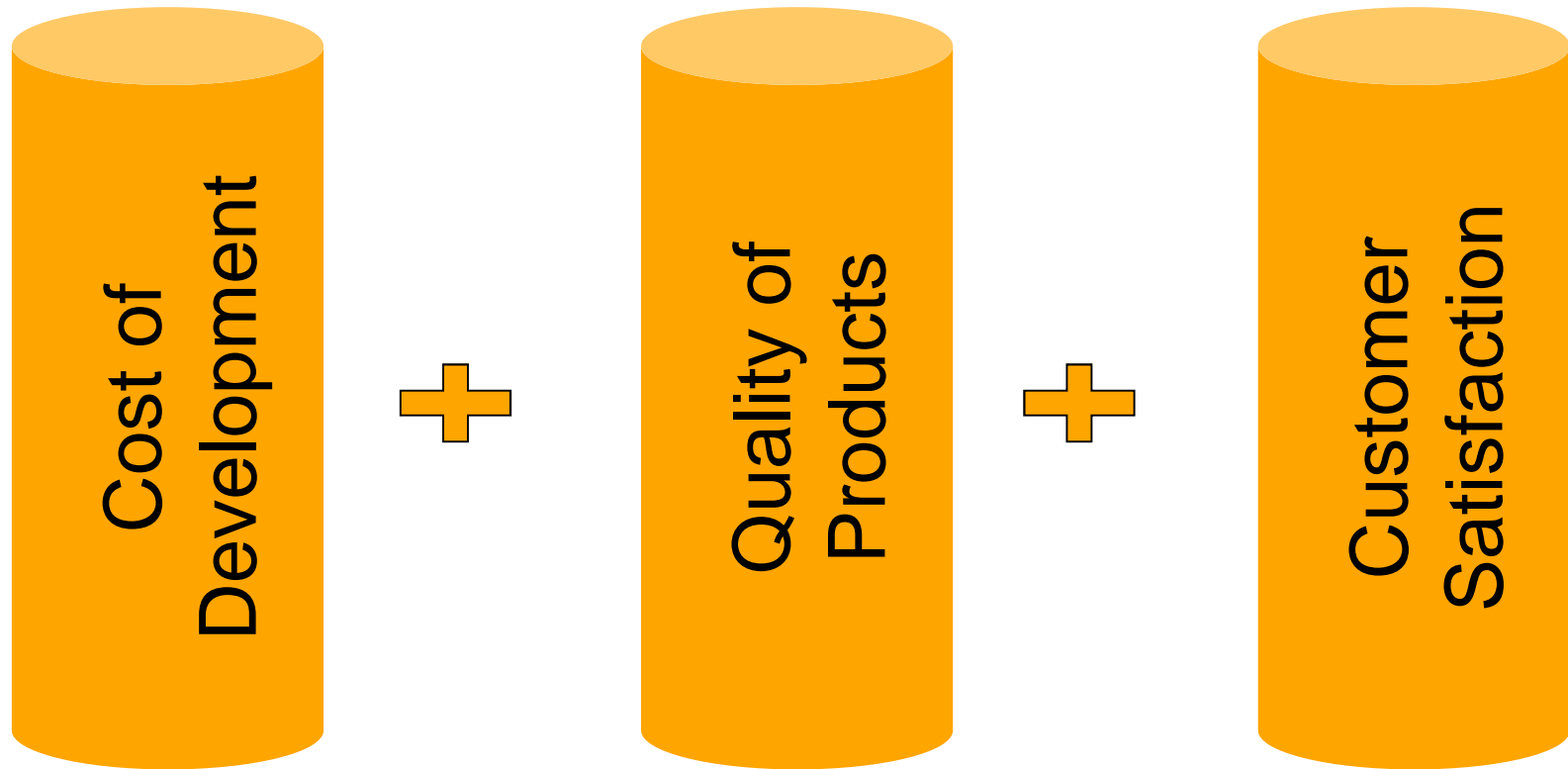




Simulation of powertrain control systems using SIMULINK – An application in Exhaust after treatment

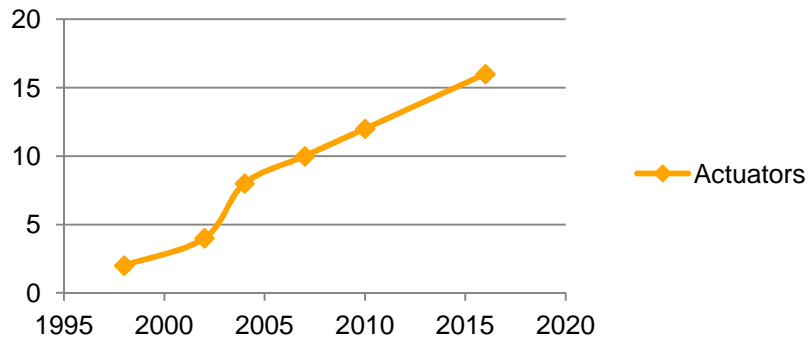
Praveen and Naveen

Industry Mantra for number uno sustenance

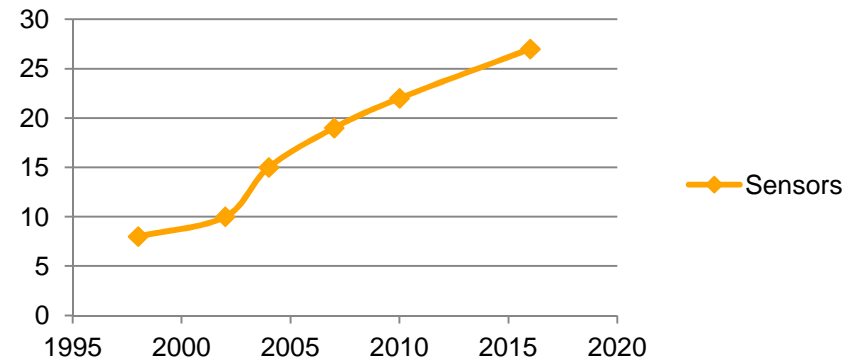


Increased complexity in Automobile – A snapshot

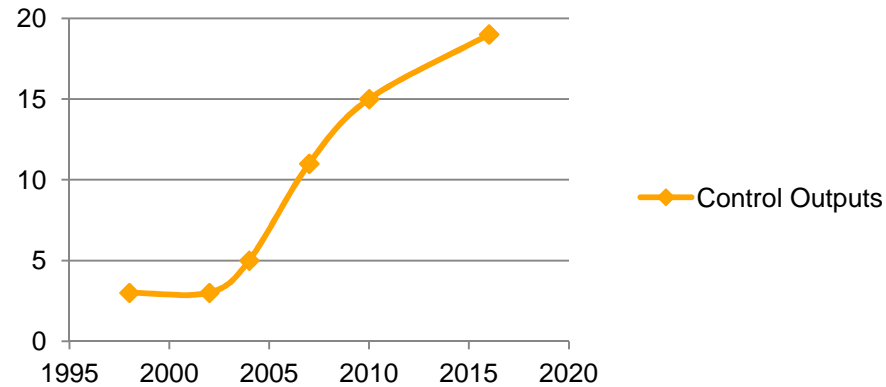
Actuators



Sensors

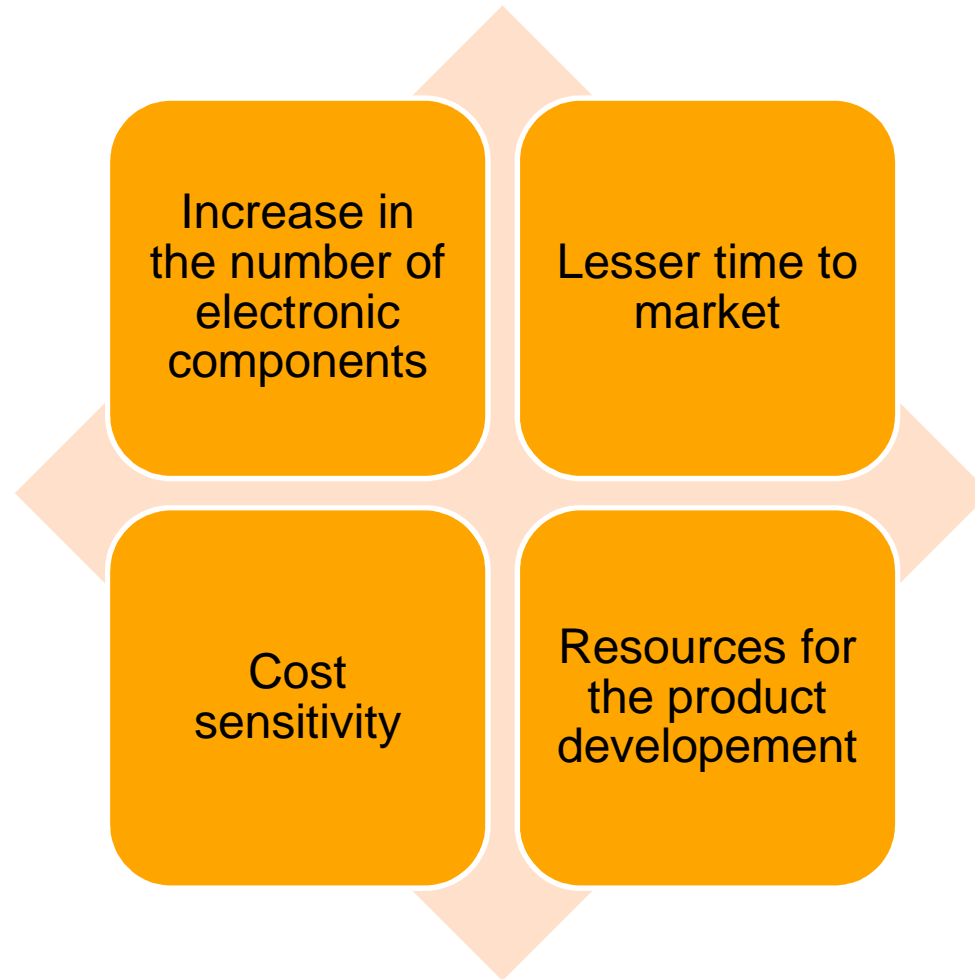


Control Outputs



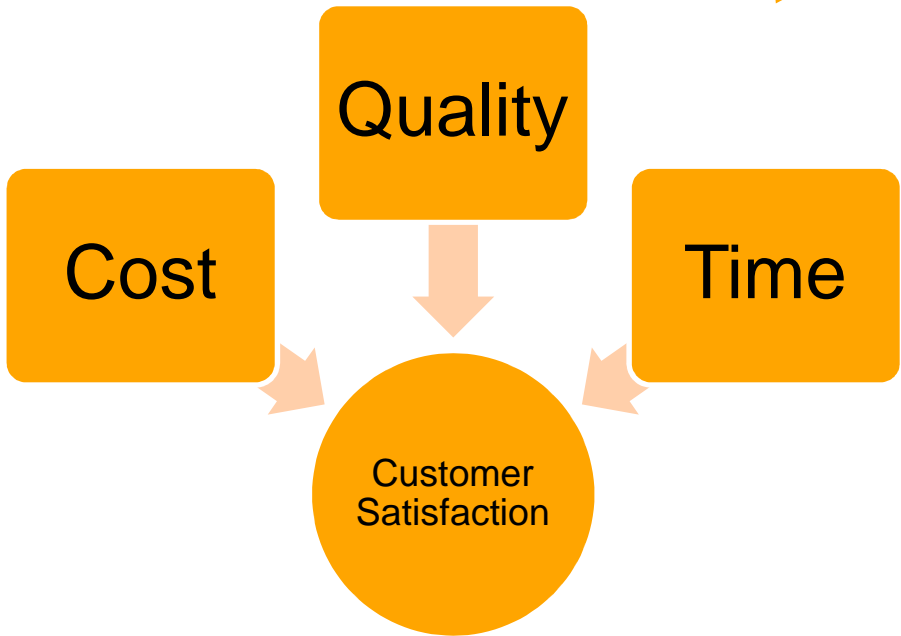
* Referred from "Model Based Transient calibration optimization for next generation" by chris Atkinson, Marc Allain & Craig savonen, Detroit Diesel corporation

What does it mean to the industry

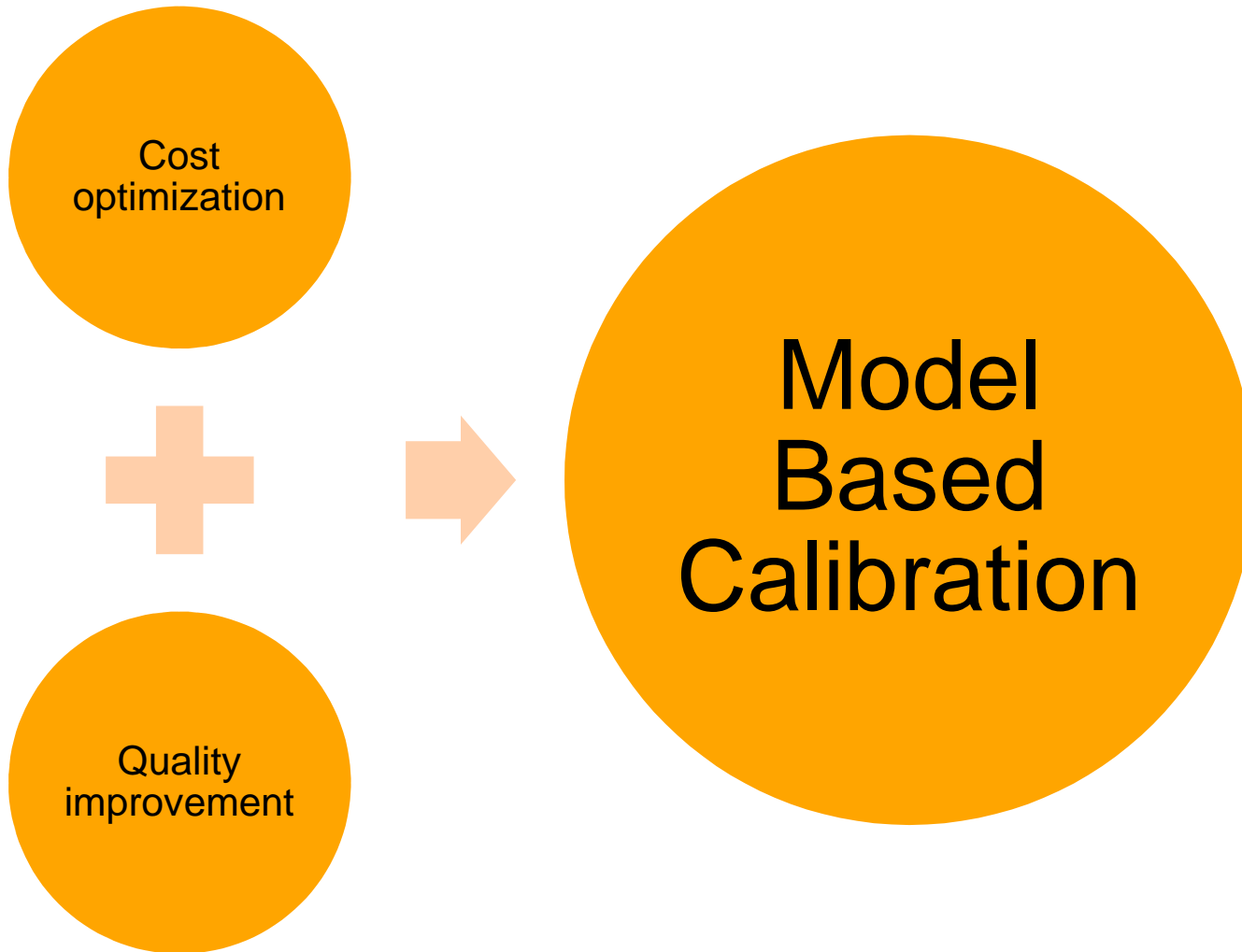


Our Mantra

Develop latest and greatest solutions to serve all the markets



How do we achieve our Mantra



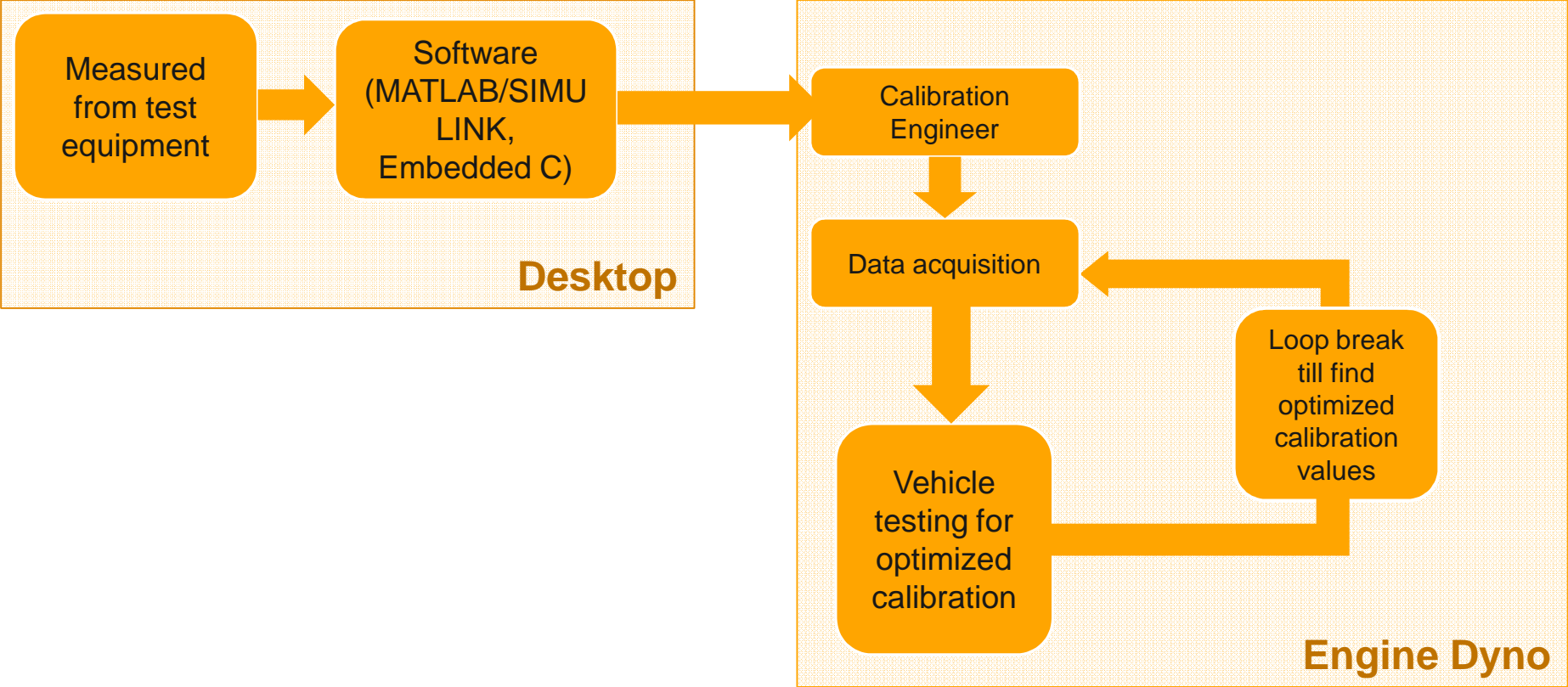
How do we achieve our Mantra

Simulating the Key

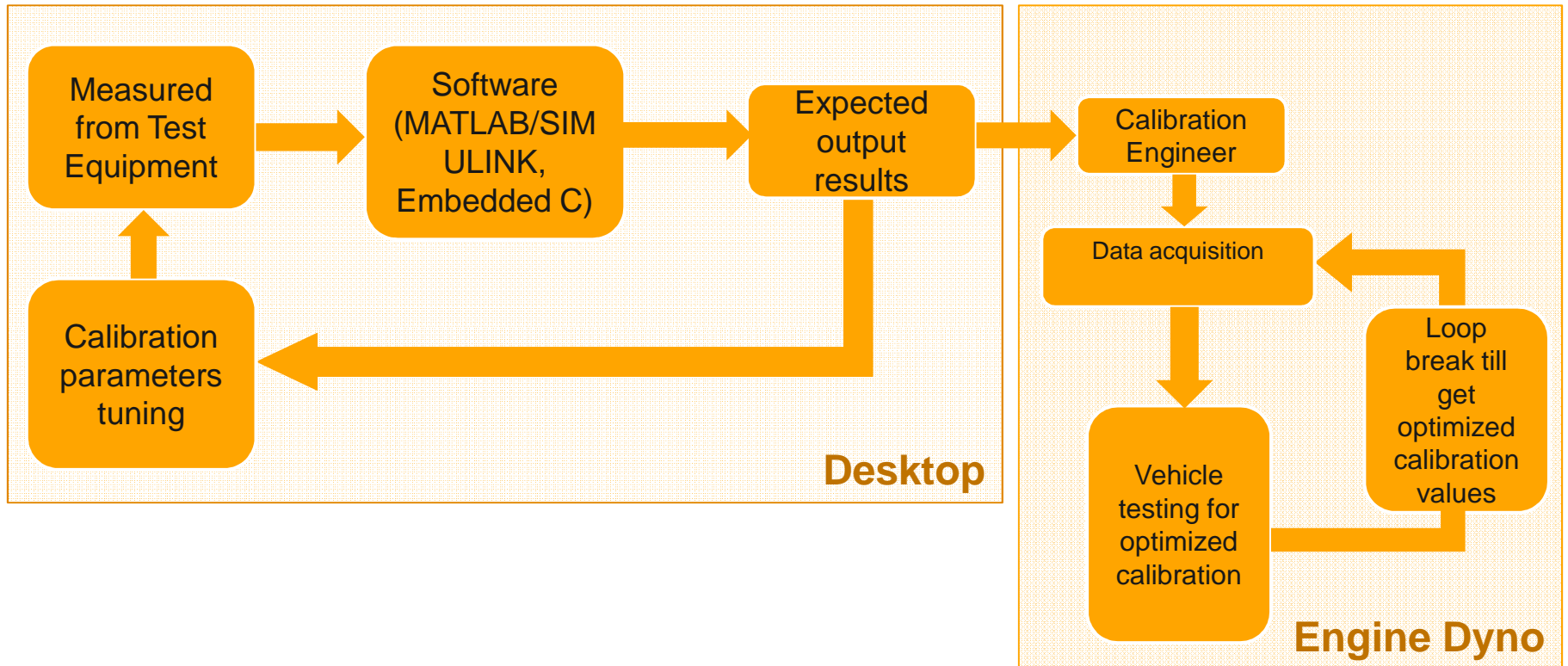
Reduced time for V cycle
Problems can be fixed earlier
(Cost Benefit)

Non Destructive Testing
Behavioral simulations
(Quality Benefit)

What is done today in simulation



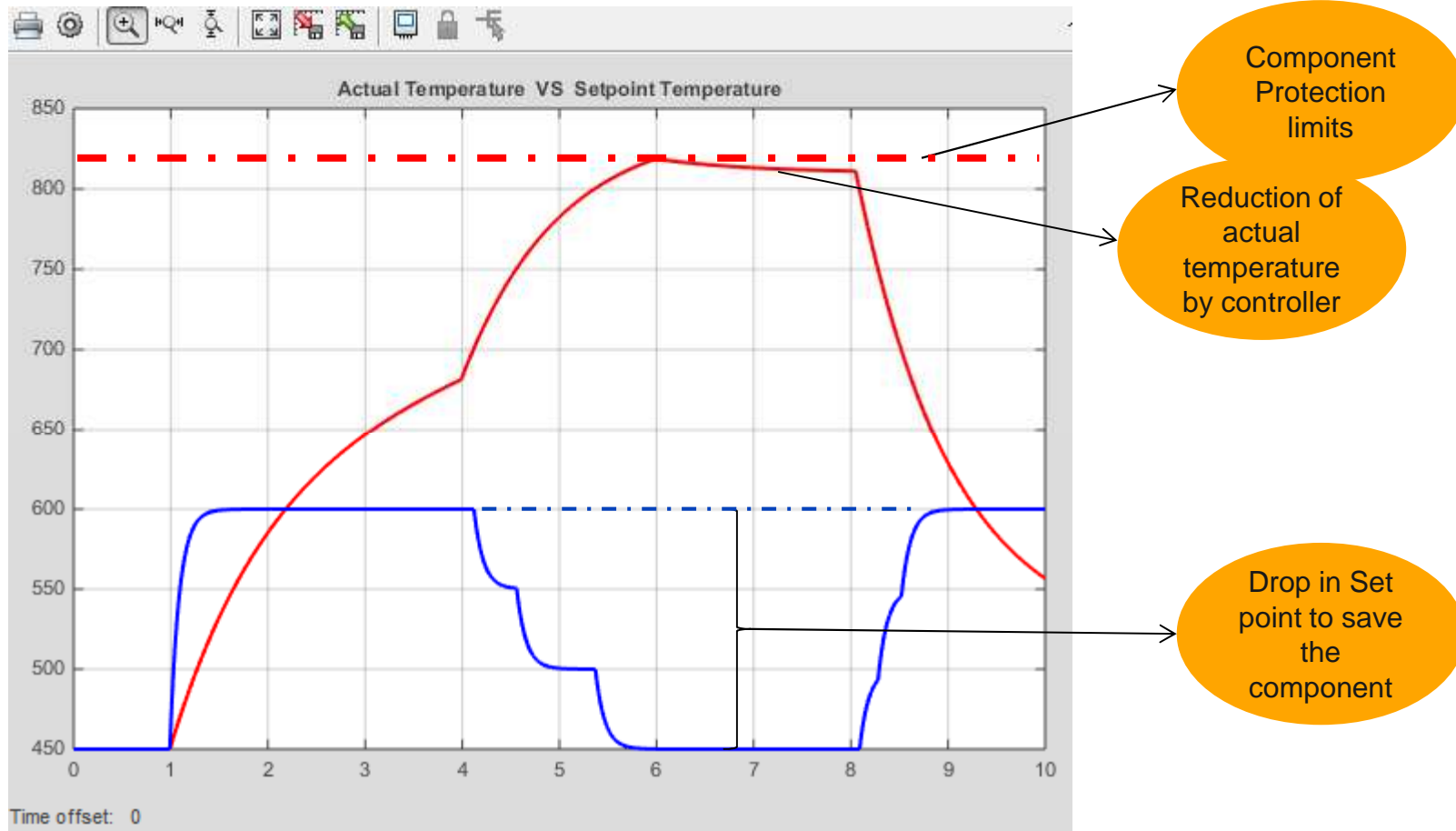
How we propose



Component Protection mode – during regeneration

Status of temperature	Outlet temperature	Outlet temperature	Outlet temperature
Component Temperature	< 700	> 700 < 750	>750 < 800
Protection method	No protection required	Required	Required
Component inlet temperature	No change in component inlet temperature	Reduce the component inlet temperature	Reduce the component inlet temperature

Non-Destructive Testing via Model Based Calibration



Conclusion

Time

- Effective initial guess values can be found instead of spending time in DYNO

Cost

- Non destructive testing can be done without loss of components