

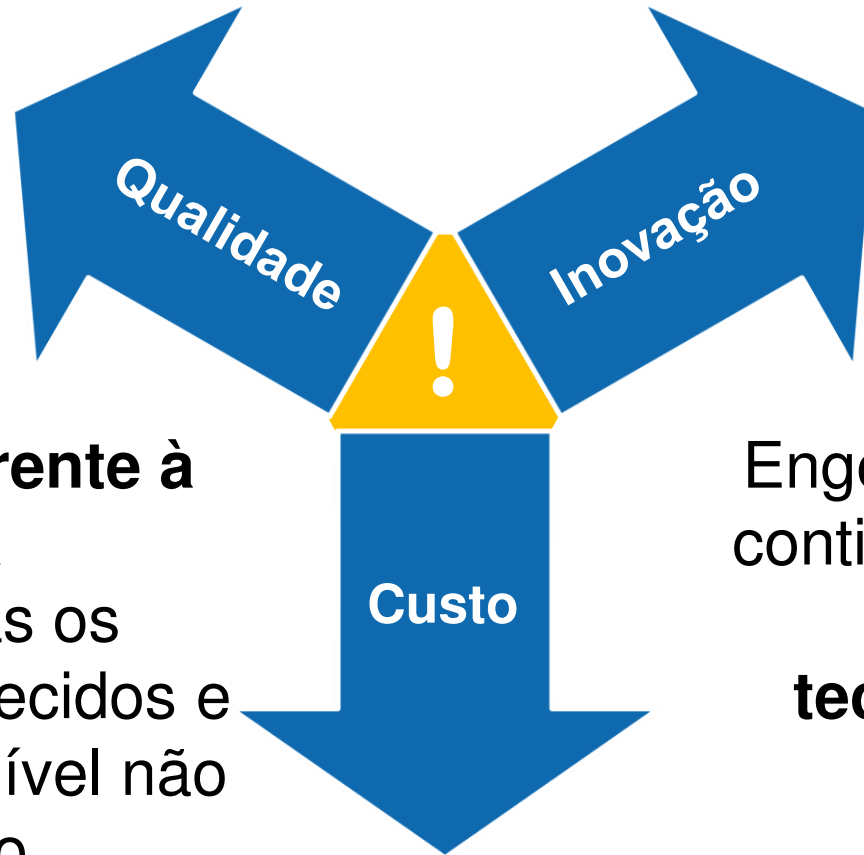
Melhores práticas para automatizar sistemas de teste em ambiente real e simulado

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Visualização apenas em modo de
apresentação

Desafios divergentes



O desafio referente à **qualidade está crescendo**, mas os tempos estabelecidos e o capital disponível não estão crescendo proporcionalmente.

Engenheiros devem continuar a **innovar e empregar as tecnologias mais recentes**, para permanecerem competitivos.

Segredos para se manter à frente desses desafios

Automação dos testes

Reutilização dos componentes de teste

Rastreabilidade e colaboração

Requisitos



Modelos



Perfil de estímulos



Análise

3.1 Coastal Summer-Engine Speed Test

REQ_CoastalSummer_Conditions

Modify the engine model parameters to reflect coastal summer conditions:
Ambient Temperature = 90 deg
Ambient Pressure = 14.5 psi

REQ_Engine_Speed_Start_at_600RPMs

Set the engine speed to 600 RPMs before test begins.

REQ_FTP1000_SpeedProfile(CS)

Exercise the engine, controller and application model closed loop with the FTP1000 speed profile.

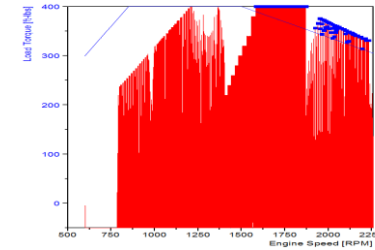
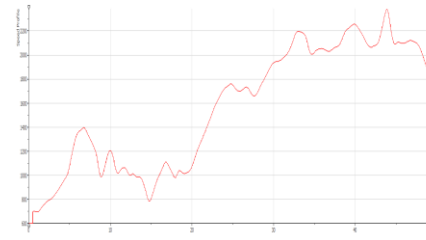
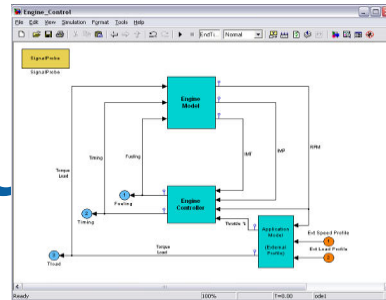
REQ_NumExceptions_LT_215(CS)

Analyze the load torque response vs engine speed. Then compare test results to Mask A. Number of exceptions (points outside the mask) should be less than 215.

Aut

to

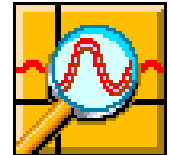
es



NI Requirements Gateway

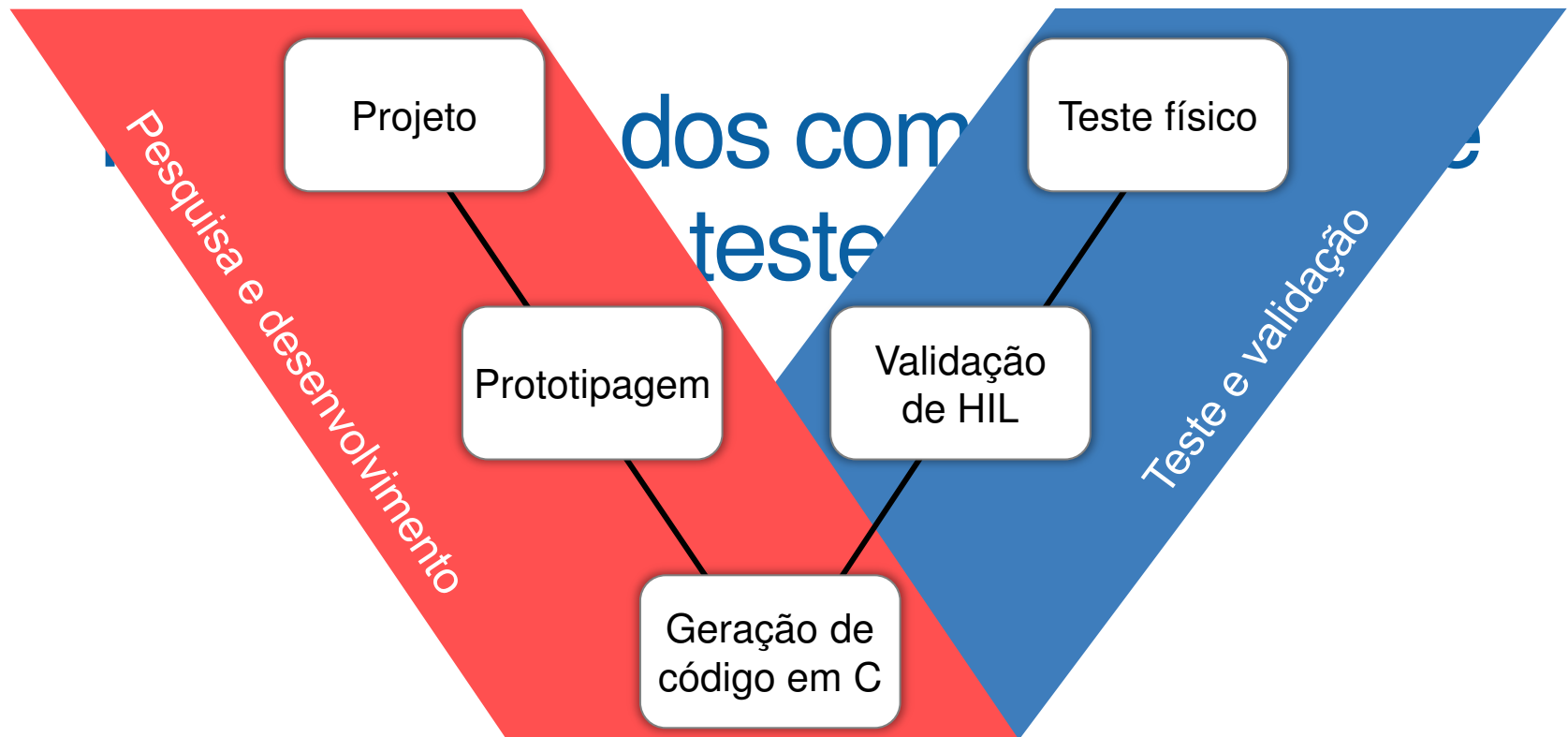


NI VeriStand

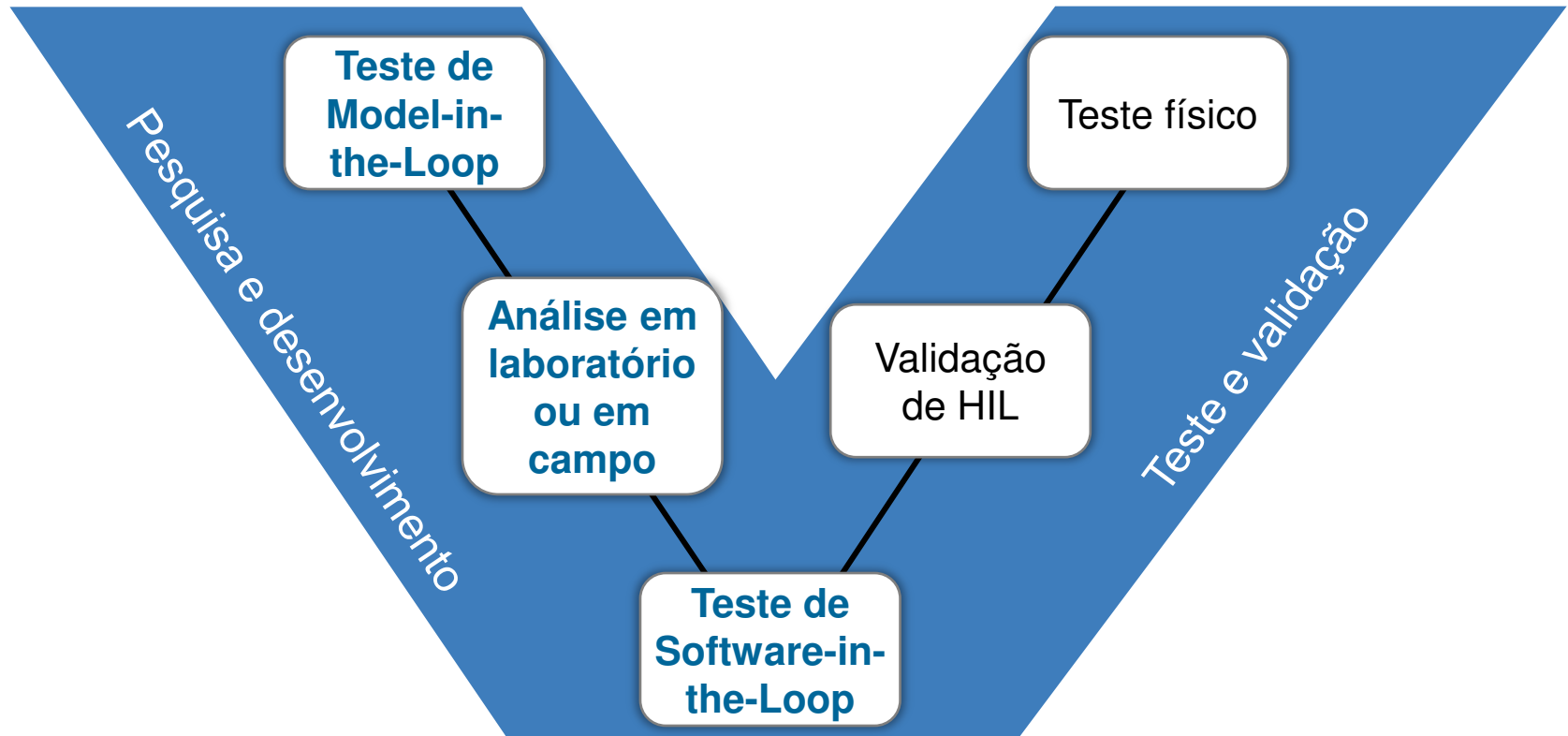


DIAdem

Processo de desenvolvimento de software embarcado



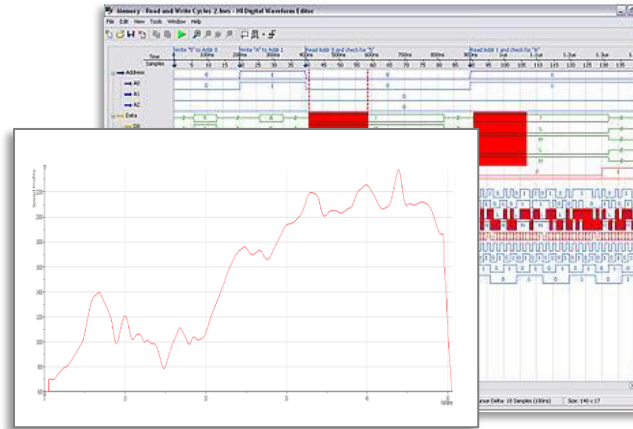
Testes ao longo de todo o processo



Componentes da fase de teste



Interfaces de usuário



Estímulos

3.3 Constraints
Engine, controller and application models should run in closed loop. The target should be verified by the test system.

3.4 Specific Test Requirements
This section describes the specific requirements in detail. The test system shall be developed to meet these requirements and tested to verify that the system satisfies the requirements.

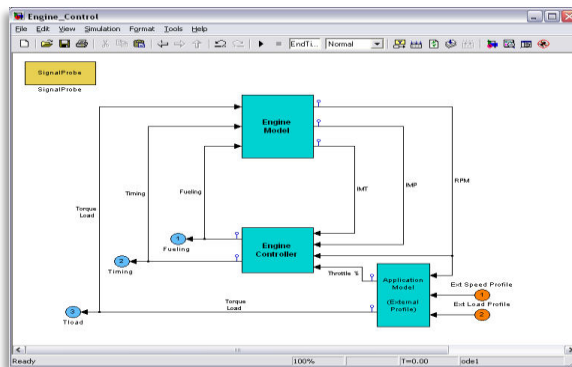
3.1 Speed Profile
[REQ_3170100_SpeedProfile](#)
Generate the engine controller and application model output map with the 3170100 speed profile.

3.2 Environmental Conditions
3.2.1 Coastal Summer-Engine Speed Test
[REQ_3170100_CoastalSummer](#)
Verify the engine speed parameters in closed loop summer conditions.
Ambient Temperature = 30 deg
Ambient Pressure = 1013.25 hPa

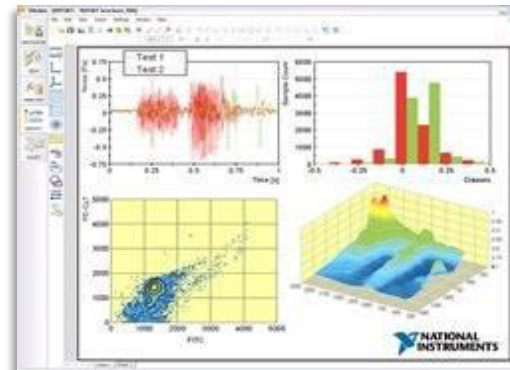
3.2.2 Mountain Winter-Engine Speed Test
[REQ_3170100_MountainWinter](#)
Verify the engine speed parameters in closed loop winter conditions.
Ambient Temperature = 20 deg
Ambient Pressure = 1013.25 hPa

3.3 Analysis
[REQ_3170100_Analysis_31](#)
Analyze the test results generated by engine model. These analysis test results to have a number of outputs. Verify output for each channel as per test 3.1.

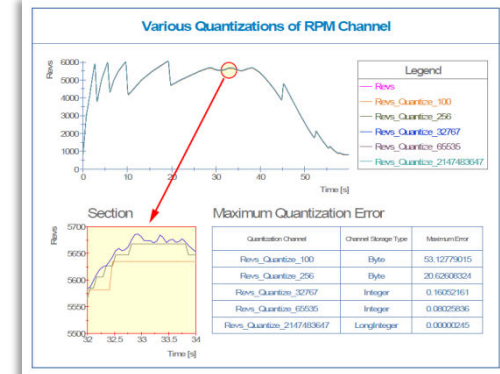
Requisitos



Modelos

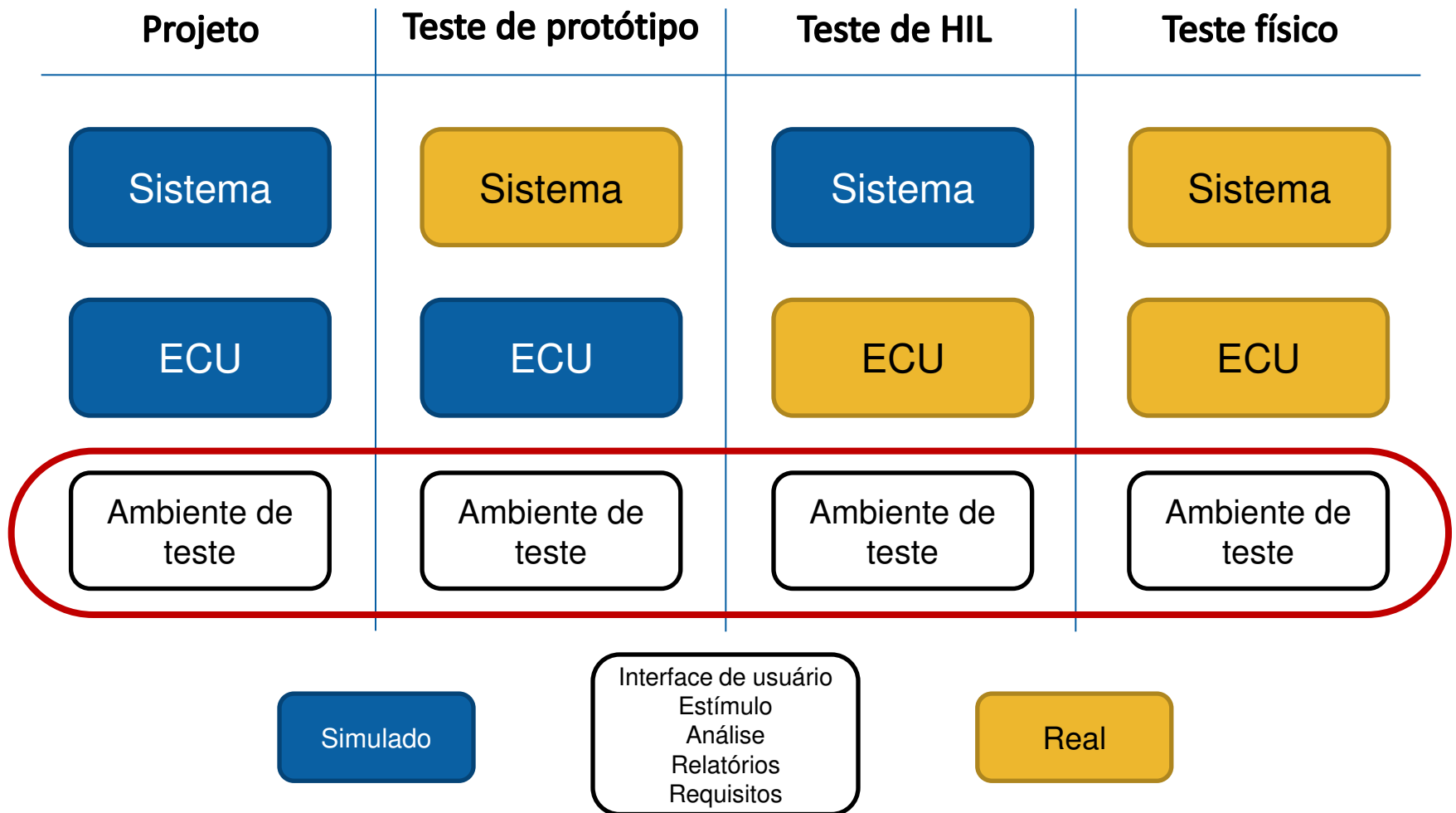


Análises



Relatórios

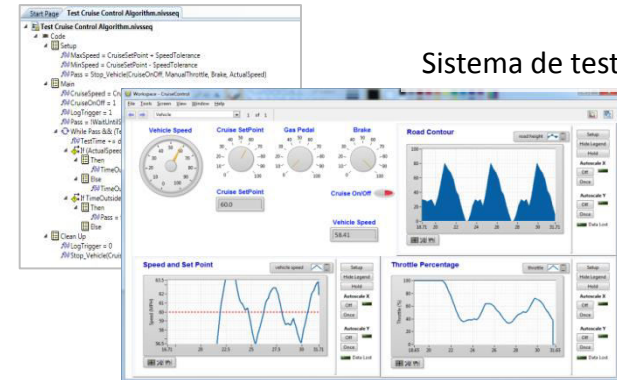
Continuidade dos testes através da reutilização de componentes



Planos de teste	Registros de execução
Casos de teste	Resultados dos testes
Cronogramas	

Sistemas de teste	Calibrações do sistema
Sequências de teste	Roteiros de análise
Modelos de simulação	Templates de relatórios

Sistema de teste



1.

2.

National Instruments
Execution Adapter para
IBM Rational Quality
Manager

IBM RQM Execution Record

5.

de e cola

Resultados dos testes

Soluções de teste da National Instruments

MIL, SIL, HIL, SysIntLab,
teste mecânico, em campo

4

Resultados do teste, relatórios, dados brutos e componentes necessários para reproduzir o teste referente ao IBM Rational Quality Manager.