

Staged Continuous Integration

Measure and improve Continuous Integration using maturity stages

Summary

INVENSITY uses a Staged Continuous Integration (StaCI) model to evaluate and improve how Continuous Integration (CI) is implemented as a practice. It covers tooling and automation as well as adaptation of organization and culture. This results in reduced risk during releases and increased efficiency and dependability and ultimately an increase in quality of delivered software and systems.

Background

Getting more agile in embedded development has proven challenging, especially for teams in sectors with embedded software and/or an established classic development model, such as automotive. This is opposed by an increase in collaboration with suppliers and a need for faster release and feedback cycles. Companies often try out CI using build server but are limited in resources for setup and maintenance. The required effort and added value of improving a continuous integration setup and development process are often unclear due to missing experience and unclear best practices.

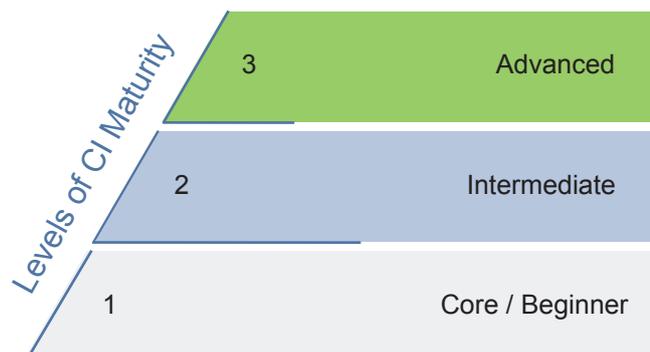
Approach

Using StaCI as a reference, the CI maturity is evaluated and can be subsequently improved across three stages: Core/Beginner, Intermediate, and Advanced.

Core/Beginner is focused on the basic setup including tooling to have automated software creation. In addition CI is established as a practice in the team. This often includes adaptation of the SW development process/workflow.

Intermediate builds on the core structure and expands upon it with basic automated testing on lower levels (unit, modules, sw integration) as well as quality assurance (static analysis). Integration with change request management or ticket management is added.

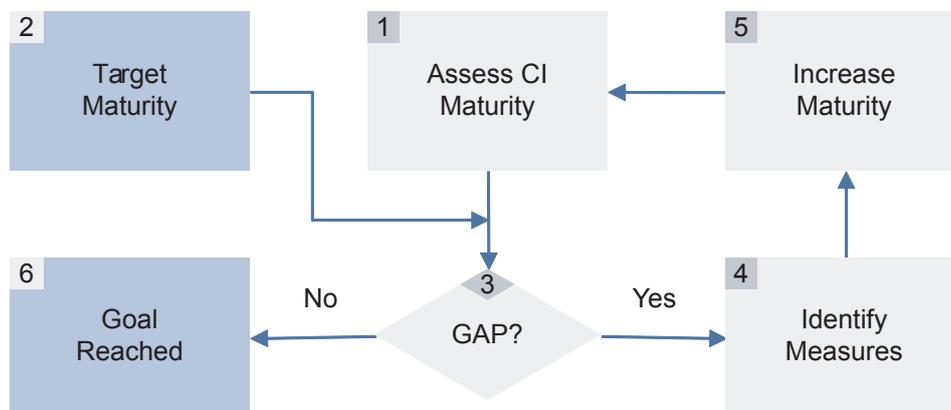
To reach **Advanced** CI maturity, extensive automated testing and automated provisioning of environments is essential. It also expands upon traceability and organization-wide reporting and continuous improvement.



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Results

Using StaCI INVENSITY creates transparency for Continuous Integration as well as interfacing disciplines like testing, reporting, requirements management or configuration management. StaCI covers aspects of tooling – automation, integration – as well as culture – agile values, responsibilities. INVENSITY supports customers in making decisions about investments into agile development and CI by highlighting the added value of measures and improvements as well as estimations for the required effort. Beyond StaCI INVENSITY also supports introducing the concept of Continuous Delivery where pipelines include deployment/delivery into production environments.



Our Offer

- Analysis of Continuous Integration and interfacing disciplines (e.g. specification, testing, design)
- Identification of target maturity and Continuous Integration goals with the customer
- Evaluation and reporting of the gap between current state and target maturity
- Derivation of specific measures for improvement based on the gap report
- Support regarding implementation of measures (tooling & organizational change)
- Definition and measurement of effectiveness and efficiency in release process

References

INVENSITY uses experience from a variety of projects (including embedded Software) where Continuous Integration was introduced or improved together with the customer. This effort is usually either embedded into a broader approach to getting more agile or focused explicitly on the Continuous Integration practice. INVENSITY moderates workshops, offers operational support regarding automation and tool integration, and analyses and optimizes workflows and processes.

Contact

Ulf Stocker
 Head of Center of Excellence Software Engineering
 ulf.stocker@invensity.com

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