

# CONTINUOUS INTEGRATION IN MODEL BASED DESIGN

MGI Group Meeting, June 11th, 2019

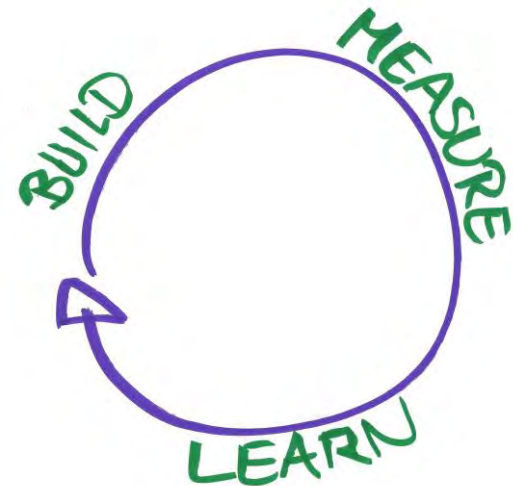
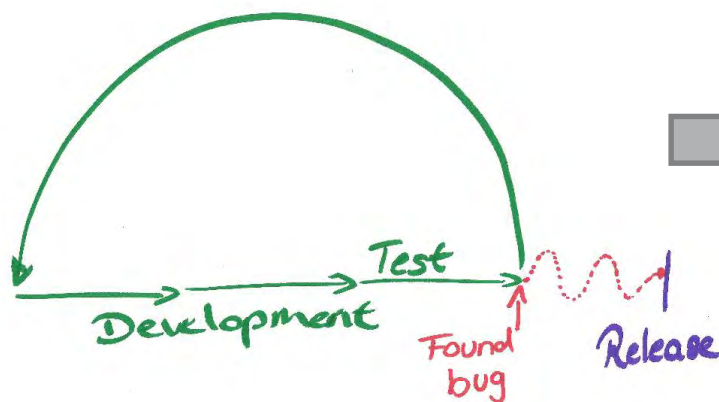
SOFTWARE QUALITY.  
IN CONTROL.

SOLUTIONS FOR INTEGRATED QUALITY ASSURANCE  
OF EMBEDDED SOFTWARE

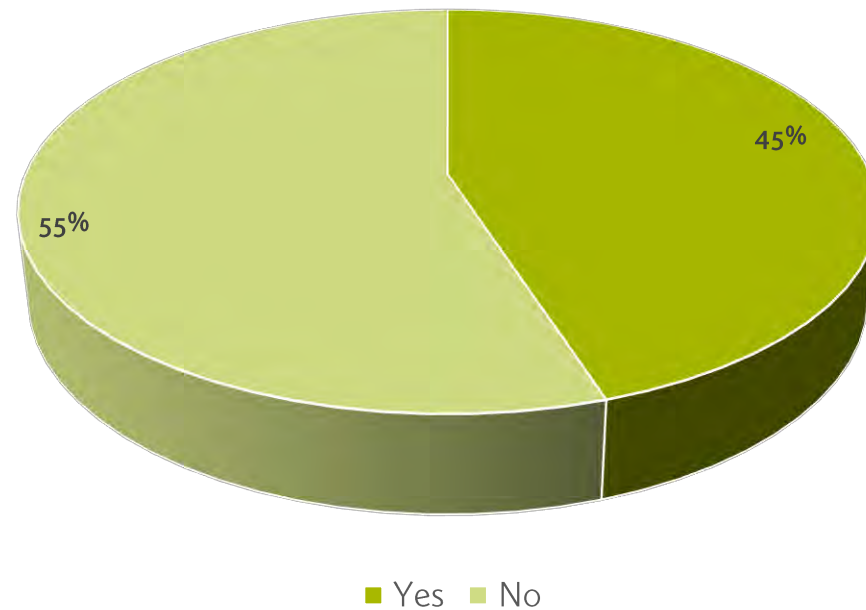


- Questions?
  - Questions and an open discussion are welcome at any time
  - If you participate the discussion please shortly give your name.
  
- You will receive the presentation afterwards by e-mail
  
- Moderator: Sophia Kohle

- From safety point of view: Validation of the final release is relevant
- BUT having a finished product and then starting testing leads to
  - very long feedback loops
  - late bug detection







Do you test your software models for compliance with quality boundaries in a continuous integration environment?



Your Feedback

31 answers as of June 11th, 2019

-  Do you plan to implement a continuous integration environment?
-  If not, why?
-  If yes, in what time frame?
-  Who is responsible to setup the continuous integration?

Principles	Status		
Maintain a Single Source Repository	●		
Automate the Build Make Your Build Self-Testing		●	●
Everyone Commits To the Mainline frequently	●	●	
Every Commit Should Build the Mainline on an Integration Machine	●	●	
Fix Broken Builds Immediately	●	●	●
Keep the Build Fast		●	
Test in a Clone of the Production Environment		●	●
Make it Easy for Anyone to Get the Latest Executable	●	●	
Everyone can see what's happening		●	●
Automate Deployment		●	●

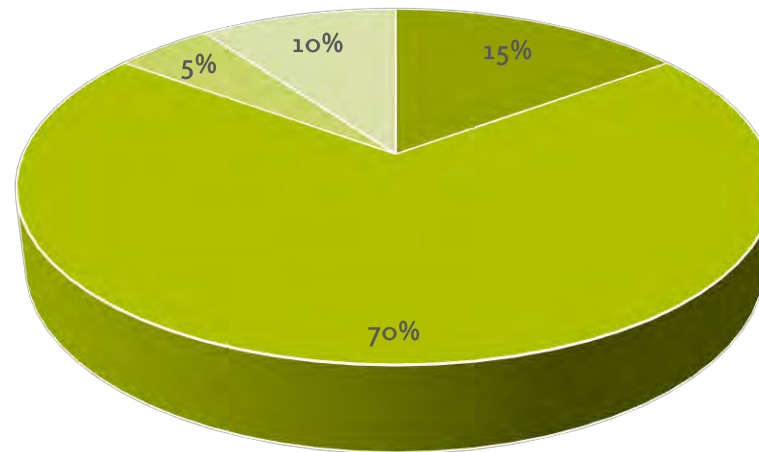


## Status of implementing these practices

*Martin Fowler*

10 September 2000: Original version published  
 01 May 2006: Complete rewrite of article to bring it up to date and to clarify the description of the approach.  
<https://martinfowler.com/articles/continuousIntegration.html>

If so, what environment do you use for this?



■ Matlab   ■ Jenkins   ■ Gitlab   ■ None



Your Feedback

20 answers as of June 11th, 2019



PTC integrity



Jenkins Plug-In

Gerrit Code Review

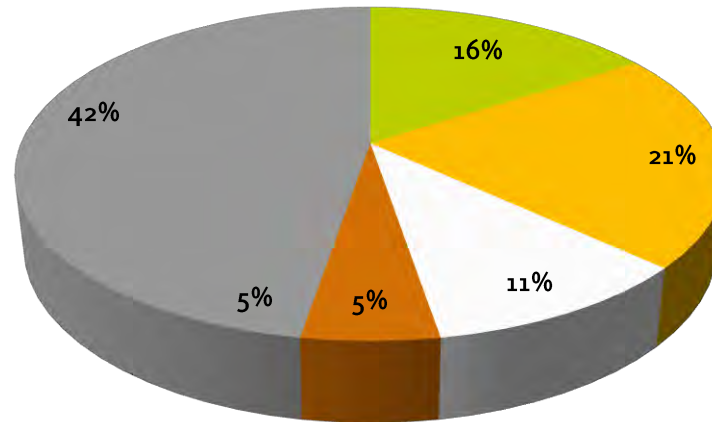
and many more....

Model Compare

SimDiff



## What are the biggest obstacles and challenges for automated testing?



- Time
- (Model) diversity
- Complexity
- Setting up test scripts for automation
- Cultural change
- Other



Your Feedback

20 answers as of June 11th, 2019

Obstacle	Root Cause	Measure
Time	Teach people how to deal with the process	
Setting up test skripts for automation	missing knowledge reporting (justified violations need to be justified again)	review process needs to be integrated into CI process (reuse of the existing justifications)
Model Diversity		
Cultural change		
To decide a Continuous Integration that suits everybody's needs (manager, developers, customers)		Maintainability of tests is important! Fast feedback Achitecture needs to be suitable for change
Management support		



## MES SUMMER SCHOOL AND 5-DAY TRAINING ON INTRODUCTION TO MODEL-BASED DEVELOPMENT

- Jun 24–28, 2019 in Berlin, Germany
- Sep 23–27, 2019 in Troy (Detroit), MI, U.S.

<https://model-engineers.com/en/academy/training/mes-summer-school/>



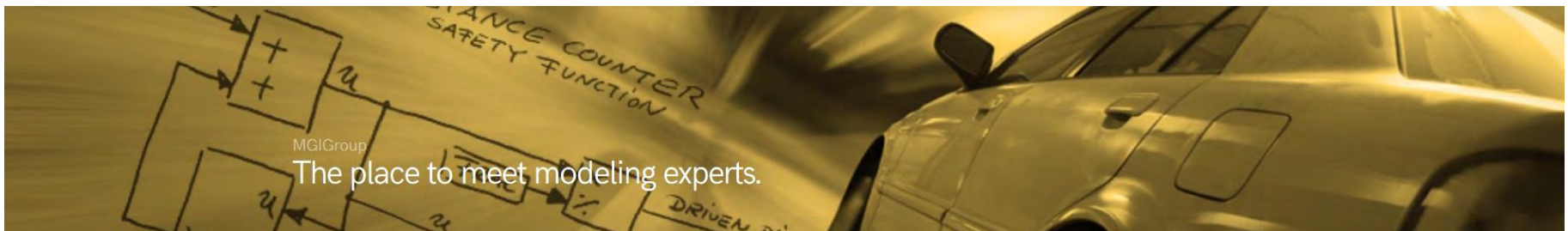


## □ Tuesday, September 17, 2019

- 3 p.m. CEST (Berlin)
- 9 a.m. IST (Detroit)
- 9 p.m. CST (Beijing)
- 10 p.m. JST (Tokyo)

## □ Registration:

- <https://model-engineers-event-en.webex.com/model-engineers-event-en/onstage/g.php?MTID=e86a5ff0937359f1875d1e87c4c06f4od>





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