

# What Your Software Team Would Like the RTL Team to Know.

Josh Rensch – *Semifore, Inc.*

# We All Want Successful Tape-Outs



# We've Missed Dinners to Make Happen









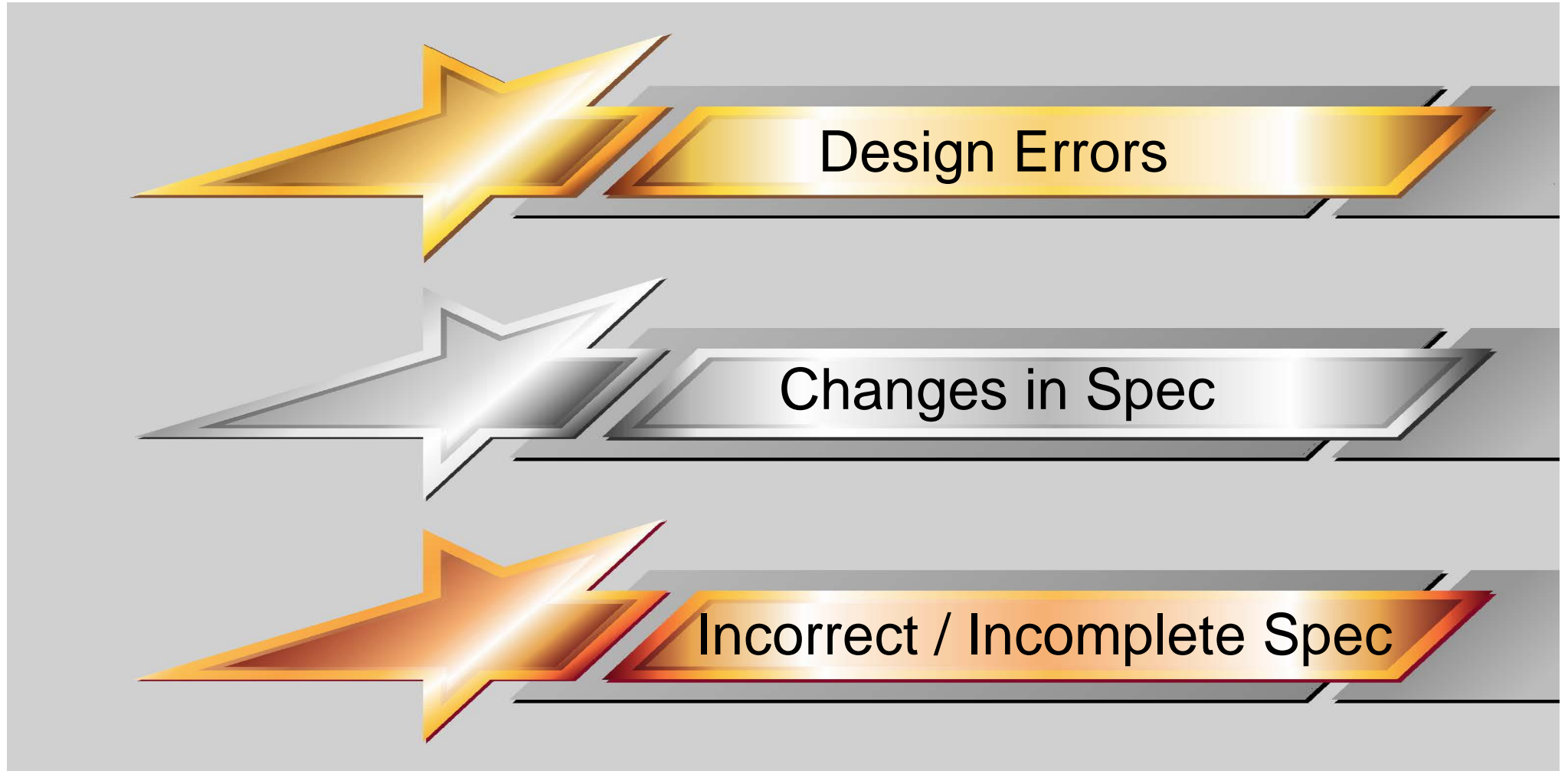
# More Like the Middle of Most Projects



**The product does not ship until the device driver works**

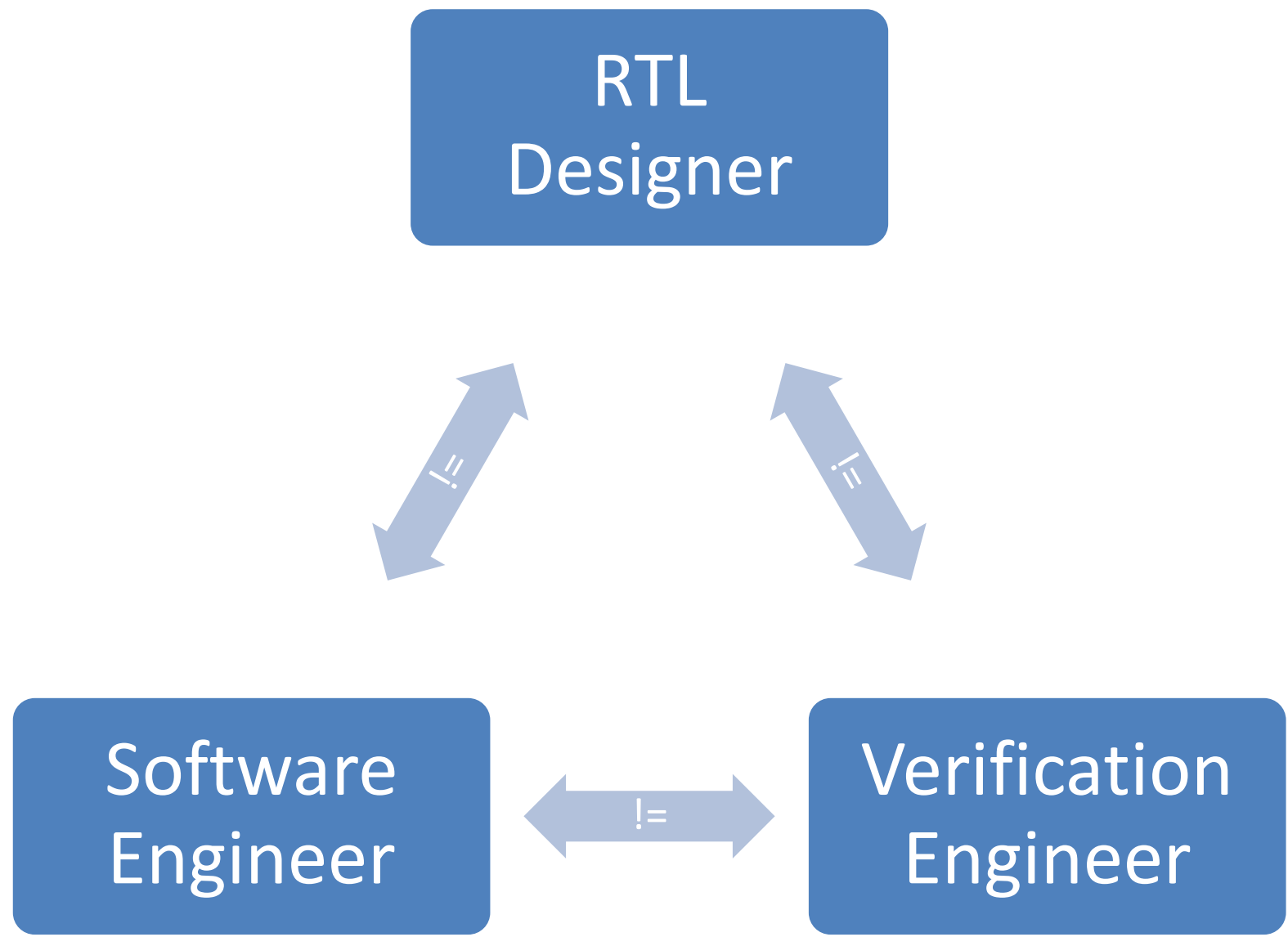
~ Anonymous Project Manager

# Root Causes in Design and Specs



Source: Wilson Research and Mentor 2018 Functional Survey

<https://blogs.mentor.com/verificationhorizons/blog/2019/03/13/part-12-the-2018-wilson-research-group-functional-verification-study/>





# Silos Are Industry Norm...



# But Silos Have Same Goal



# Does Our Industry Needs Another Acronym?



HSI = Hardware/Software  
Interface

# Software Development is Long Tail



# EDA Tools Help Us





# I have these



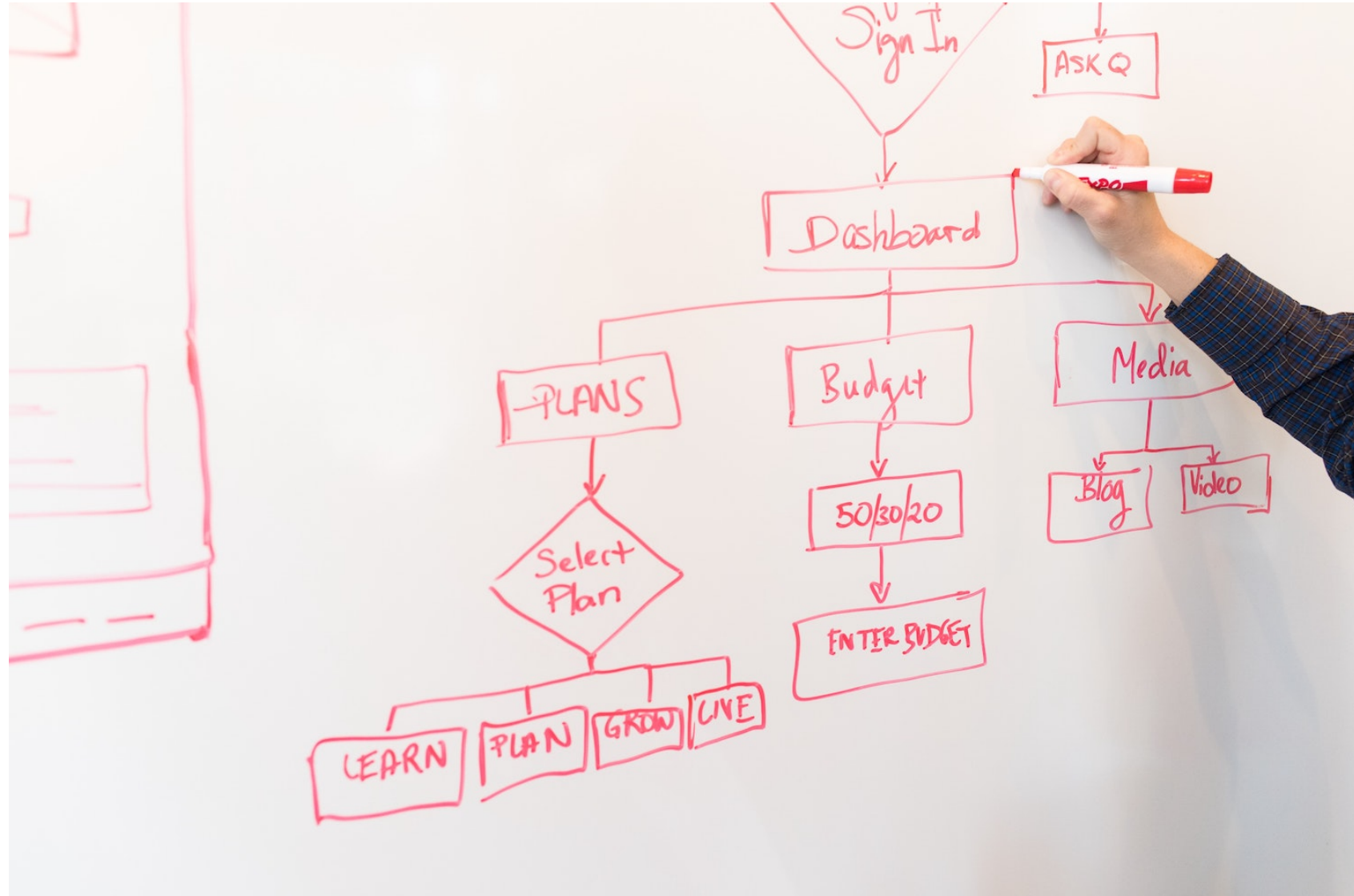
# Tiger Woods Had This



# Tools Don't Replace... Principles & Processes



# Developing Principles and Processes



# Graphical Input of Code



# Processes Require Documentation





# We Don't Like Documentation

- It's Tedious
- It Is Not Coding
- What If We Are Wrong?



# Documenting Processes Have Advantages

# Helps Team Improve





# Other Stakeholders Expectations



# Many Teams, One Goal





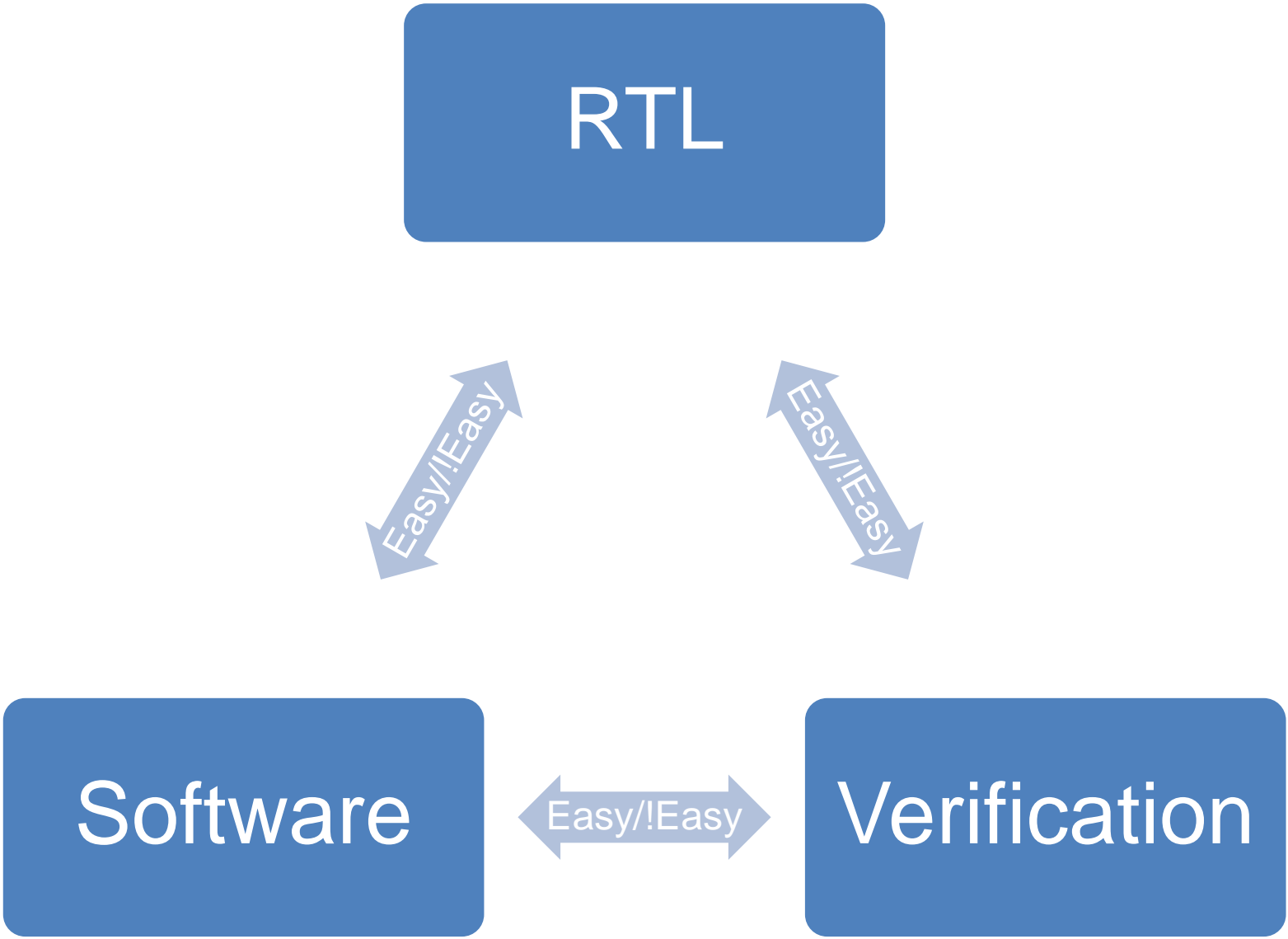
# Software Development is Long Tail

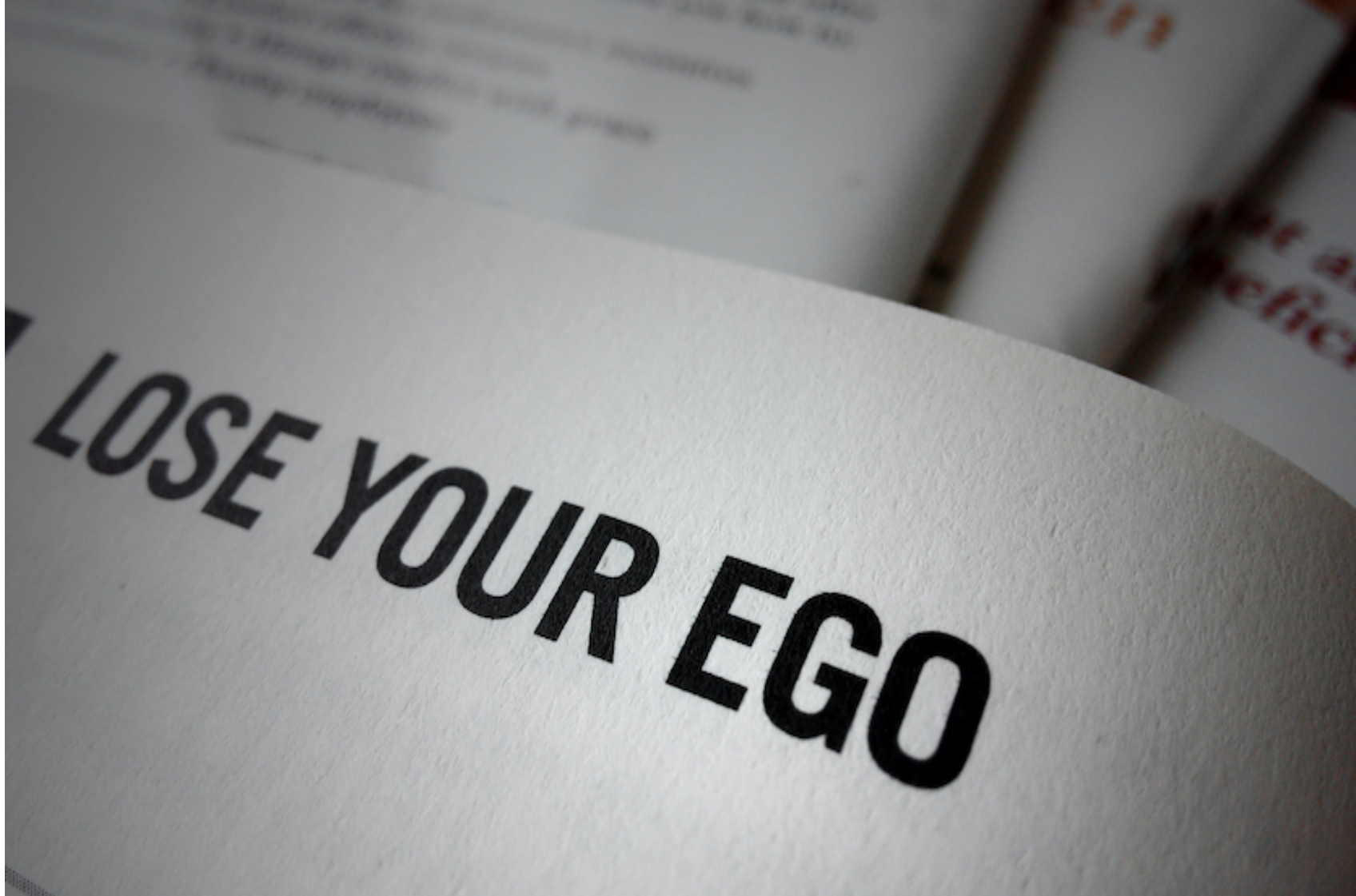




# Get Software Involved Early, Often









# Quirky Registers

“unusual in especially an interesting or appealing way”  
~ Merriam-Webster Dictionary

# Stop Using Quirky Registers

Just because you  
can, doesn't mean  
you should.



# More Effort and Documentation





# I Am Lazy







# Automate





# Use of Perl, Why?



# Now It's Time to Interrupt!



# Keep It Simple. Keep It Safe.





# Verification Teams Be Like Software



# Balance Approach



In preparing for battle I have always found  
that plans are useless, but planning is  
indispensable.

~ Dwight D. Eisenhower



# Documentation

Only done if there's  
time.

We will do it at the  
end.



# Documentation



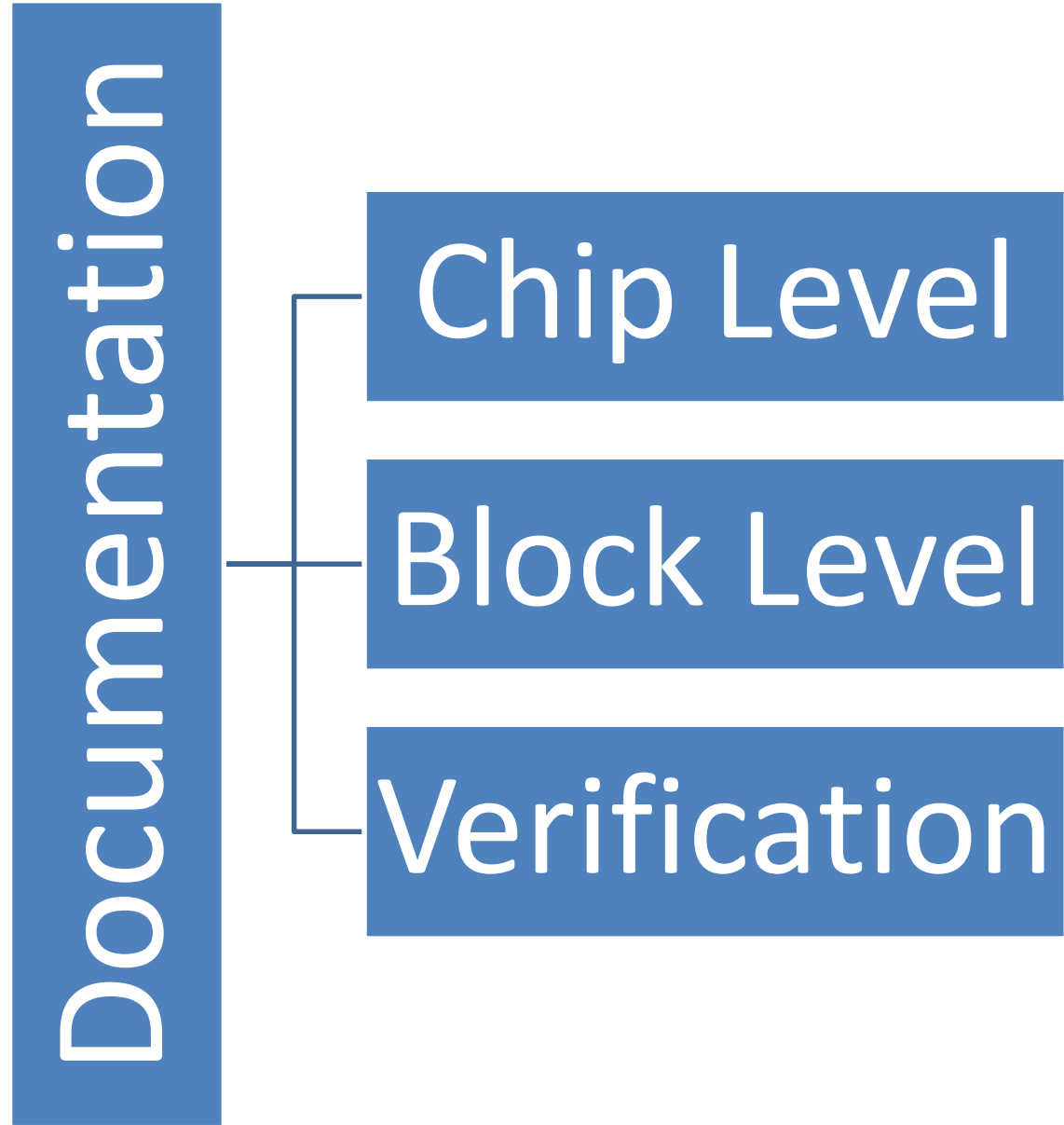
Should be primary  
way to communicate.

# Documentation Is Not..



- IM's
- Email's
- Meetings





# No Documentation...



Forces Verification  
and Software Teams  
to read RTL.

# Waiting Until the End Is Bad

Schedules like to be brought in.

Human memories are not great.

“Why Bother?”





In preparing for battle I have always found  
that plans are useless, but planning is  
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# Software Development is Long Tail



# Pressure is Everywhere.





# Fixing The Blame



# A Fable of The Flipped Interface



# WHAT CAN WE DO?



# Clean Up Documentation As We Go



# Develop Code to Replicate Bugs





# Learn How Your Software is Developed.







# We All Want Successful Projects, Not Just Tape-Outs

