Selecting partners for new product development (NPD) is an important yet under-supported task. This paper focuses on decision-making support for the NPD collaboration stages of partner exploration and search. We provide a conceptual framework for a network-based platform to identify potential research and innovation partners. The framework integrates prior research on factors determining successful NPD collaborations and makes the factors actionable by connecting them to what is often publicly available data. Four categories of success factors for collaborations are included in the framework: technological closeness, relational closeness, geographical closeness and a set of organisational variables. In order to identify a subset of new product development partners and aid the selection process, three characteristics of NPD projects are considered as mediators of those success factors: the desired degree of innovativeness of the NPD project, the initial technological maturity of the NPD project, and the combination of time and budget constraints. The proposed framework describes each of these factors, their mediators, and the interplay between them. Using the conceptual framework as a guide, we also propose and illustrate with examples the network-based platform to explore NPD partners. The developed framework and platform are part of Net-Sights, an ongoing research project to develop open-source decision-support tools for network insights. The first version of this tool will soon be available as an online platform to support inter-organisational and collaborative sustainable production projects in Denmark.