You Are Measuring Productivity Wrong

You Are Measuring Productivity...

(Wrong)

Less Wrong

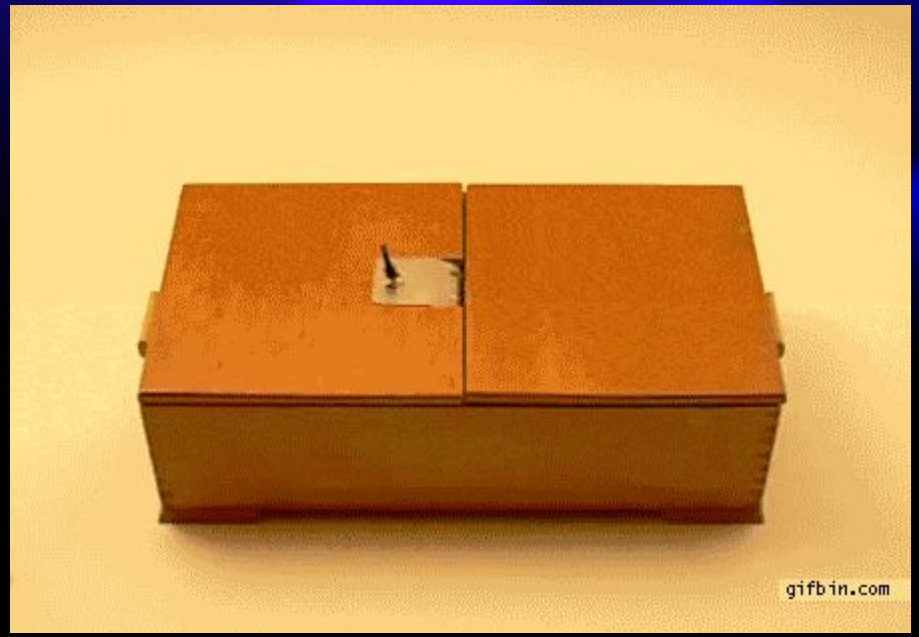
@Dedac
Richard Goforth

Purveyor of Improved
Developer Experiences
GitHub

Why?

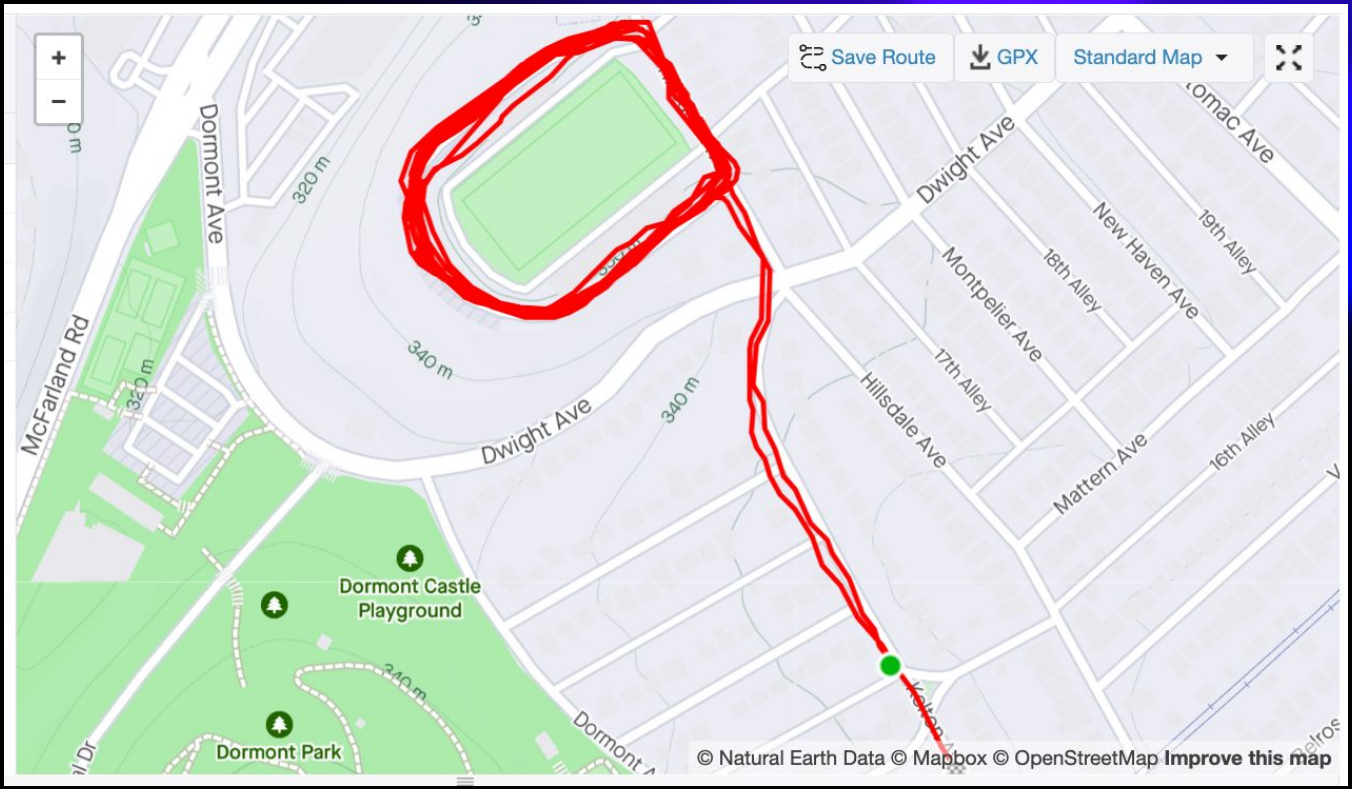
Copilots and AI
COVID - Remote Work
DevOps
Changing the Process

Define Productivity



Productivity Effectiveness

Productivity is not a fixed concept


Save Route
GPX
Standard Map
Dormont Ave
McFarland Rd
320 m
340 m
Dwight Ave
Dormont Castle Playground
Dormont Park
Hillsdale Ave
Montpelier Ave
Mattern Ave
New Haven Ave
17th Alley
18th Alley
19th Alley
16th Alley
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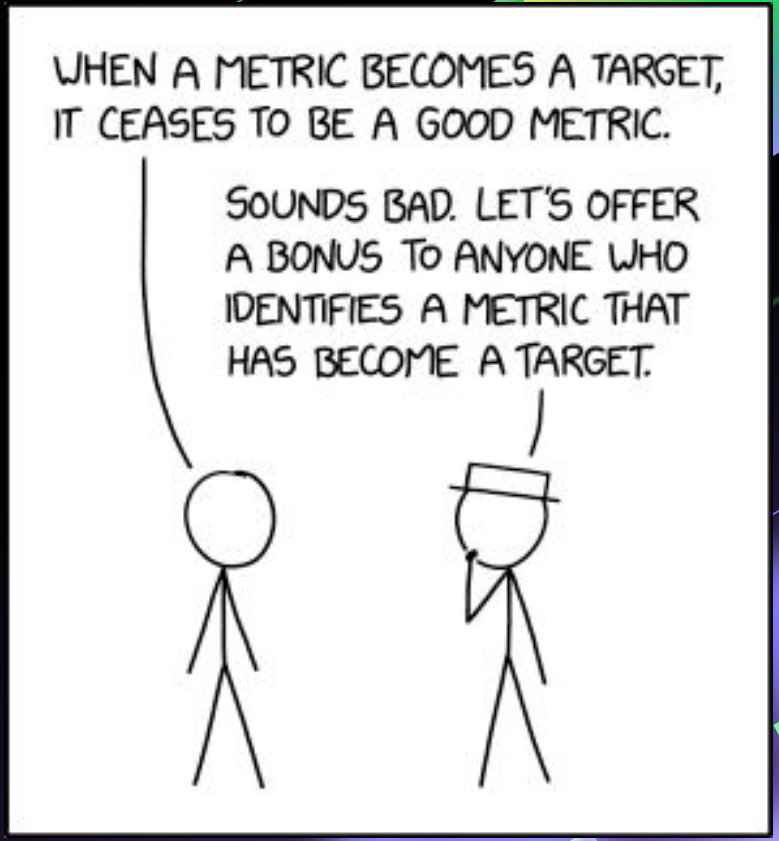
Long Term vs Short Term Productivity

“

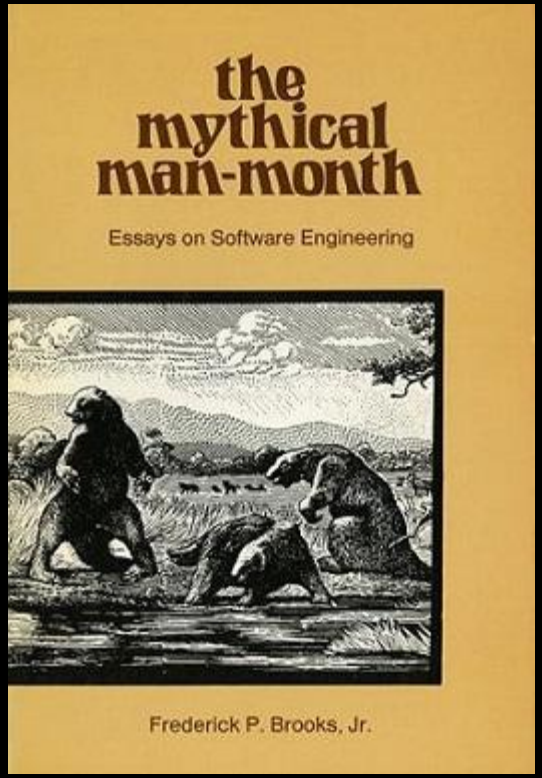
Measuring performance in software is hard
... the inventory is invisible
... we break down work relatively arbitrarily
... design and delivery happens simultaneously
... we change and evolve our design based on what we learn by trying to implement it.

Nicole Forsgren
Accelerate

Metrics


WHEN A METRIC BECOMES A TARGET, IT CEASES TO BE A GOOD METRIC.
SOUNDS BAD. LET'S OFFER A BONUS TO ANYONE WHO IDENTIFIES A METRIC THAT HAS BECOME A TARGET.

The Myth that never died



Communication Math

```
People * (People - 1) / 2
```

```
2  People = 1  channel
7  People = 21 channels
12 People = 66 channels
46 People > 1000 channels
```

“

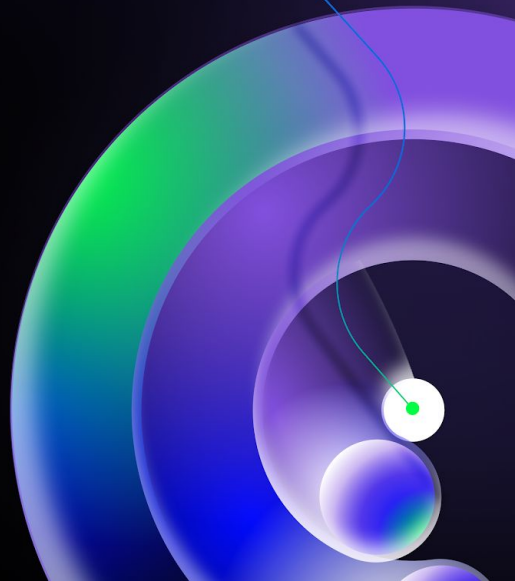
How does a large software project get to be one year late?

One day at a time!

Fred Brooks

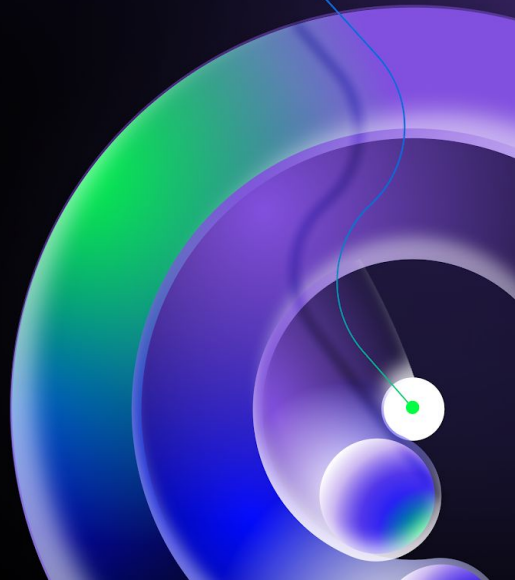
The Mythical Man-Month

Goals:
measure something useful for a change



Are you measuring the health of the process as well as the health of the output?

Some Frameworks



DORA

- Deployment frequency
- Lead time for changes
- Change failure rate
- Time to restore service

SPACE: A framework for understanding developer productivity

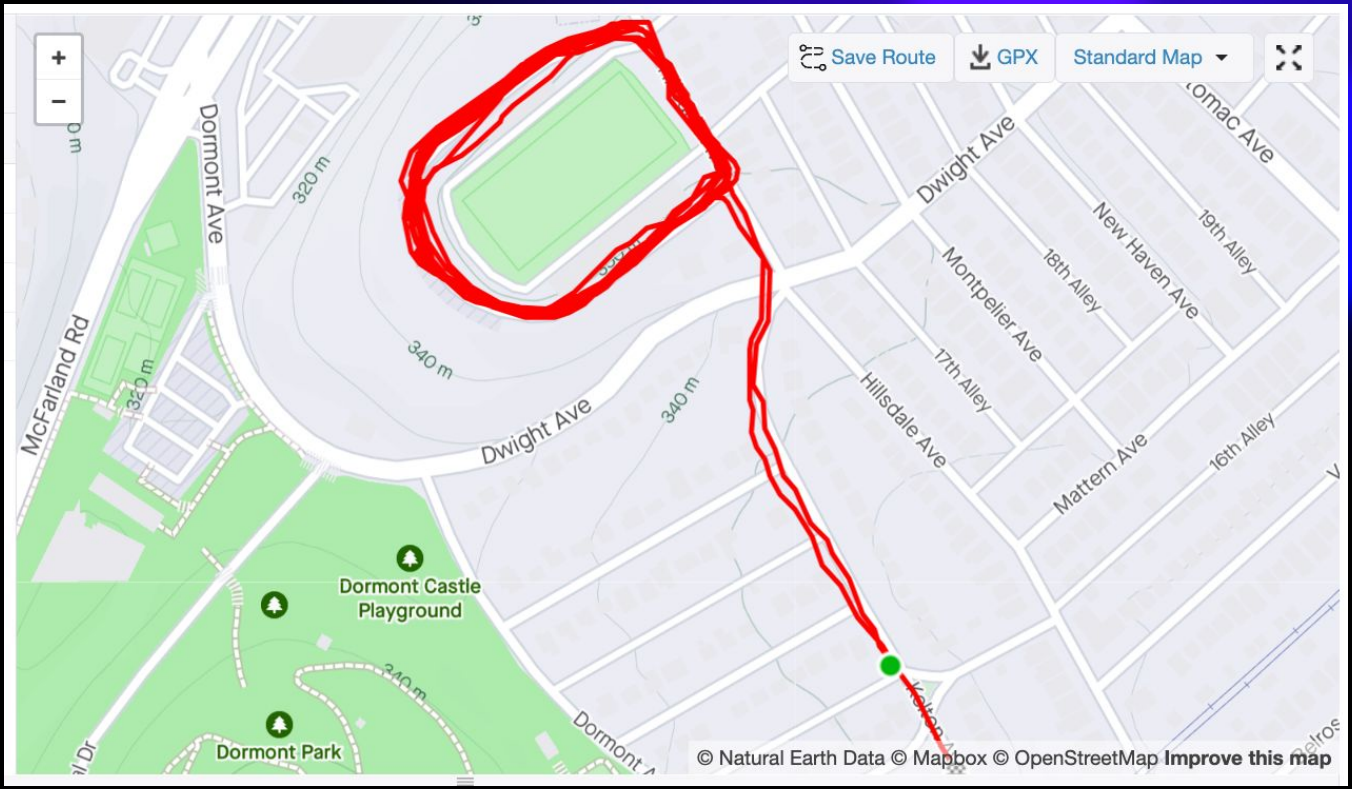
S Satisfaction and well-being

P Performance

A Activity

C Communication and collaboration

E Efficiency and flow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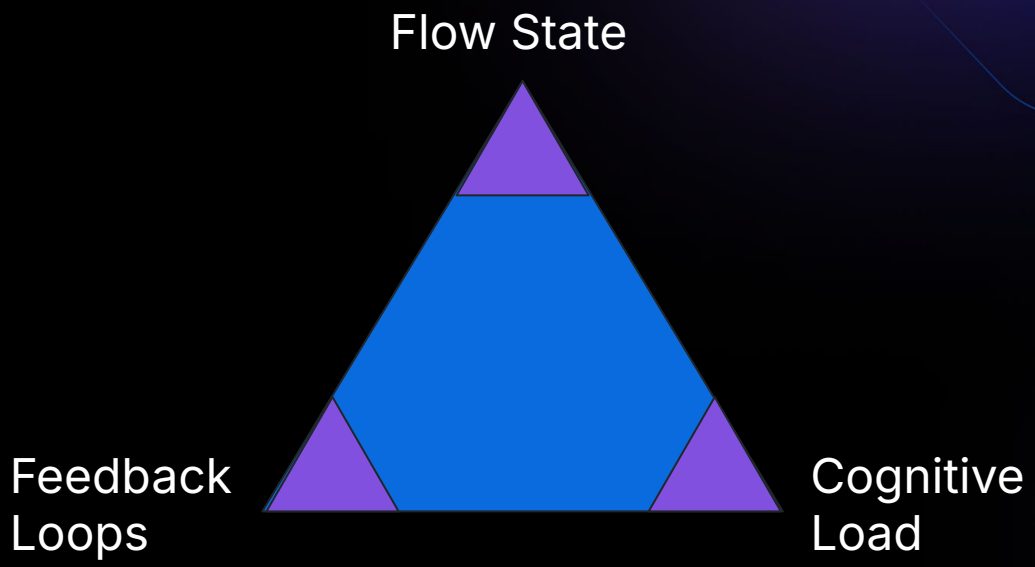
SPACE framework in action

Level	**Satisfaction & Well-being** How fulfilled, happy, and healthy one it	**Performance** An outcome of a process	**Activity** The count of actions or outputs	**Communication & collaboration** How people talk and work together	**Efficiency & flow** Doing work with minimal delays or interruptions
Individual One person	– Developer satisfaction – Retention* – Satisfaction with code reviews assigned – Perception of code reviews	– Code review velocity	– Number of code reviews completed – Coding time – # commits – Lines of code*	– Code review score (quality or thoughtfulness) – PR merge times – Quality of meetings* – Knowledge sharing, discoverability (quality of doc)	– Code review timing – Productivity perception – Lack of interruptions
Team or group People that work together	– Developer satisfaction – Retention*	– Code review velocity – Story points shipped*	– # story points completed*	– PR merge times – Quality of meetings* – Knowledge sharing, discoverability (quality of doc)	– Code review timing – Handoffs
System End-to-end work through a system (like a development pipeline)	– Satisfaction with engineering system (e.g., CI/CD pipeline)	– Code review velocity Code review – (acceptance rate) – Customer satisfaction Reliability (uptime)	– Frequency of deployments	– Knowledge sharing, discoverability (quality of documentation)	– Code review timing – Velocity/flow through the system

** Use these metrics with (even more) caution – they can proxy more things.*

DevEx Framework



	FEEDBACK LOOPS	COGNITIVE LOAD	FLOW STATE
PERCEPTIONS *Human attitudes and opinions*	• Satisfaction with automated test speed and output • Satisfaction with time it takes to validate a local change • Satisfaction with time it takes to deploy a change to production	• Perceived complexity of codebase • Ease of debugging production systems • Ease of understanding documentation	• Perceived ability to focus and avoid interruptions • Satisfaction with clarity of task or project goals • Perceived disruptiveness of being on-call
WORKFLOWS *System and process behaviors*	• Time it takes to generate CI results • Code review turnaround time • Deployment lead time (time it takes to get a change released to production)	• Time it takes to get answers to technical questions • Manual steps required to deploy a change • Frequency of documentation improvements	• Number of blocks of time without meetings or interruptions • Frequency of unplanned tasks or requests • Frequency of incidents requiring team attention
KPIS *North star metrics*	• Overall perceived ease of delivering software • Employee engagement or satisfaction • Perceived productivity		

Gather Your Data

Survey
Have someone that knows tell you

System
Write some code to tell you

Just a Moment of Your Time...

Perception vs Reality

Practical Metrics

Survey Data

Satisfaction
What does it mean to enjoy my work?

Efficiency / Friction
We can perceive efficiency where we can’t measure the system well

Performance
Is my output valuable?

Communication
How does my team communication work?

System Data

Velocity (activity)
How much of our estimate are we completing

Defect rate
Did the changes break things?

Cycle Time
Various Subsets of Cycle Time can find bottlenecks

Code Stats
Cyclomatic complexity, method lengths, etc

Using Metrics Wrong

Velocity
This number keeps going up, we must be doing more? Local metric, Late by a year one day at a time

Build Failure Rate
How often do you build, other factors can play a big role, especially across teams

Documentation Created
Variable quality, changing needs, who is the owner and the Audience?

Test Coverage
Time spent on covering low-value code is time not building something useful

What Now?

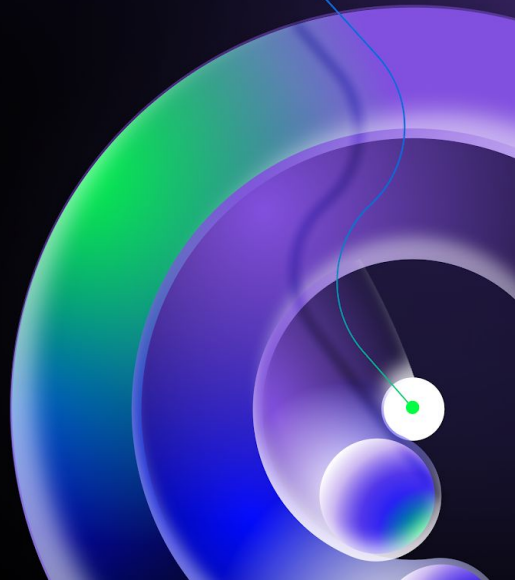
Developer
Look at the metrics you are using or not using and consider the value

Team Lead
What metrics make the most sense for your team?

Dev Director
Categorize metrics and regularly evaluate what you are measuring

C-Level
Rethink your ideas of software productivity and what you can expect from your teams

Measure Something Useful for a Change



Find Metrics
Change Metrics
Use Counter-Metrics

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