FULL FORCE AHEAD

25YRS OF NIWeek May 20–23, 2019 | Austin, Texas
Everything a Software Engineer Needs to Know That Has Nothing to Do With Software Engineering
What This Presentation Is

Proverbs based on my failures.

I’ve fallen into a lot of holes in my career.

Bit.ly/ChrisCilino_EverythingYouNeedToKnow
Chris Cilino

- LabVIEW Center of Excellence Tech Lead – 2018
- CLA – 2014
  Project manage contractors, designer and executor of software engineering process, framework architect, teacher, mentor
- National Instruments – 2005
  Applications Engineer - 2 years
  DAQ R&D – 7 years
  LabVIEW Marketing - 2 years

NI Community Name: Chris_Cilino
LabVIEW Center Of Excellence Tech Lead

linkedin.com/in/chriscilino
bit.ly/ChrisCilino_ChampionProfile
Two Types of Problems

Political:
The activities associated with the governance of a community, especially the debate or conflict among individuals or parties having or hoping to achieve power.

Power: the capacity or ability to direct or influence the behavior of others or the course of events

Engineering:
The application of science and mathematics by which the properties of matter and the sources of energy in nature are made useful to people.
Our Hope…

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Why Are Political Problems So Influential?!

People aren’t formulas
People make judgement calls
People are unavoidable because YOU ARE IN A COMMUNITY!

Look, this is business.
But, But… I Don’t Wanna Play Politics!

If I just keep my head down and “do the engineering” everything else will sort itself out.

And that’s ok if you trust someone else to dictate your:

1. Company’s practices \ procedures \ tooling \ structure \ organization
2. Specific job
3. Career and its future
4. The way people listen (or don’t listen) to you
Ok Fine I’ll Play

Most engineers give up and realize politics is important, grudgingly play… and then make their biggest mistake:

We use engineering thought processes parlance to solve political problems.

For the rest of our time, I want to share some lessons I’ve learned to navigate political waters.
The Most Important Political Currency: Trust

The degree to which you are trusted will determine your political efficiency or efficacy.

Until you are trusted, you will have to do a lot of debating to affect change. Until you are trusted, you only be able to affect small changes.

Influence and authority organically follow those that have the greatest good in mind for the largest number of people.
Building Trust

How you build trust varies on your audience. Put yourself in their shoes.

Whenever you’re communicating, know what your audience cares about so you can appeal to their value system.
Building Trust – Identify Your Stakeholders

In your job your stakeholders are:

1. Yourself
2. Your boss
3. Your coworkers
4. Upper management

All stakeholders can win. It doesn’t have to be a “zero sum game”.
Building Trust In Yourself

If you don’t trust yourself, you can’t help people because you don’t think you have anything to offer.
Building Trust In Yourself

Keep a record of past success.

- Keep a 2 week summary of your accomplishments.
  Great for 1x1 with your boss.
  Demonstrates short term success.

- Always keep your resume LinkedIn up to date.
  Demonstrates long term success.
  Improves your marketability.
Building Trust In Yourself

Be willing to try new things, well outside of your comfort zone, and allow yourself to fail.

Fail fast. Learn from the failure and iterate. There’s no shame in failure. Persist until you solve the problem.

Never bash yourself publicly or privately. It doesn’t help you solve problems. It only causes you to doubt yourself.
Building Trust In Yourself – Story Time
Building Trust With Your Boss

The most important professional relationship you have is with your boss. The organization looks to your boss’ opinions as a proxy of you. Your boss has the most influence over your experience at your job.

Therefore tend to this relationship as you would a garden. Be intentional. Defend your boss’ impression of you.
Building Trust With Your Boss

What does your boss care about… really?

1. Projects are completed with efficient use of time and money.
2. The company is getting the most bang for its buck out of you.
3. A general feeling of progress and that things are “just working”.

Building Trust With Your Boss

What your boss doesn’t care about (or doesn’t want to have to): the details! You abstract details from your boss. The more you can abstract while demonstrating progress towards their goals, the more your boss will trust you.

If you don’t want to be micromanaged, don’t talk about details.

Never present a problem without a plan \ path to success.
Building Trust With Your Boss

Your boss has to make tons of decisions based on assumptions. Alleviate that stress, never add to it.

Never ask “what do you want?”. Always make a suggestion and let them refine. Present options, advantages, disadvantages, and your recommendation.

Anything that needs a decision is a chance for you to influence.
Building Trust With Your Boss

Take risks and be willing to estimate. Be willing to make a judgement call. But always keep your boss in the loop.

“I think <judgment call>, but I’ll let you know by <date> if it looks like I’ll need to make a revision.”
Building Trust With Your Boss

Say “yes” while saying “no”. The art of negotiation.

Yes! And I think we might need to add a week to the timeline.
Yes! If we’re ok cutting back a little on the feature set.
Yes! And \ If …
Building Trust With Your Boss

Involve your boss in your group’s success.

This is my boss.

Your boss is a human. They appreciate recognition too!
Building Trust With Your Coworkers

Coworkers: people who use your work or who’s work you use.
What do they care about?
1. Everyone wants to get their jobs done a little “better” with less pain.
2. We all want recognition.
Building Trust With Your Coworkers

Always concentrate on the engineering problem.

**PRO TIP**

People are never right or wrong. Ideas are right or wrong. Speak about the idea, not the person.

**PRO TIP**

We all make mistakes. Assigning blame is rarely helpful.
Building Trust With Your Coworkers

Give credit where credit is due.

**PRO TIP**

Praise your coworkers to their managers, their coworkers.

**PRO TIP**

Use your company’s employee to employee reward system liberally. “Rock Star Awards”.
Building Trust With Your Coworkers

Everyone is responsible for more than what they can do. Engineering problems are often harder than we anticipate. Be helpful (reasonably).
Building Trust With Upper Management

“Better to remain silent and be thought a fool than to speak out and remove all doubt.” — Abraham Lincoln

Yeah yeah… I get it. Don’t say stupid stuff to people in power.

But as engineers we wind up never saying anything at all. And that’s a missed opportunity!

Maybe Abraham Lincoln?
Building Trust with Upper Management

What do they care about?

The vision of your group \ division \ company and how well it is executing.

They REALLY don’t care about the details!
Building Trust with Upper Management

Be prepared for “water cooler” conversations.

**PRO TIP**
Always have a 15 second summary prepared about how your work relates to the bottom line (time or money) of the company.

**PRO TIP**
Being able to summarize the importance of your task keeps you aligned with the vision of the company.
Political Hazards: Defense Against the Dark Arts
Logical Fallacies

https://yourlogicalfallacyis.com/
Logical Fallacies

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Logical Fallacies

**strawman**

Misrepresenting someone’s argument to make it easier to attack.

Use phrases like “That’s close to what I mean. Let me take another swing at it to clarify.”
Logical Fallacies

Using double meanings or ambiguities of language to mislead or misrepresent the truth.

Use phrases like “I hate the English language. Words are often so overloaded! Did you mean X or Y?”
Logical Fallacies

Saying that the burden of proof lies not with the person making the claim, but with someone else to disprove.

Use phrases like “I like keeping an open mind and considering the data before chiming in. Can you help me understand your reasoning?”
Linguistic Trickery

- “True But Not Useful”: presenting information to give the impression of understanding without actually contributing, directly or indirectly, to a solution.
Dr. Macklin often brings his dog Champion to visit with the patients. He just loves to give big, wet, sloppy kisses!

Ask clarifying questions. I’ve NEVER looked like an idiot when asking questions to resolve pronouns to nouns. In fact, people trust me more!
Unhelpful Statements - Fear, Uncertainty, Doubt

1. Making vague, data-less, statements that induce fear, uncertainty or doubt are unhelpful
   - “I’m not sure this will work”.
   - “We’ve had problems before”.
   - “I just don’t know… it doesn’t feel right”
   - Etc.

2. These statements by themselves aren’t actionable and suggest no path to success.
Any Thoughts \ Questions?

Do This

Not That
Stay Connected During and After NIWeek

ni.com/niweekcommunity
facebook.com/NationalInstruments
twitter.com/niglobal
youtube.com/nationalinstruments
The “problem finder”… no one likes that guy

- Be solution oriented
- Don’t talk about what you can’t do. Talk about what you can do.
The “problem finder”… no one likes that guy

- My thanks to Mike Neal for helping me to grow in this area.
Timing

- Suggest an idea over time. Choose different words to break people in.
- Talk about an idea with numerous people. Get them talking about the idea.
- Don’t be afraid of no. Unless otherwise stated (or strongly implied) no means “Not now”.
There’s no such thing as ‘best” – only requirements.

- Best is a judgement call.
- Gather requirements from your stakeholders. Meet their expectations.
- “Best” often leads to over architecture, over optimization, project delays.
It’s all about that ROI - Prioritize

- State the options
- Describe the advantages and disadvantages of each option
- State why one option was chosen.

- NOTE: advantages and disadvantages are determined by context and requirements
Be ok with the unfinished

- Solve the problem “well enough”.
- Move on to another task.
- Revisit when you have time.
- Have a task tracking system.
  - LV Bookmarks
  - JIRA Tickets
  - Etc.
Nobody likes that guy…

- In software a bad community member is one who doesn’t make their work easy to use or follow
  - Bad Documentation
  - Poor Naming
  - Incoherent APIs
  - Poor SCC change list comments
  - Etc
Multiply your time

- Investing in things that solve multiple problems.
- Create systems for others to contribute into
  - Mentorship in a user group example