The incredible machine: when automation backfires

The hidden costs of automation

Matteo Valentini

Intro

Definition (Business English)

- **automation** /ˌɔːtəˈmeɪʃən/:

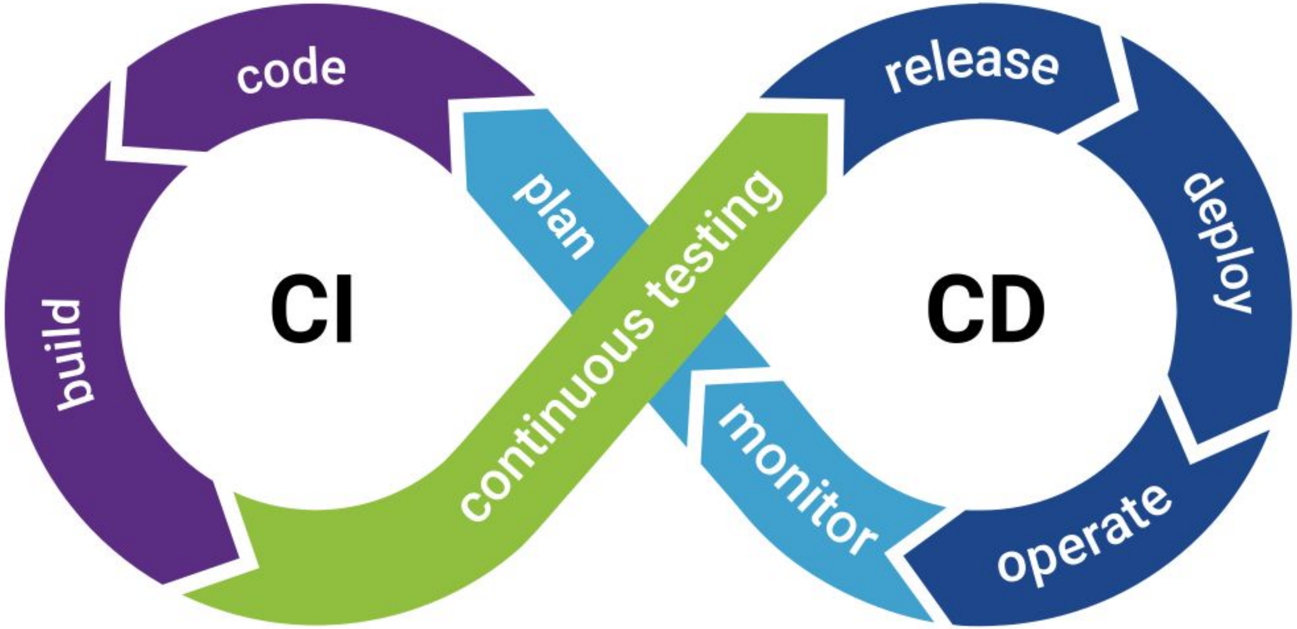
  the use of machines or computers instead of people to do a job, especially in a factory or office.

https://dictionary.cambridge.org/us/dictionary/english/automation

Benefits

- Speed
- Remove the uman error
- Scalability
- Repeatability
- Cost reduction

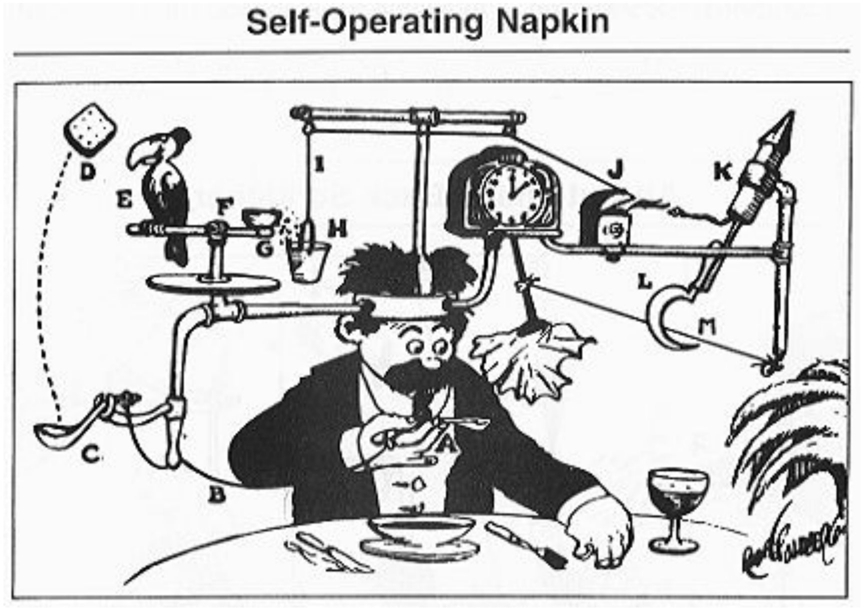
Examples


code
build
plan
continuous testing
CI
release
deploy
CD
monitor
operate

So… Where is the problem?

The reality

*A **Rube Goldberg machine**, named after American cartoonist Rube Goldberg, is a chain reaction–type machine or contraption intentionally designed to perform a simple task in an indirect and (impractically) overly complicated way.*



https://en.wikipedia.org/wiki/Rube_Goldberg_machine

Anti-patterns:
Four Knights of the Apocalypse

Four Knights of the Apocalypse

1. Technical Debt multiplier
2. Golden Hammer
3. Silver Bullet
4. Fragile Software

Technical Debt Multiplier

Try to solve complexity with complexity

Hutber's Law

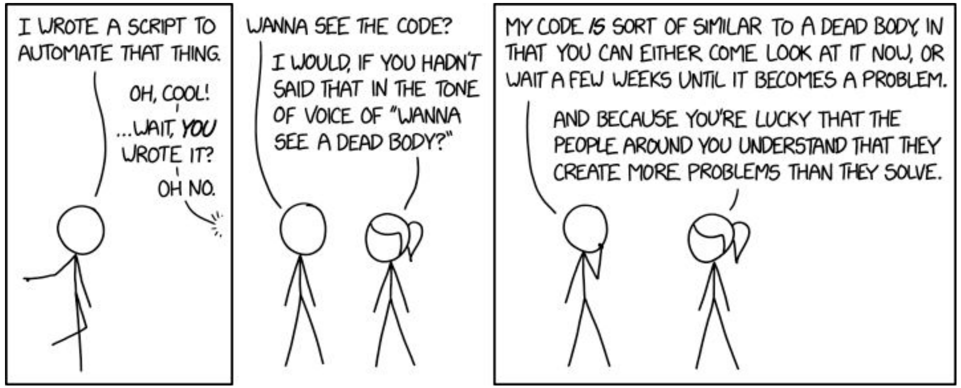
"improvement means deterioration"

(Patric Hutber)

https://en.wikipedia.org/wiki/Hutber%27s_law

Technical Debt Multiplier

- Create a new product based on a automation of N legacy procedures.
- Automate the execution of tests on every Git commit, because the process is too slow to execute and is too complex to setup.
- **Use the automation as a glue.**


I WROTE A SCRIPT TO AUTOMATE THAT THING.
OH, COOL!
...WAIT, YOU WROTE IT?
OH NO.
WANNA SEE THE CODE?
I WOULD, IF YOU HADN'T SAID THAT IN THE TONE OF VOICE OF "WANNA SEE A DEAD BODY?"
MY CODE IS SORT OF SIMILAR TO A DEAD BODY, IN THAT YOU CAN EITHER COME LOOK AT IT NOW, OR WAIT A FEW WEEKS UNTIL IT BECOMES A PROBLEM.
AND BECAUSE YOU'RE LUCKY THAT THE PEOPLE AROUND YOU UNDERSTAND THAT THEY CREATE MORE PROBLEMS THAN THEY SOLVE.

https://xkcd.com/2138/

Golden Hammer

Automate, Automate, Automate...

Law of the instrument

"Give a small boy a hammer, and he will find that everything he encounters needs pounding."

(Abraham Kaplan)

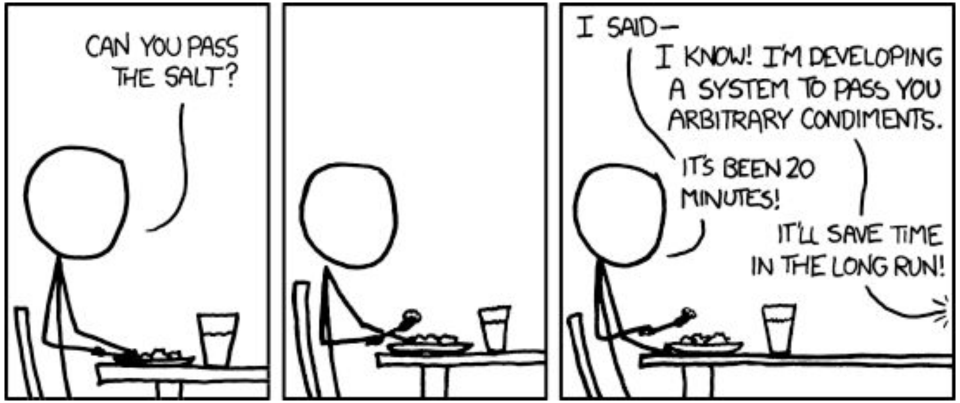
"If all you have is a hammer, everything looks like a nail."

Abraham Maslow

https://en.wikipedia.org/wiki/Law_of_the_instrument

Golden Hammer

- Use too many specifics feature of an automation platform (as GitHub Actions)
- A build procedure that can be execute only using the automation platform.
- Use GitHub Actions as cron-like platform 😅
- **Use the automation and the automations platforms even when is not necessary or need.**


CAN YOU PASS THE SALT?
I SAID—
I KNOW! I'M DEVELOPING A SYSTEM TO PASS YOU ARBITRARY CONDIMENTS.
IT'S BEEN 20 MINUTES!
IT'LL SAVE TIME IN THE LONG RUN!

https://xkcd.com/974/

Silver Bullet

Build one time and never touch

You aren't gonna need it (YAGNI)

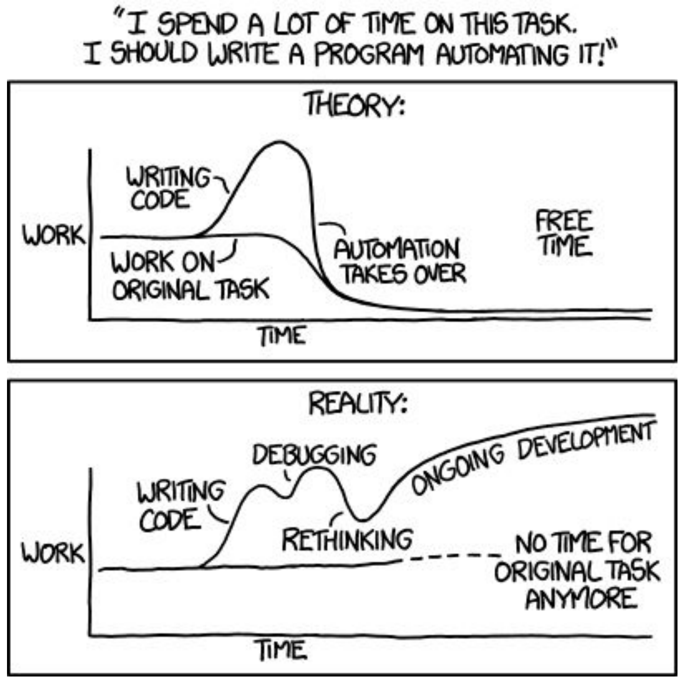
"Always implement things when you actually need them, never when you just foresee that you need them."

(Ron Jeffries) (XP co-founder and author of the book "Extreme Programming Installed")

https://en.wikipedia.org/wiki/Law_of_the_instrument

Silver Bullet

- Write an automation that is too tailored on the current problem.
- Write an automation that is too generic with many unnecessary parameters.
- **Use automation to solve all the problems in the past, present, and future.**



https://xkcd.com/1319/

Fragile Software

Too afraid to touch

Fragile Software

- The code is too complex → nobody wants to touch it → **fear to broke it**.
- Lack of documentation → nobody know how touch it → **fear to broke it**.
- Platform dependent → too much work to move it → **fear to broke it**.
- Work only on the platform → slow to edit/improve → **nobody want to use it**.

Solutions

Good Patterns

- Start with simple solution than evolve.
- Write maintainable code, you will need to improve in the future.
- Be sure the operations can be executed also outside the automation. platform.
- Use Makefile or shell script instead of embedded the code into the YAML files.
- Enable local dev environments.
- Write documentation also for your automation process.

Conclusion

The automation is also software, so we can apply the same principles of good software.

Thanks for listening!
Questions?

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Amygos

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