Research Question: RQ3 What effects does TD have on software projects?

Goal: -   Identify the list of effects of TD.

Expected Result: -   List of TD effects

Necessary Files: -   RQ3_Analysis_COUNTRY-NAME_Execution_Effects.xlsx

     -      List of effects identified in InsighTD BR.docx

     -      RQ1.3_Analysis_COUNTRY-NAME_Execution_TDExample.xlsx

Analysis Procedure

This analysis considers the answers for the questions Q20 and Q21 of the questionnaire.

1. Two researchers should, individually, analyze each participant's answer (*Tabs standardizationQ20 – Q21 | RQ3_Analysis_COUNTRY-NAME_Execution_Effects.xlsx*);

2. Identify the effects by directly copying the terms provided in the answers (due to standardization in the nomenclature, small adjustments can be made without changing their semantics) (*Tabs standardizationQ20 – Q21*);

3. *Researchers should reach consensus on the identified effects* (*Tabs standardizationQ20 – Q21*);
    a. It is necessary to compare the identified list of effects with the list of effects identified in the InsighTD BR execution. The names of the final list should be based on the names of the InsighTD BR list of effects. If there is a new effect, it should be added to the end of the BR list in red color (*List of effects identified in InsighTD BR.docx*). This step is necessary to avoid many different nomenclatures for the same effect.

4. For tab *standardizationQ20*, to identify the Type of TD associated with each effect, consider the type of debt identified in the file *RQ1.3_Analysis_COUNTRY-NAME_Execution_TDExample*;
    a. It is not possible to identify the type of debt for tab *ALL Cited Critical Effects (**Q21**)* because the effects in that tab are not necessarily associated with the example of TD item mentioned by the participant;

5. To count the number of times that each effect was cited, we just need to sum up the total number of citations of each of them. However, if an effect is cited twice by a participant, for example, if a participant cited an effect X in Q20 and cited it again in Q21, that effect should only be considered one time for that participant (*Tabs ALL Cited Effect (Q20) AND ALL Cited Critical Effects (Q21)*).

Example.

Table 1 exemplifies the steps 1 and 2 using an answer from participant of InsighTD BR:

Table 1. Examples of the TD effects analysis procedure

Participants answers (Q20)	Effects - Researcher 1	Effects - Researcher 2	Consensus
Cause slowness during use of the system	Slowness in the system	Low system performance	Low perfomance
Rework in most classes to implement auditing	Rework	Rework	Rework
Operating failures that are difficult to identify and resolve	Difficulty identifying and solving problems	Low maintainability	Low maintainability