

# Meaningful Applications of Software Development Models

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## INTRODUCTION

One of the biggest issues facing sustainable climate risk management (SCRiM) research is the uncertainty of its models. SCRiM scientists often don't have a strict computer science or engineering-based background, and thus may struggle to keep up with modern software practices. While not directly dealing with uncertainty, this project was designed as a springboard to solve some of the uncertainty issues by modernizing the software engineering techniques.

The primary motivation of this project is to better understand how we can determine what tools we can use to help SCRiM scientists educate themselves on useful programming practices, but also to look at the educational models used in SCRiM research in general.

## METHODS

This project aims to identify and apply the pertinent aspects of **agile software development** by aligning them with the most important aspects of SCRiM research. The idea behind this particular method is to encourage frequent adaptation of software engineering techniques by following a continuous improvement cycle via testing and reconfiguring. By isolating the techniques used by SCRiM scientists, we can gain a better understanding of how to update the software engineering practices most commonly used. The educational models used in teaching software engineering (not specific to SCRiM) will also be taken into consideration.

Test  
and  
Adapt

## Agile Software Development

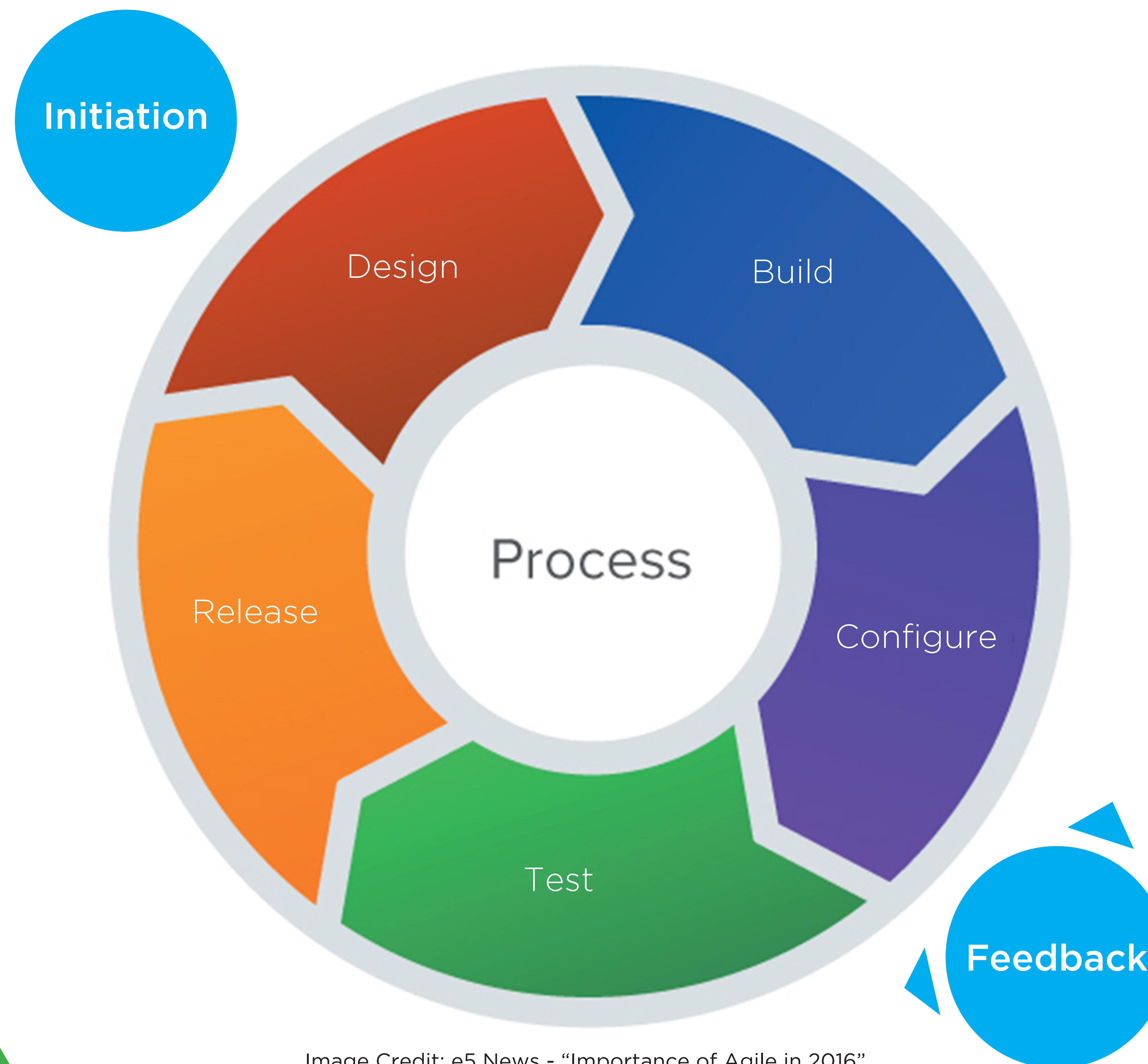


Image Credit: e5 News - "Importance of Agile in 2016"

## CONCLUSIONS

This project set out to explore the ways in which SCRiM research can learn from existing practices in software engineering. The results can be classified in two different ways: procedural and projectional.

### Procedural Findings

- Agile software development would encourage the formation of an engineering community within SCRiM research that will improve uncertain results.
- The method is already geared to work the way SCRiM scientists already communicate.

### Projectional Findings

- There are other software engineering tools that benefit SCRiM research.
- Agile software development works as a project management tool in SCRiM research as well as software engineering.

**Future work:** Based on these results, there are likely ways to apply the same methods to investigate other software development models that may be specifically geared toward risk and cost balance. Given survey data not accessible for this project, there is also room to study the social benefits of agile software development among SCRiM scientists.

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