

The 13 most significant predictor variables for predicting delay likelihood in user stories, as identified by Kula et al. (ASE '21) in their study *'Modeling team dynamics for the characterization and prediction of delays in user stories'*. These variables had an importance value higher than 0.05 according to Figure 4. First Column: Lists the top 13 predictor variables. Second Column: Provides descriptions of each variable as defined in the the work of Kula et al. Third Column: Explains how we extracted these variables from ABC data. Since Kula et al. used the same backlog management tool, we were able to extract these variables from ABC data using the same procedure.

Predictor variable	Description of the variable in previous work	How we translated and measured the variable for our study at ABC
1. dev-workload-stories	Number of user stories assigned to a developer in the current sprint	If a story had already been assigned to a developer, we measured this factor as the total number of user stories on the backlog assigned to that developer. If a story had not yet been assigned to a developer, we measured this factor as the average number of stories on the backlog assigned to a team member.
2. team-capacity-stories	Total number of user stories that have been completed by the team so far	Identical
3. planned-stories	Total number of user stories in the sprint that a story was originally assigned to	Total number of user stories on the backlog that have been assigned to the same sprint (if available)
4. avg-story-size	Average number of story points that the team assigned to past stories	Identical
5. out-degree	Number of outgoing dependencies of a story on other stories	Identical
6. dev-capacity-stories	Total number of user stories that have been completed by a developer so far	If a story had already been assigned to a developer, we measured this factor as the number of user stories completed by that developer so far. If a story had not yet been assigned to a developer, we measured this factor as the average number of user stories completed by team members so far.
7. security	Whether a story is associated with a security-critical system (binary)	The level of criticality of the system a story is associated with (1. low criticality, 2. medium criticality, 3. high criticality)
8. initial-points	Number of story points initially estimated for a user story	Number of story points currently assigned to the user story (if available)
9. team-stability	Ratio of team members that did not change in the last six months	Identical
10. planned-points	Total number of story points in the sprint that a story was originally assigned to	Team velocity; the total number of story points that the team has estimated to deliver in the sprint they are doing sprint planning for
11. team-existence	Number of years the team has existed for	Identical
12. dev-capacity-points	Total number of story points that have been completed by a developer so far	If a story had already been assigned to a developer, we measured this factor as the number of story points completed by that developer so far. If a story had not yet been assigned to a developer, we measured this factor as the average number of story points completed by team members so far.
13. po-stability	Did the product owner of the team stay the same in the last six months? (binary)	Identical