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## A typology of university research park strategies: What parks do and why it matters



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### ABSTRACT

A growing body of research examines whether and how university research parks (URPs) enhance the performance of their tenants and foster regional innovation. As the findings in the literature are inconclusive, we argue that the URP construct requires closer conceptual examination, especially in regards to URP strategies. This paper highlights the limitations of treating URPs homogeneously and theorizes how URPs' strategies vary and arise. We develop a conceptual model, a typology, based on URP's industry specialization and development services, of four types of URP strategies. The model shows how URP strategies can vary in theoretically important ways to generate URP internal and external strategic fit.

### 1. Introduction

University research parks (URPs) are property-based developments that accommodate and foster the growth of tenant firms. Unlike other research, science and technology parks, URPs have an affiliation with a university based on proximity, ownership, and/or governance (Link and Scott, 2007). The lure of the outcomes and success of early URPs such as the Stanford Research Park (affiliated with Stanford University) and the Research Triangle Park (affiliated with Duke University, North Carolina State University, and the University of North Carolina at Chapel Hill) have fuelled a dramatic growth in the formation of URPs around the world (Battelle, 2007). However, research examining the performance of URPs (and their tenant firms) has been inconclusive. While some studies have shown a positive impact of URPs on the economic performance of tenant firms (Leyden et al., 2006; Link and Scott, 2003b; Yang et al., 2009) or on the flow of knowledge between universities and URP firms (Colombo and Delmastro, 2002; Fukugawa, 2006; Link and Scott, 2003b), other studies suggest that the impact of URPs on tenant firms is ambiguous or even negative (Felsenstein, 1994; Ferguson and Olofsson, 2004; Quintas et al., 1992; Fukugawa, 2006). In fact, it has been argued that the evidence in support of URP impact “is mixed no matter the unit of analysis, the measure of performance and the specific econometric tool used” (Squicciarini, 2008: 48). For some, this inconsistency of results suggests URPs might not be the seedbeds of innovation that we would like to think they are, and that they are simply “high-tech fantasies” (Massey, 1991).

We believe however, that the root cause for the inconsistency is that, surprisingly, the extant literature offers little theoretical guidance on how URPs can vary in terms of their strategy. In other words, URPs may also differ in terms of “what they do” and “how they do it”, in terms of serving their tenant firms, universities and regions. Arguing that URPs should not follow a “one size fits all” approach to their strategic position (Wagner and Sternberg, 2004), scholars have called for more theorizing on how and why park strategies differ and the impact of these differences (Chan and Lau, 2005; Phan et al., 2005; Quintas et al., 1992). For instance,

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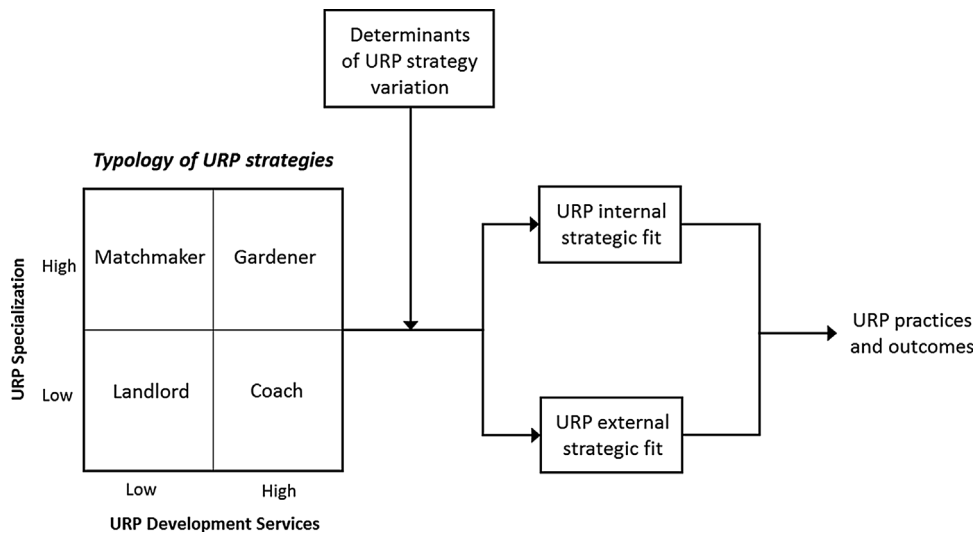


Fig. 1. The model: understanding URP strategies.

choices of park strategy might need to be tailored to suit the conditions of their region as “the environments required for the emergence of productive entrepreneurship are likely to differ significantly between a rural area, a high-technology cluster, and a metropolitan area” (Minniti, 2008: 782). Addressing these calls for how and why URPs’ strategies vary is a critically important issue for universities, potential tenant firms, the communities in which they operate and public policy (Langford et al., 2006). In response to these calls, we provide this conceptual paper and propose a typology and related theory on the strategies of URPs. This approach is similar to the seminal work of Miles et al. (1978) and Miles and Snow (1984) and other studies (Zahra and Pearce, 1990; McCarthy et al., 2010; von Nordenflycht, 2010) that provide typologies of the different strategic positions organizations can adopt to ensure external fit (between the strategy and the environment) and internal fit (between the internal resources/capabilities and the strategy) to enhance performance.

Fig. 1 depicts the overall structure of our model. Based on a review of the URP literature and related phenomena, including research, technology and science parks; incubators; and technology accelerators (university affiliated and not), we begin by characterizing URP strategies using two fundamental dimensions: specialization and development. We then use these two dimensions in a typology to propose four archetypal URP strategies and provide illustrative examples for each. Next, we present three potential explanations for why URPs have different strategies. These are due to (i) heterogeneity of the local environment within which a URP operates; (ii) differences in the internal capabilities, mission and objectives of the university with whom the URP is affiliated; and (iii) differences in the experience, knowledge or competence of URP managers or management teams. We conclude by explaining how different capabilities, strategies and environments work to impact the URP strategic fit, and outline the implications of our theory for policy, management and scholarly work.

## 2. Characterizing the strategies of URPs

University research parks (URPs) are generally defined as being property-based developments that accommodate and foster the growth of tenant firms and are affiliated with a university based on proximity, ownership, and/or governance (Link and Scott, 2007). We follow the definition provided by Link and Scott (2007), in that a URP simply needs to have some association with one or more universities. For instance, if a regional development entity, government agency, real estate developer or high technology company sets up a park in collaboration with a university, then this affiliation qualifies the park as a URP.

The most common expectation of this university-park affiliation is that the URP and its tenants will have some form of access to university resources (e.g., knowledge, talent, and equipment), which is assumed to promote the growth of tenant firms and foster local economic development (Battelle, 2007; Link and Scott, 2005, 2006; Lofsten and Lindelof, 2002; Mian, 2011). It is also argued that URPs benefit their universities by helping to facilitate the commercialization of university research. This in turn helps universities to attract funding and preeminent scholars, which increases publication and patent output (Link and Scott, 2003a). This connection to a university and the expected benefits thereof are important distinctions that URPs have over other research, science and technology parks not affiliated to a university (Lofsten and Lindelof, 2002).

Research on URPs has typically treated these entities as a homogeneous set in terms of strategy (i.e., the decisions that are implemented concerning the aims and operation of a URP). To a degree, and in terms of the mandate of URPs, this is reasonable. Like science, technology, and industry parks that are *not* affiliated to a university, URPs function as a real estate provider and landlord, developing and renting office and lab space. However, as reported by one of the few studies to characterise these entities in general, one director of a research park commented on their diversity: “If you’ve seen one research park ...you’ve seen one research park.” (Link and Scott, 2006: 54). While we acknowledge that individually all URPs are unique to some degree, we believe it is possible and

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