Earned Value in Agile Project Management

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Management Summary

1. By definition, project progress includes all three project target variables ((time, cost/effort and output/result) and is thus distinct from the percentage of completion and completion value.

2. The 0/100 method is suitable for assessing the performance progress of a work package / a milestone in agile projects, as it is highly objective and informative when used correctly.

3. Story point counting only represents a single view of performance progress; a holistic statement requires an integrated view of all target variables.

4. Earned Value Management is a project management method that makes it possible to determine the progress of the project by taking an integrated view of the three target variables and, in addition, to carry out a deviation analysis and a forecast of the further course of the project.

5. The adaptation of EVM for the agile context by Sulaiman et al. is the most comprehensive solution that uses techniques from the Scrum framework and measures progress at release level.

Project progress

○ Information on the project situation and details on the status of a project at a selected point in time with regard to the achievement of objectives compared to planning

○ Definition of project progress according to DIN 69901-5: "Project progress is the comparison of two statuses of a project, work package or activity, comparing the planned goals with the respective situation"

○ Definition of the percent complete according to DIN 69901-5: "The percent complete is the ratio of the work performed on a key date to the total work, e. g. of a work package or a project"

○ Definition of the earned value according to DIN 69901-5: "The earned value is a value (e. g. work performed) that results from the completion of the project on a certain key date and can be determined for activities, work packages or a project"

By definition, project progress includes all three project target variables ((time, cost/effort and output/result) and is thus distinct from the percentage of completion and completion value.

Key Performance Indicators and methods for measuring project progress in agile projects (1/2)

- Definition of Done corresponds, in addition to its function as a catalogue of criteria, to the 0/100 method for determining the progress of a work package / a milestone.

- 0/100 method offers great informative value with many work packages → Customer requirements should be broken down into many work packages, as a large number of measurement points are created and distortions of reality can be minimized

- 0/100 method achieves high objectivity and high significance when many work packages are available

The 0/100 method is suitable for assessing the performance progress of a work package / a milestone in agile projects, as it is highly objective and informative when used correctly.

Key Performance Indicators and methods for measuring project progress in agile projects (2/2)

- Determining the progress of performance in agile projects is often done by counting the number of story points achieved (story point counting)

- The question of whether story points are meaningful for measuring progress in a project has been the subject of academic discussion ever since the method of story point counting became established in business practice

- Counting of story points only represents a single view of the progress of performance, which is not representative of the overall progress of the project

- Agile approaches tend to neglect measuring project progress on the basis of time, cost/effort and performance/outcome and instead focus on counting story points

Story point counting only represents a single view of performance progress; a holistic statement requires an integrated view of all target variables.

Earned Value Management (EVM)

○ Project management method that allows the progress of the project to be determined with an integrated view of the three project target variables

○ Based on the data of the actual state, the method can also be used to make forecasts for the further course of the project

○ EVM uses three KPIs as a basis, these are PV, EV and AC

○ Further KPIs for variance analysis or for forecasting the further course of the project (BAC, CV, SV, VAC, CPI, SPI, EAC, ETC, TCPI) can be determined on the basis of the basic key figures

Earned Value Management is a project management method that makes it possible to determine the progress of the project by taking an integrated view of the three target variables and, in addition, to carry out a deviation analysis and a forecast of the further course of the project.

Earned Value Management in agile Projects – General information (1/5)

- Numerous attempts have been made in the past to adapt EVM for agile projects → especially the National Defense Industrial Association and the Department of Defense have worked out solutions, but they are too extensive and have a poor fit for non-government projects

- The most comprehensive solution for using EVM in an agile context is the adaptation by Sulaiman et al. which uses techniques from the Scrum framework

- Adaptation does not focus on measuring progress at sprint or project level, but at release level → Progress measurement at release level more expressive due to the completeness of the estimated backlog

The adaptation of EVM for the agile approach by Sulaiman et al. is the most comprehensive solution that uses techniques from the Scrum framework and measures progress at release level.

Earned Value Management in agile Projects – Keywords (2/5)

Term	Definition
Performance Measurement Baseline	Total number of planned story points for the release (PRP)
Schedule Baseline	Total number of planned sprints (PS) multiplied by the length of a sprint (L)
Planned Percent Complete (PPC)	The number of the sprint (n) at the time of consideration divided by the total number of planned sprints
Actual Percent Complete (APC)	The total number of story points achieved divided by the total number of Story Points planned

Earned Value Management in agile Projects – Initial starting values (3/5)

Term	Definition
BAC	The estimated budget for the release
L	Sprint length
PS	Total number of planned sprints for the release
SD	Start date of the release
PRP	Total number of planned story points for the release

Earned Value Management in agile Projects – Data values at the end of each sprint (4/5)

Term	Definition
n	Number of the sprint - starts at 1
Points Completed	Completed story points in the sprint
Points Added	Story points added to the Release Backlog
Sprint Cost (SC)	Cost of the sprint

KPI	Calculation
PV	PPC x BAC
EV	APC x BAC
AC	Cumulative SC up to the time of consideration

Thank you!

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