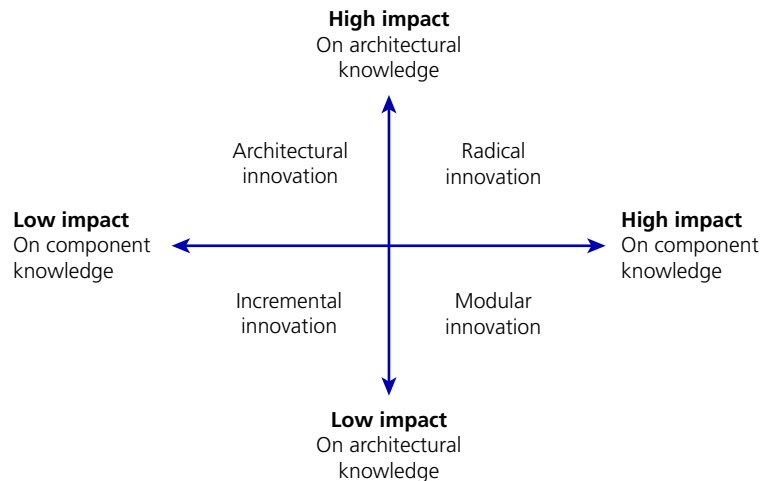


## Managing innovation projects

We now need to examine innovation projects. Henderson and Clark examined product innovations and demonstrate that product innovations are complex entities embedded in organisational capabilities, which are difficult to create and costly to

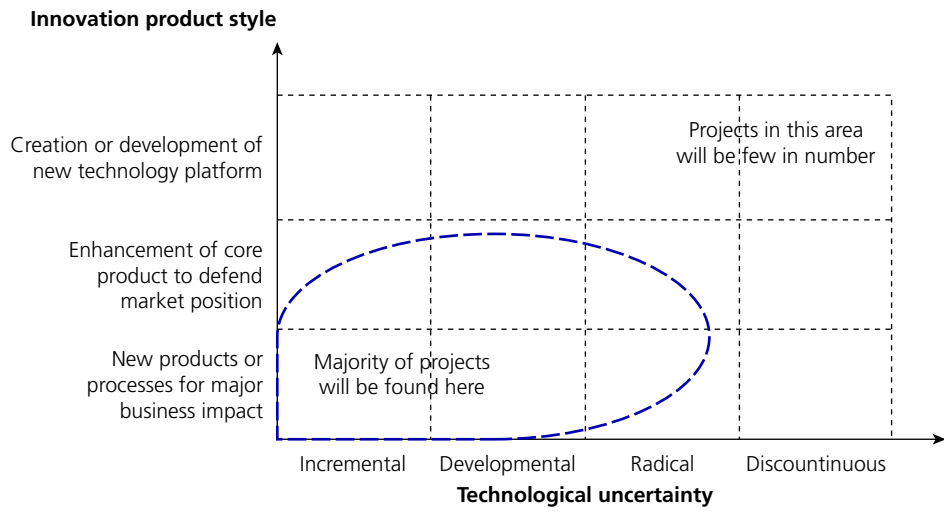


**Figure 4.3 Matrix of complexity of architectural/component knowledge**

Source: Henderson, R. and Clark, K. (1990) Architectural innovation: the reconfiguration of existing product technologies and the failure of established firms, *Administrative Science Quarterly*, vol. 35, no. 1. Reproduced with permission of Johnson at Cornell University.

adjust (Hannan and Freeman, 1984; Nelson and Winter, 1982). Henderson and Clark (1990) divide technological knowledge along two dimensions: *knowledge of the components* and knowledge of the linkage between them, which they called *architectural knowledge* (see Figure 4.3). In this framework, technology development could be a radical innovation, only if it revolutionises both component and **architectural knowledge**. Similarly, an incremental innovation will build upon existing component and architectural knowledge. Modular innovations will require new knowledge for one or more components, but the architectural knowledge remains unchanged. Whereas architectural innovation will have a great impact upon the linkage of components, the knowledge of single components will remain the same.

It is against the backcloth of the above discussions that theoretical indications for having more than one model for project management are clear. We need also to recognise that to develop an existing product further is not, generally, viewed by R&D managers as a high-risk activity. Indeed, these types of low-uncertainty projects are so very different from high-uncertainty R&D projects that it is evidently clear why a classification of project types is necessary. Figure 4.4 uses a two-dimensional typology of innovation projects to illustrate the range of innovation projects required to be managed. The vertical axis classifies project style and uses Coombs et al.'s (1998) classification of R&D project. The horizontal axis captures technological uncertainty. The traditional distinction within innovation management between research projects and development projects, however outmoded and inappropriate, may, nonetheless, still retain usefulness in the practical realities of the laboratory. In particular, it distinguishes between the management of projects that deliver mainly knowledge and those that deliver a physical product. There is also an emphasis (not surprisingly, within the new product development (NPD) literature) on project management models that explicitly focus on the new product development process (for example, see Cooper, 1986). This emphasis may have overlooked the need for subtly different approaches to project management for innovation management and R&D, in particular, that does not necessarily lead directly to the launch of a new product.



**Figure 4.4** A two-dimensional typology of innovation projects