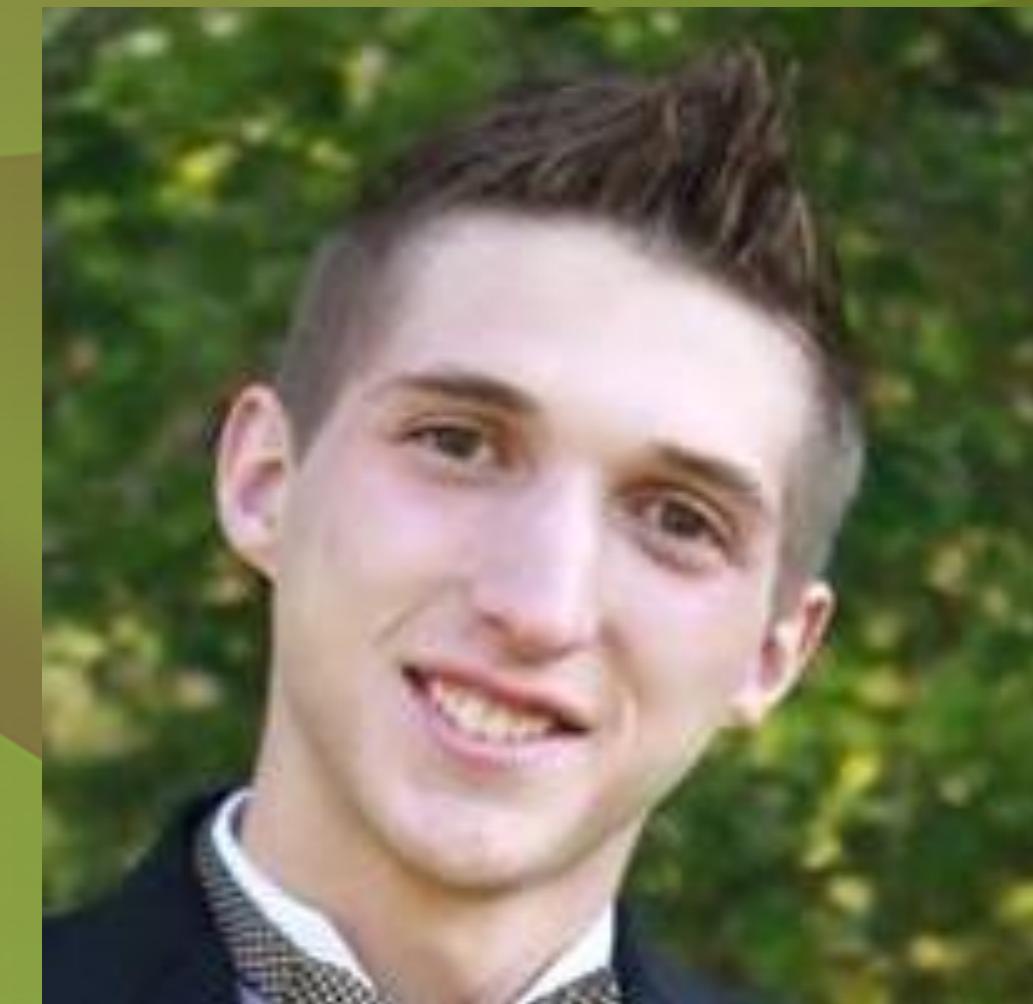




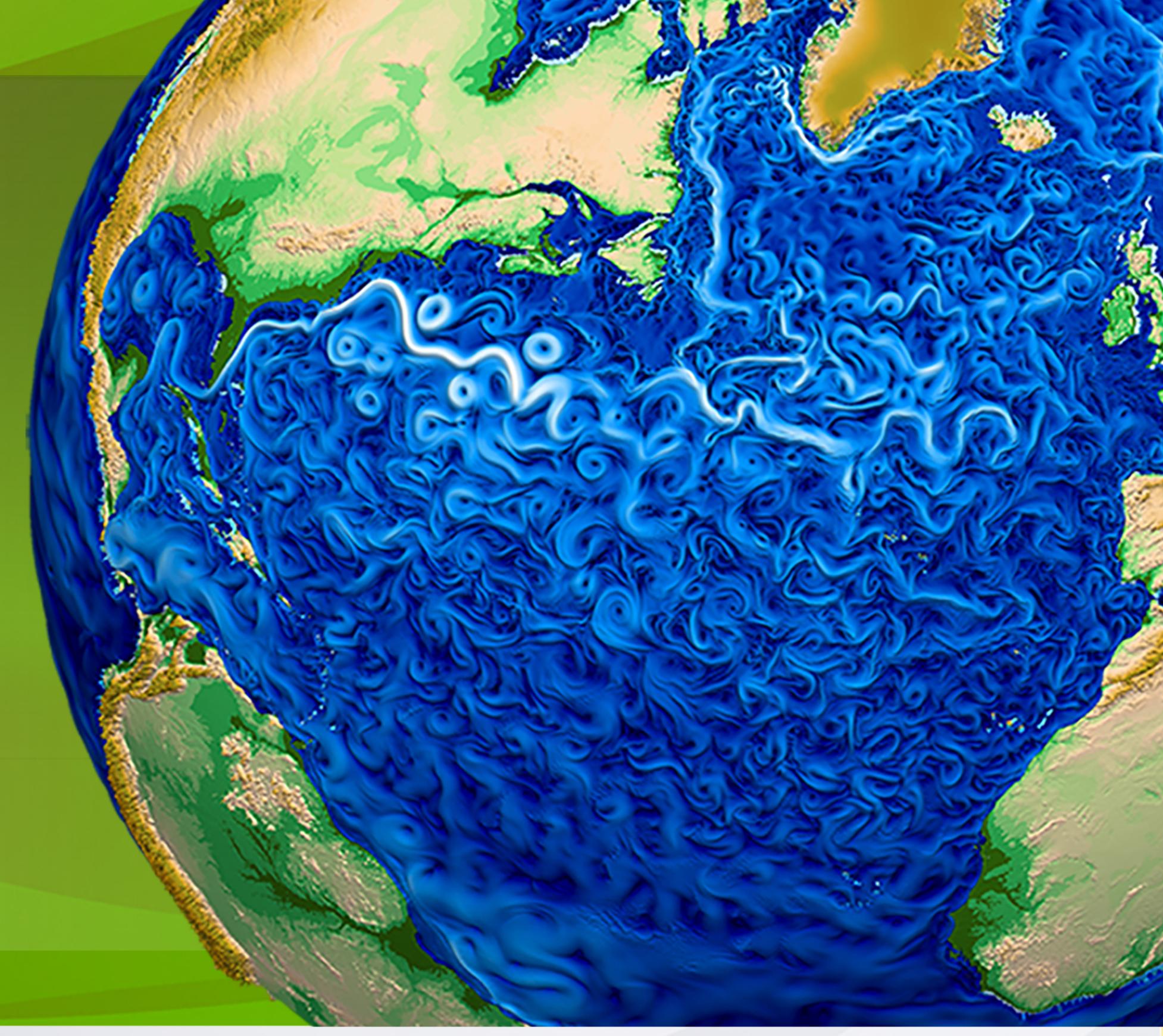
# Nerd Herding: Practical Project Management in the Field

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## More Than Just Web Developing

### Abstract—

Project managers and developers don't always see eye-to-eye on what tools to use: Performing a successful web development project takes more than just good web developing skills. When working with a full team, such a group must find a way to not only keep the development team on task and moving forward efficiently, but must also conform to project management's policies and tools. Doing this in a way that keeps everyone happy can prove to be an arduous task.

## ACME Web Dashboard

### What is it?

The ACME (Accelerated Climate Model for Energy) Web Dashboard is a growing team of developers (currently around 8) that create software to facilitate climate research around the world. To do this, the team uses a vast number of disparate services that are called out to from a single web application. The project is open source and the code, issues, and wiki are all hosted on GitHub.

## Developer Tools

### GitHub:

Github is a version control system (VCM) that allows for developers to share and edit code and files for applications efficiently.

- **Repository**—Where source code is hosted on Github and is stored publicly online. This is where/ how changes are merged.
- **Issues**—Developer-friendly way to manage bugs and tasks. Tied directly to the repo and source code. Also has alert capabilities.
- **Documentation (Wiki)**—Place for developers to share content about projects such as instructions, dependencies, API documentation, development guidelines, and more.

### Travis CI:

Builds and tests projects hosted by a git repo. Allows for post-processing on built software including packaging, testing, and code linting.

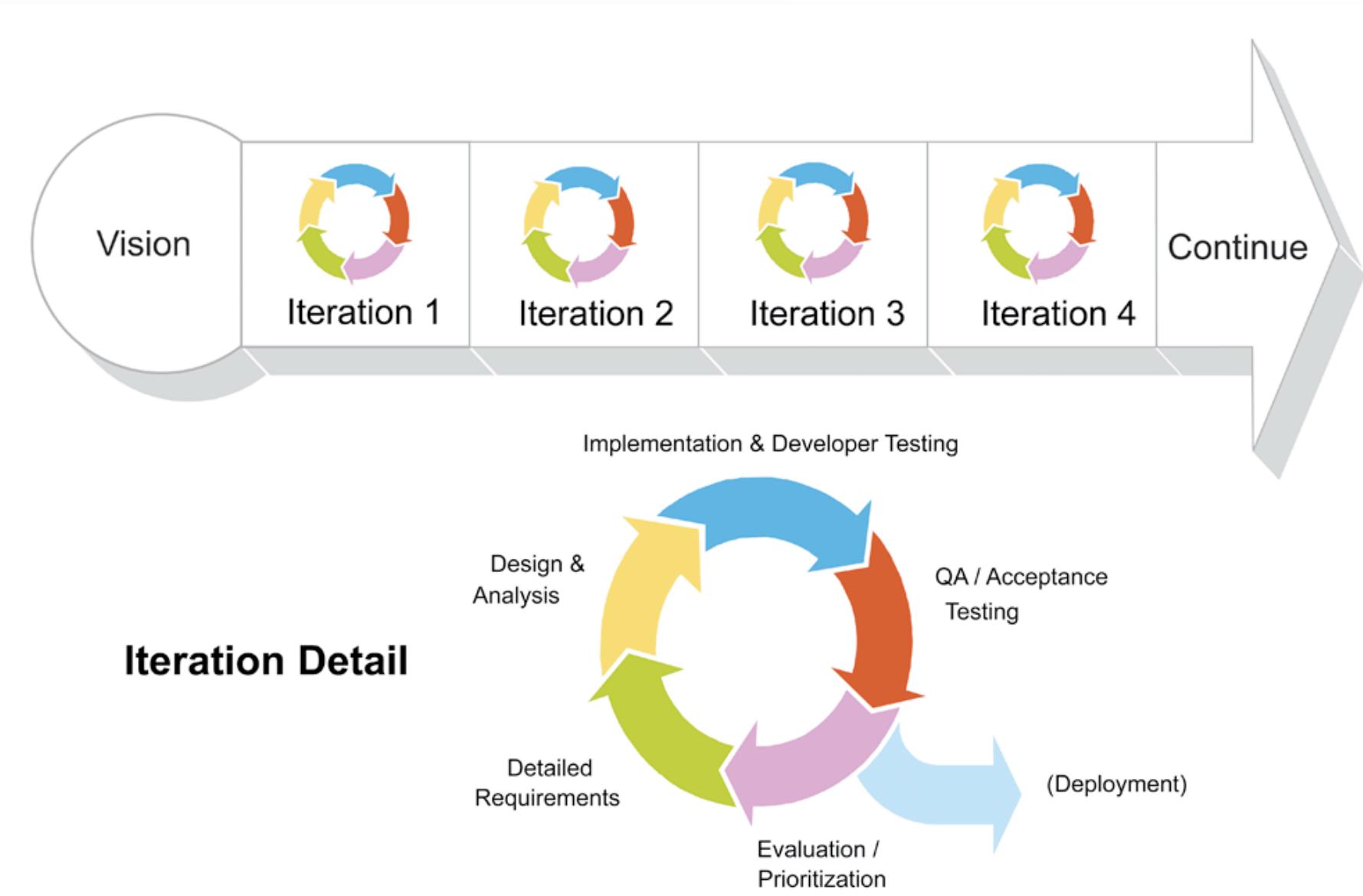


Figure 1: Scrum Sprint Iterations

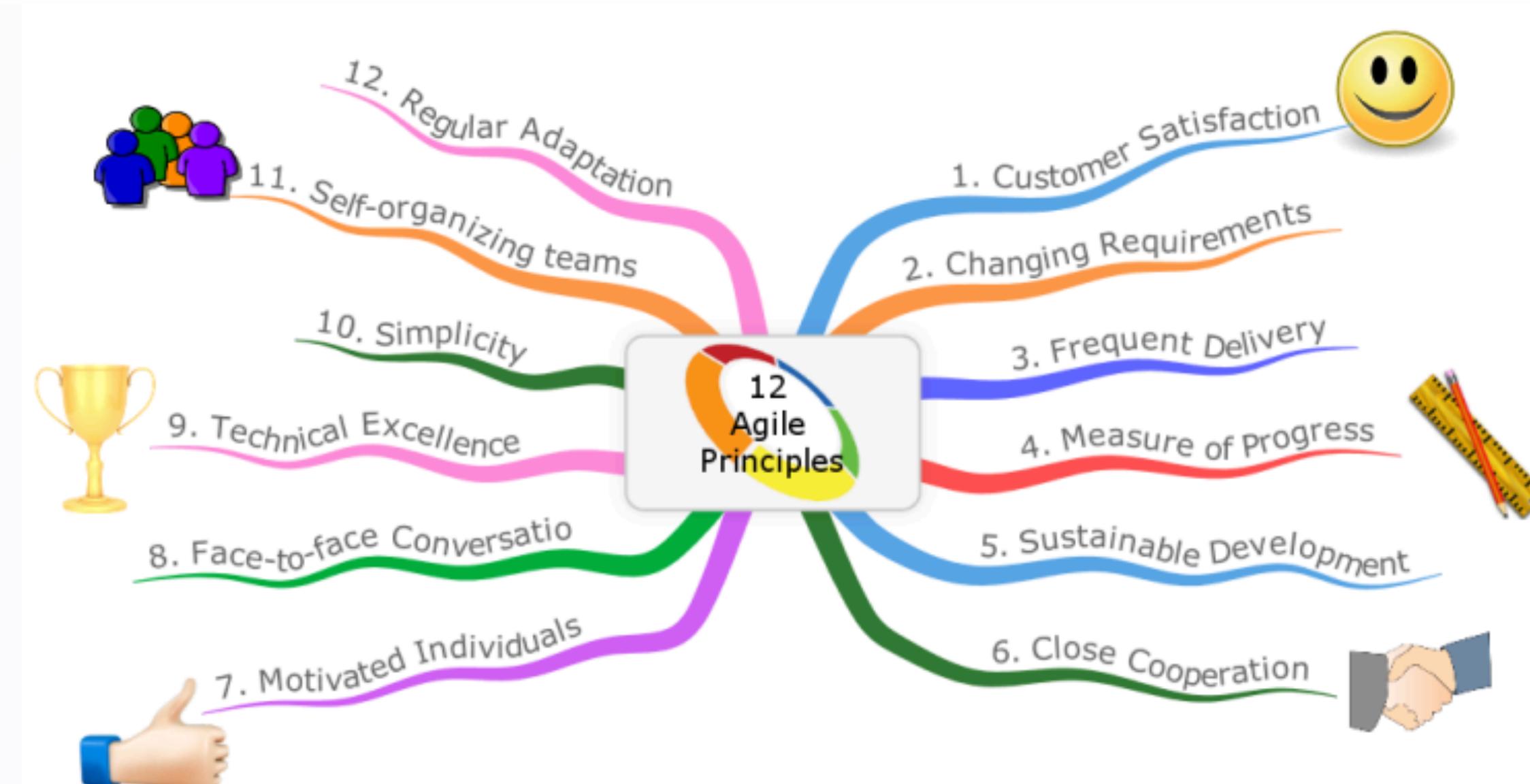


Figure 2: 12 Principles of Agile

## Management Tools & Methodologies

### Atlassian:

- **Jira**—An issue tracker that provides diverse array of features, including Project Planning, Time Tracking, and Reporting Tools.
- **Confluence**—A wiki that allows users to create detailed pages containing documentation, project plans, and more. Simple integration with Jira that allows for directly imbedded Jira issues.

**Citrix GoToMeeting**—Digital conference software. Allows for sharing project features over a conference call presentation.

### Agile:

Management methodology that follow themes of having software always be in a buildable state, working directly with stakeholders, while remaining flexible about the development. Established off 4 core tenants that are backed by 12 principles (see Figure 1).

### Scrum:

Incremental product development that uses small teams that manage independent parts of a project. Uses fixed-length iterations called "sprints." The goal is to build a shippable (properly tested) product increment by the end of each sprint (see Figure 2).

## Implementation

We follow a loose version of the Agile Methodology while implementing some of the core concepts from Scrum. Tasks are broken down into milestones of seven two-week sprints and a weekly meeting is used to discuss the progress of the tasks.

### Integration:

- **Problem**—Initially, a problem arose between the developer and management team because the developers used GitHub Issues and Wiki for project planning while management used Atlassian products: Jira to track time and Confluence to track development progress. This meant tasks had to be double-entered, once in GitHub for the developers, and eventually in JIRA for the project management team to gather data for reports.
- **Solution**—Created a single form with a series of Yes/No questions that helps identify what the general category of their problem is and then passes the issue to the appropriate location. A small web-hook implementation was added to this site which automated the duplication of issues from GitHub to Jira.

### Other Tools Used:

Travis CI, Python, and PEP8 are integrated to ensure pull requests won't break the build and that all code is homogenous. All tests in our test suite can be run with a single command with a wrapper around Robot that runs Selenium tests on the frontend.

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Accelerated Climate Modeling  
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