviation industries clusters. The results prove that despite different origins and founding models of the analysed clusters they both display some similar as well as distinct patterns of inter-relationships between different types of proximities and knowledge spillovers (that sustain regional innovation activity). All of levels of proximities have an important role to play in the innovation networks, both formal and informal. The results suggest that more focused policy measures are needed to optimise knowledge exchange and innovativeness within the high-tech clusters.

Key words: proximity, knowledge spillovers, high-tech, technology dynamics.