Creating Environments for Working in a Knowledge Economy: Promoting Knowledge Diffusion through Area Based Development

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The increasing knowledge intensity of the economy leads to changing demands for workplace environments. Co-location of knowledge intensive business and knowledge institutes can yield added value. In this paper we assume that co-location has certain advantages in terms of knowledge exchange, and explore the development of territorial concepts aimed at knowledge diffusion, focusing on the question when and how “knowledge parks” can be effectively organised.

It is argued that diffusion of tacit knowledge through “face-to-face” interaction fosters the innovation process. Due to the increasingly “open” practices of innovation, interaction between organisations becomes crucial. This has implications for the design of the workplace environment beyond the (corporate) building. Such environments should be conducive to non-threatening casual encounters between people in an optimal cognitive distance. Spatial proximity is a significant “enabler” (or disabler) of knowledge diffusion processes. Within the process of knowledge diffusion three levels of spatial proximity may be discerned: the regional/metropolitan level, the cluster level, and the level of a particular business location or park. Theoretical notions on these three levels of spatial proximity provide input for the framework of analysis of this study.

The regional-economic context “sets the margin” for development of a location. This context can be described as the “knowledge foundation”. Seven crucial aspects are reviewed which together define the knowledge foundation. It concerns the knowledge base, economic base, quality of life, accessibility, urban diversity, scale and social equity.

The intention and rationale behind the development of a location is another important factor. Whether the development is politically, business or real-estate driven affects the way knowledge diffusion is managed at the location.

We discern five knowledge management tools which apply at the parks: the optimization of cognitive distance, management of co-opetition, organisation of spill-overs and the active and passive promotion of knowledge diffusion. Optimized cognitive distance is defined as a mutual distance big enough to create new ideas and small enough not to oppose the capacity to collaborate. Management of co-opetition is about reducing the relational risk within exploration and exploitation networks. The organisation of spill-overs concentrates on limiting undesired spill-overs and supporting start-ups. And the promotion of knowledge diffusion focuses on increasing casual encounters to generate knowledge sharing and exchange. In an active way by stimulating events and gatherings within communities of practice. In a passive way to create the right “stage” for personal interaction.
Based upon the framework of analysis (consisting of knowledge foundation, intention and the five tools for knowledge management) we conducted three case studies in The Netherlands: the High Tech Campus in Eindhoven, Knowledge Park Twente in Enschede and Technopolis Innovation Park in Delft.

We conclude, among other things that the knowledge foundations set the margin for development. But, the developments in itself are strongly contingent upon the roles and incentives of the actors involved. As for the rationale we review that politically or real estate driven intentions encounter difficulties in maintaining focus and defining clear strategies for the area-based concept, whereas business driven intentions score better in these respects. There are different types of beneficiaries to profit from added value of knowledge diffusion, varying from end-users to politicians. Apart from this type of added value, being located at a knowledge park may also have other advantages.

The five knowledge management tools apply for each case. As to cognitive distance we conclude, cautiously, that knowledge diffusion is enhanced if the development has a “critical mass” of tenants within fruitful cognitive distance from each other. In the management of co-operation “physical clustering” of related activity is believed to enhance knowledge transfer through encounter, but there is no hard evidence. Nevertheless, within the case studies the relational risks are limited in two ways. On the one hand by concentrating on the exploration phase through segmenting on research and (a bit of) development. On the other by securing intellectual property through pro-active patenting. As to organizing spill-overs there seems to be a difference between management of university spin-offs and company spin-outs. In a variety of methods the cases use network management to promote knowledge diffusion, actively as well as passively. Within clear “communities of practice” the network management focuses on content. If broader communities occur, network management is organized around more generic topics. In terms of promoting passive knowledge diffusion it seems to be more likely to create local buzz in a concentric layout than in a more scattered, poly-nuclear layout.

Finally we make a few important general remarks. Within the typical Dutch planning tradition of separating functions, knowledge parks tend to be poorly integrated within the urban fabric, spatially and functionally. This is broadly experienced as a disadvantage.

Park design concepts typically tend to overestimate the importance of spatial proximity. Proximity turns out to be not a sufficient, nor a necessary condition for tacit knowledge exchange. Other forms of proximity (organisational, social) are good complements or even substitutes.