

variable	description
project_outcomes	<p>1: an end product was developed (e.g. software, a working prototype, a process description) that can be used independently by the end-user.</p> <p>0: otherwise (the project failed, or the research was stopped prematurely; or no product was developed. Further research is needed to develop a useful product; or a prototype was developed, yet further verification and refinement is needed for it to be qualified as the final product)</p>
technological_field	The main technological field in which the project was conducted (either Life Sciences or Chemistry)
year	time variable (expressed as a year serial number) that captures unobserved temporal factors, such as economic circumstances or the existing state of the art of a certain technology, that may influence project output.
network_density	density of the project network that emerges due to inter-project ties. This variable expresses network coherence. Calculated as the ratio between the number of actual inter-project links and the theoretically possible maximum number of inter-project links
degree_centralization	centralization of the project network that emerges due to inter-project ties. This variable expresses the extent to which the network is organized around one or a few central actors.
network_diameter	shortest path between the two most distant nodes in a network. Indicates the ease for information to travel to get to all sides of the network
network_clustering	A network's clustering indicates the extent to which groups of projects have more links connecting them to one another than to the other projects in a network. We calculated this coefficient as the percentage of the number of other projects a focal project links to that are also linked with each other, weighted by the number of each project's partners, and averaged across all projects in a network.

network_range	The range of a network indicates how easy it is to reach another project by any path from a focal project (and with that, how much knowledge that project can potentially access). It is a compound measure that considers the number of projects that can be reached and the path length it takes to reach them.
research_location	location where the research is being carried out (typically one of the Dutch universities)
technological_diversity	<p>technological diversity is defined as the variety in the range of technological knowledge, expertise and experience between project members. As a first step in constructing this variable, all members of each project were classified according to the NACE (rev. 4) classification system. Based on the second hierarchical level of this classification system, technological diversity, in turn, was calculated by applying the formula $1 - \sum_{ij} (PA_{ij})^2$, where PA_{ij} is the proportion of members that belong to NACE class j. For example:</p> <p>A consortium has four members. One member is categorized as belonging to the category 'Manufacture of electrical equipment'. Two members are categorized as belonging to the category 'Other manufacturing', and the fourth member is categorized as belonging to the category 'Scientific research and development'. The diversity score for this consortium, in turn, is calculated as:</p> $1 - ((1/4)^2 + (2/4)^2 + (1/4)^2) = 1 - .375 = .625$ <p>The resulting Blau index is claimed to be one of the most accepted measures of diversity in economics. Because of differences in project size, the obtained scores could not be directly compared. A rescaling procedure was applied to account for these differences. The resulting measure reflects member technological diversity, with a score of 0 for no diversity and a score of 1 reflecting full diversity.</p>

geographical_diversity	The procedure for calculating geographical diversity – which expresses the variety of project members in terms of their geographical location- was like the one followed for technological diversity. This time, however, the NUTS3 classification was used.
leader_experience	experience of the project leader. Signals to what extent a project leader knows “the ropes” of executing a project and its corresponding administrative hurdles. Calculated as the number of projects a leader has executed in three years before a focal project.
relational_experience	relational experience of project members. Signals are the extent to which members are socially embedded and, with that, how smoothly the collaboration goes. Calculated as the number of other projects at least two members were involved in before the focal project.
funds	amount of funding granted to the project by the funding organization. It indicates a general commitment to the project and is a control for the likelihood of affecting its output. In addition, it can be argued that financial resources positively correlate with the number of partners, increasing technological diversity and degree centrality. Funding was measured in 2012 euros (*1,000)
joint_members	network centrality was operationalized using the degree centrality measure. Based on the list of names of the project’s partners (see operationalization of technological diversity), it was determined for each project whether one or more of the members was also active in one or more other projects at the start of the focal project. Degree centrality was determined as the number of links to different projects, regardless of the number of joint members that forged a certain link. To compare degree centrality scores across networks observed in different years and, consequently, of different sizes, each degree centrality score was normalized by dividing it by the maximum possible degree score for a project in a certain year (which equals total network size minus 1). The resulting measure is expressed on a scale from 0 (not central at all) to 1 (fully central)