4 Development of a guiding conceptual framework for the empirical analysis

Basically, this chapter serves as a bridge between the theory and the following empirical analysis. The first step reexamines the research questions of this thesis, clarifying how they have been developed during the previous theoretical discussion, on the one hand, and how they will be addressed by the empirical analysis, on the other hand. It integrates the theoretical considerations of evolutionary and resource-based theory about the heterogeneous innovation patterns of non-R&D-performing firms into a conceptual framework for empirical analysis. Based on this theoretical framework, the key concepts will be defined and some important implications for the design and methodology choice of the empirical analysis will be derived. This chapter closes by erecting some guiding theses for the explorative empirical analysis. However, the function of these theses should not be confused with the role of hypotheses in the context of testing causal relationships. Instead, they should serve as a kind of verification instrument to assure that the later results are in line with the theoretical framework and that they are not arbitrarily detached from the previous theoretical suggestions.

4.1 The research questions revisited

First of all, I want to briefly revisit the basic research questions which have been discussed in the previous chapters (Figure 12). The starting point was this thesis' basic research question:

*Do heterogeneous innovation patterns of non-R&D-performing firms exist in the German manufacturing industry?*

To answer this research question, it was divided into two aspects for the subsequent theoretical discussion. The first addressed whether structural heterogeneity of non-R&D-performing firms can be expected at all (chapter 3.1). The underlying research question was formulated as follows:

*To what extent do heterogeneous innovation patterns of non-R&D-performing firms exist in the German manufacturing industry?*

Following the reasoning of evolutionary economic theory, chapter 3.1 argued that heterogeneous innovation patterns of non-R&D-performing firms can be expected, even if these are all located in similar industries and despite the fact that they all lack the same innovation resource of R&D.
Based on this, the second aspect dealt with, in which dimensions of innovation resource variation this heterogeneity may be visible and thus analysable (chapter 3.3 and 3.4), and addressed the following research question:

*If not formal R&D, which firm-internal and firm-external innovation resources are deployed by non-R&D-performing firms in the German manufacturing industry?*

In line with the previously developed evolutionary framework, it has been argued that the evolutionary mechanism of variation which generates heterogeneity mainly corresponds to the input dimension of innovation, namely the use of different resources for innovation by non-R&D-performing firms. As they do not perform formal R&D, non-R&D-performing firms have to rely on alternative firm-internal and external resources to enhance and maintain their competitive advantage. Based on the resource-based theory of strategic man-