

Change Protocol

Due to the learning process of the main researcher the case study protocol was initiated only after the first publication in 2021

25.06.2021	start with Data Collection + Preparation for tickets statistics
28.06.2021	initialize "real" Case Study Protocol with pages for all sections initialize Data Collection + Preparation parts initialize Background initialize Design, Selection, Procedures and Roles
29.06.2021	separation of "Design" and "Selection, Procedures and Roles" initialize plan validation initialize analysis worked on Background, Design, DC for survey 2021
30.06.2021	worked on Design, Analysis => Refinement of RQs necessary
10.09.2021	optimized RQ's wording

TABLE 3.3 Outline of Case Study Protocol According to Brereton et al. [28]

	Section	Content
1.	Background	(a) Identify previous research on the topic. (b) Define the main research question being addressed by this study. (c) Identify any additional research questions that will be addressed.
2.	Design	(a) Identify whether single case or multiple case and embedded or holistic designs will be used, and show the logical links between these and the research questions. (b) Describe the object of study (e.g., a new testing procedure; a new feature in a browser). (c) Identify any propositions or subquestions derived from each research question and the measures to be used to investigate the propositions.
3.	Selection	(a) Criteria for case selection.
4.	Procedures and roles	(a) Procedures governing field procedures. (b) Roles of case study research team members.
5.	Data collection	(a) Identify the data to be collected. (b) Define a data collection plan . (c) Define how the data will be stored .
6.	Analysis	(a) Identify the criteria for interpreting case study findings. (b) Identify which data elements are used to address which research question/subquestion/proposition and how the data elements will be combined to answer the question. (c) Consider the range of possible outcomes and identify alternative explanations of the outcomes, and identify any information that is needed to distinguish between these . (d) The analysis should take place as the case study task progresses.
7.	Plan validity	(a) General: check plan against Höst and Runeson's [73] checklist items for the design and the data collection plan (also in Appendix A of this book). (b) Construct validity—show that the correct operational measures are planned for the concepts being studied. Tactics for ensuring this include using multiple sources of evidence, establishing chains of evidence , expert reviews of draft protocols and reports . (c) Internal validity—show a causal relationship between outcomes and intervention/treatment (for explanatory or causal studies only). (d) External validity—identify the domain to which study finding can be generalized . Tactics include using theory for single-case studies and using multiple-case studies to investigate outcomes in different contexts.
8.	Study limitations	Specify residual validity issues including potential conflicts of interest (i.e., issues that are inherent in the problem, rather than arising from the plan).
9.	Reporting	Identify target audience, relationship to larger studies [217].
10.	Schedule	Give time estimates for all of the major steps: planning, data collection, data analysis, reporting. Note data collection and data analysis are not expected to be sequential stages.
11.	Appendices	(a) Validation: report results of checking plan against Höst and Runeson's [73] checklist items (also in Appendix A of this book). (b) Divergences: update while conducting the study by noting any divergences from the above steps.

Source: P. Runeson, M. Host, A. Rainer, and B. Regnell, *Case Study Research in Software Engineering*. 2012; p.39