

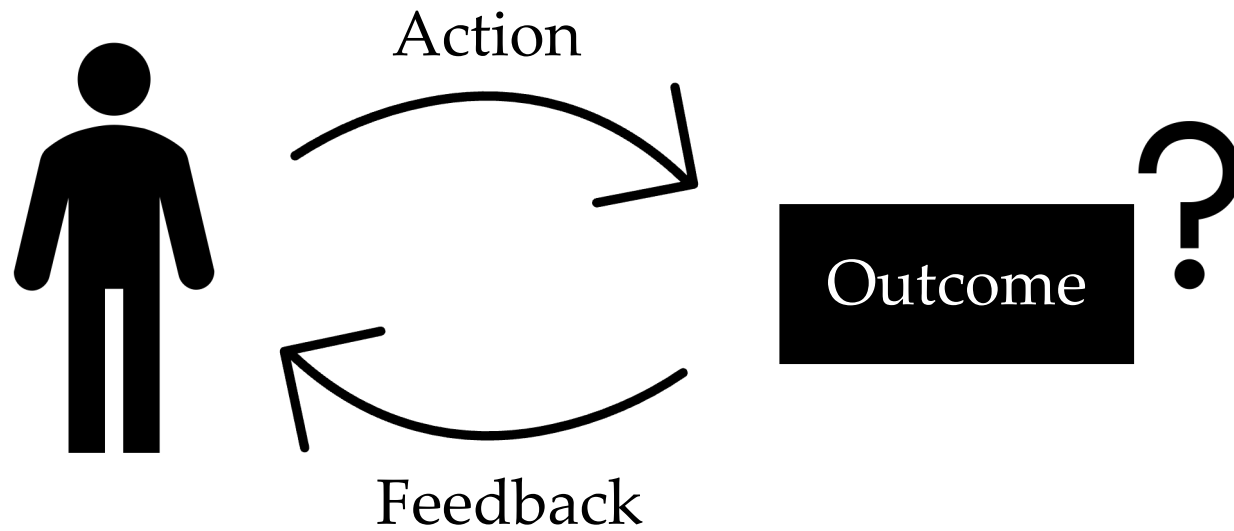


# Closing the Loop: The Role of Feedback in Continuous Software Engineering

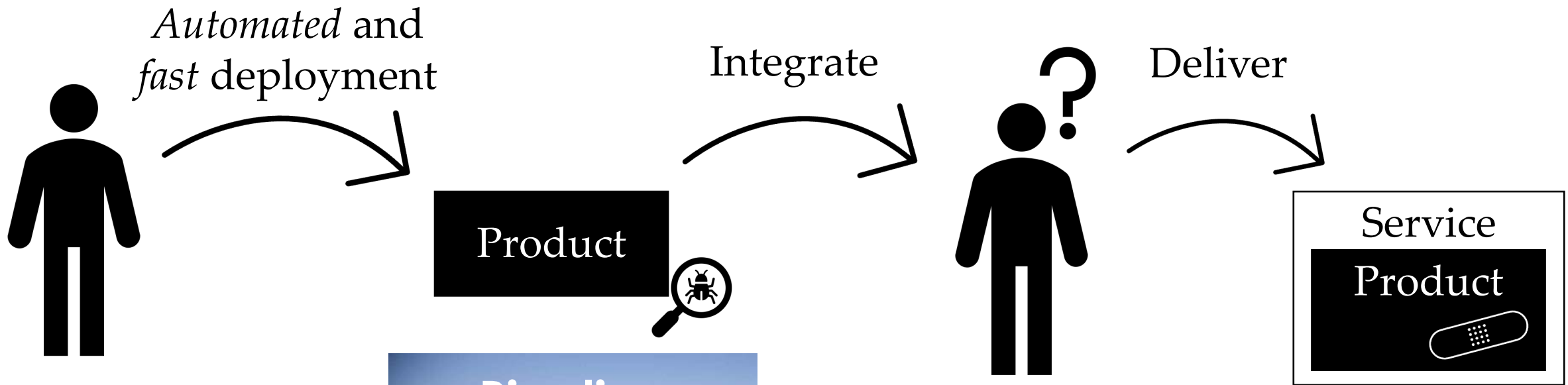
 Franz Zieris, Blekinge Institute of Technology

Hybrid Working and Continuous Engineering Conference  
4<sup>th</sup>–5<sup>th</sup> September 2023, Stockholm

# A Feedback Loop



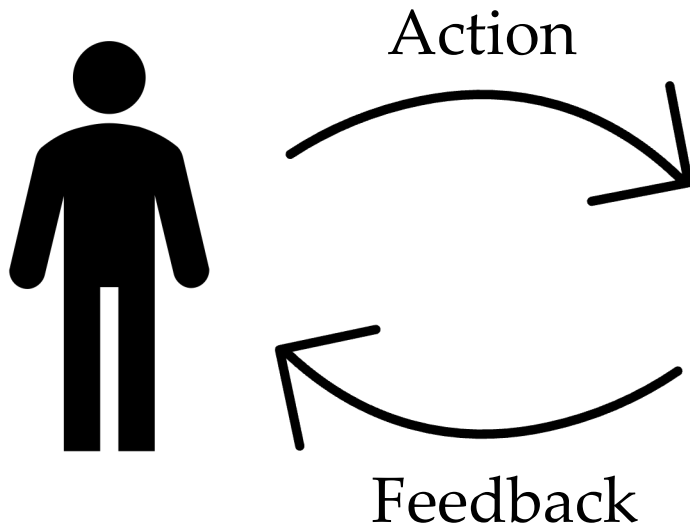
# Importance of Feedback



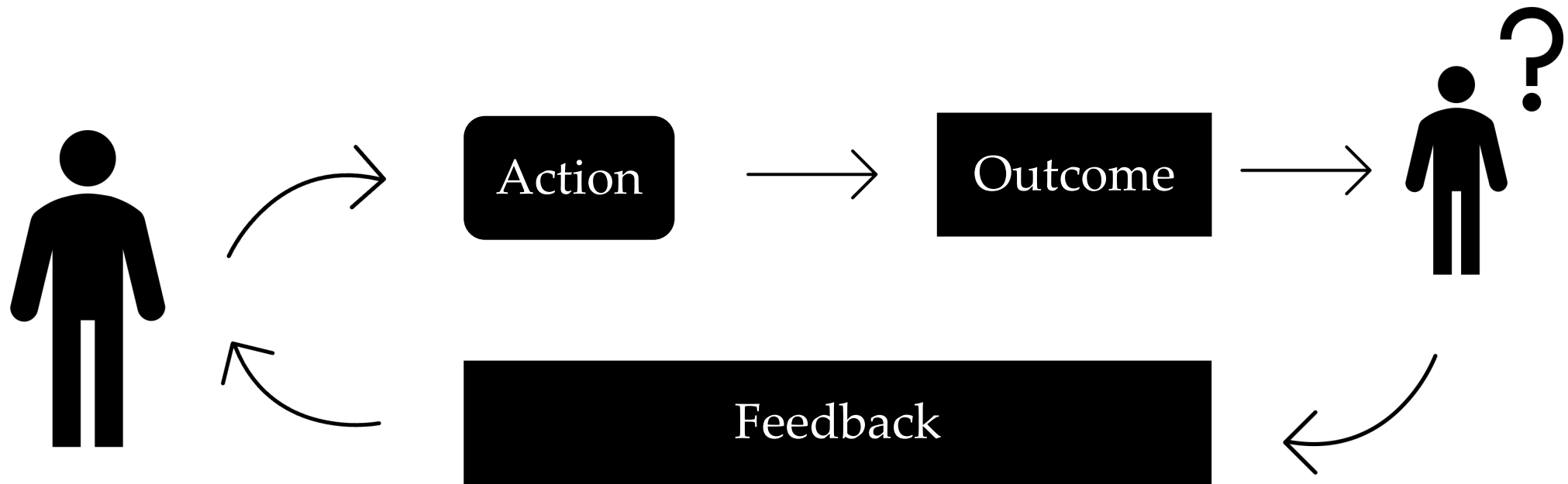
*"If most of your guess are wrong,  
then increasing throughput  
only creates more waste faster."*

– Charles Lambdin (Program Manager at Intel)

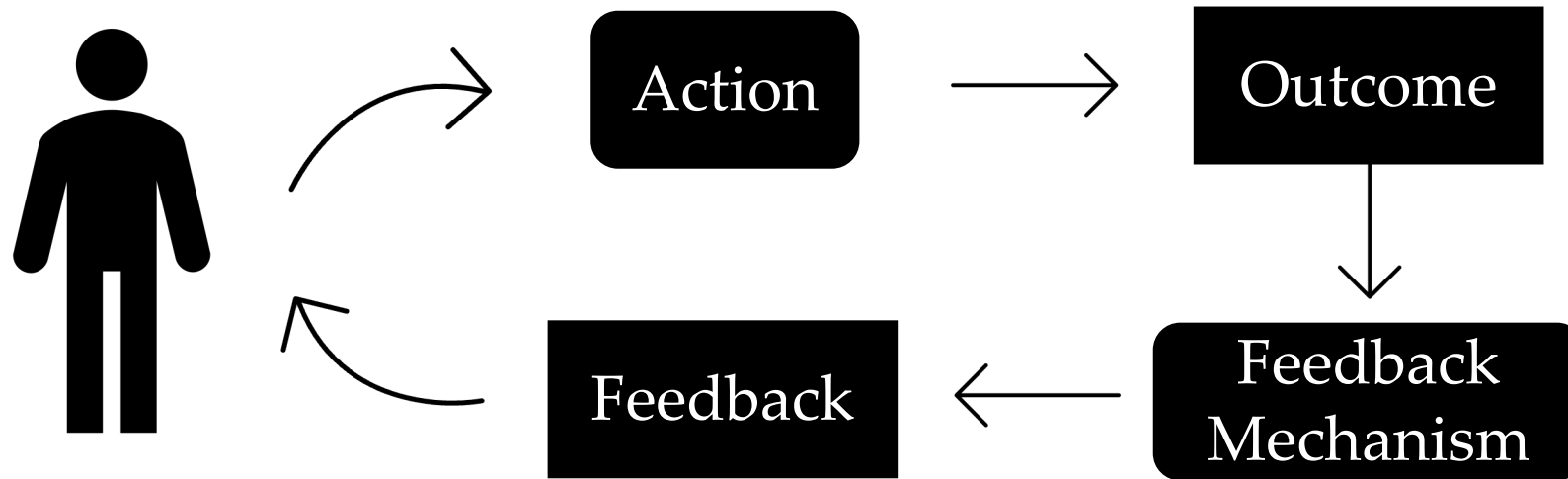
# Importance of Feedback



# A Feedback Loop



# A Feedback Loop (improved model)



# Syntax highlighting

```
let msg = "Unexpected format";
log.info(msg);
```

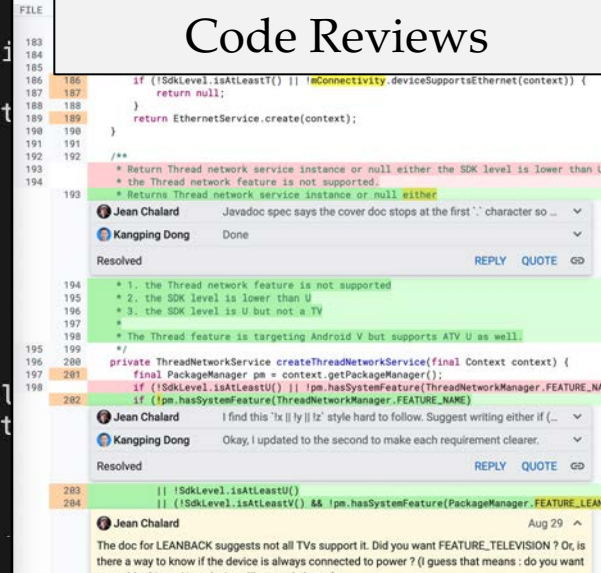
# Unit Tests

```
> busylamp-signavio-connector@0.0.3 test
> jest test/
```

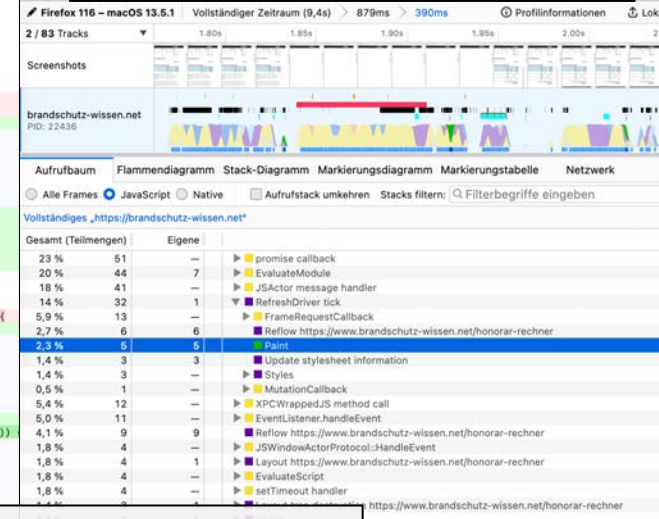
```
FAIL test/busylamp.api.test.js
PASS test/busylamp.report.test.js
PASS test/excel.test.js
PASS test/base64.test.js
PASS test/util.test.js
```

Test Suites: 1 failed, 4 passed, 5 total  
Tests: 1 failed, 14 passed, 15 total  
Snapshots: 0 total  
Time: 0.43 s, estimated 1 s  
Ran all test suites matching /test\/i.

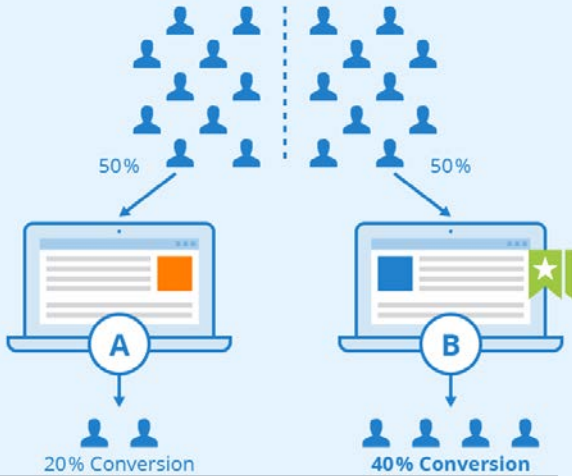
# Code Reviews



# Benchmarks



# Feedback Mechanisms

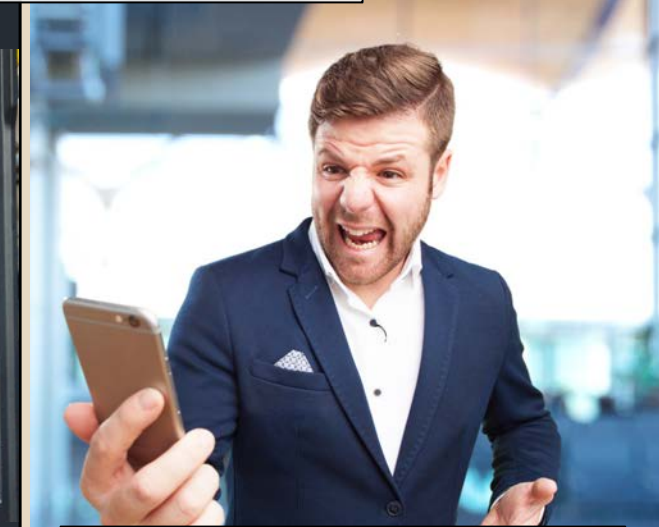


A/B Testing

User Bug Reports

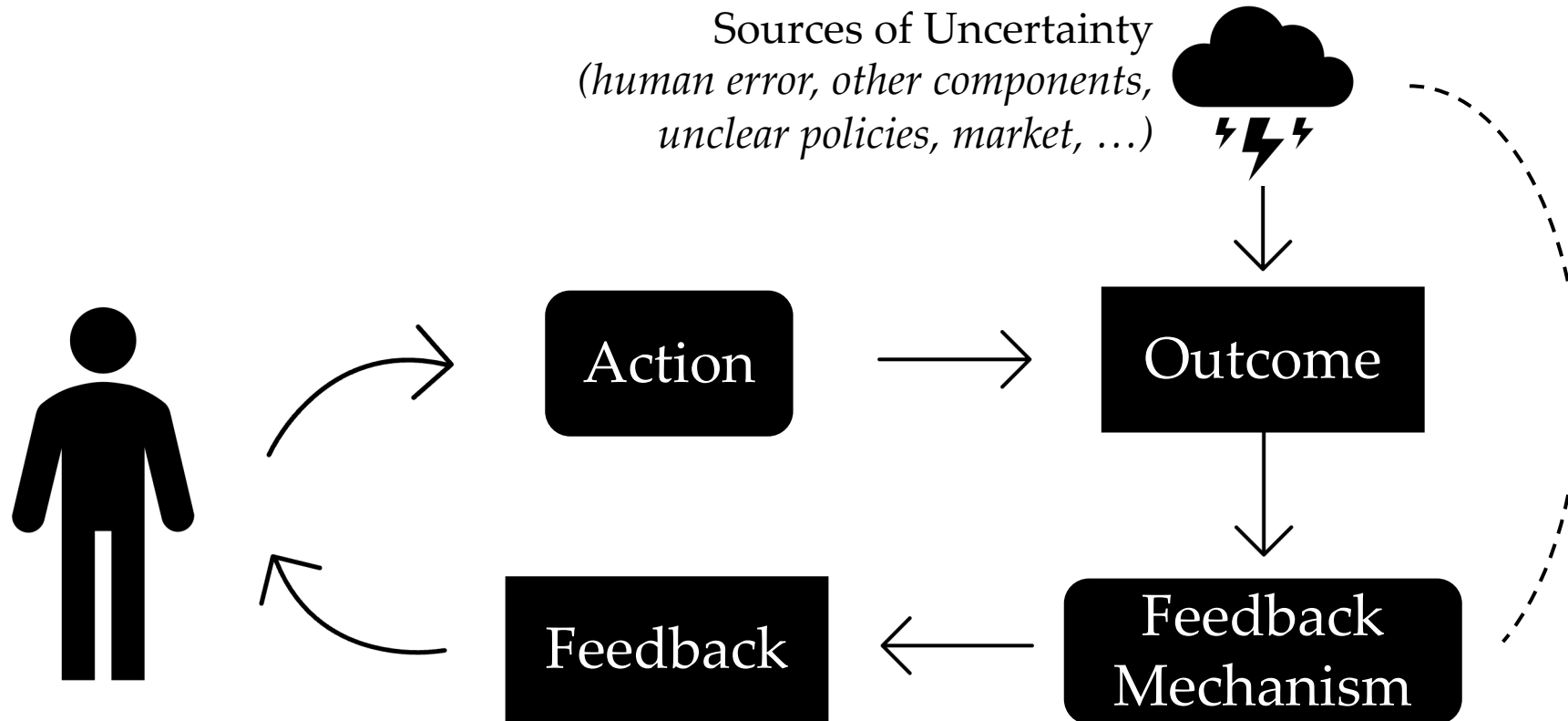


Telemetry



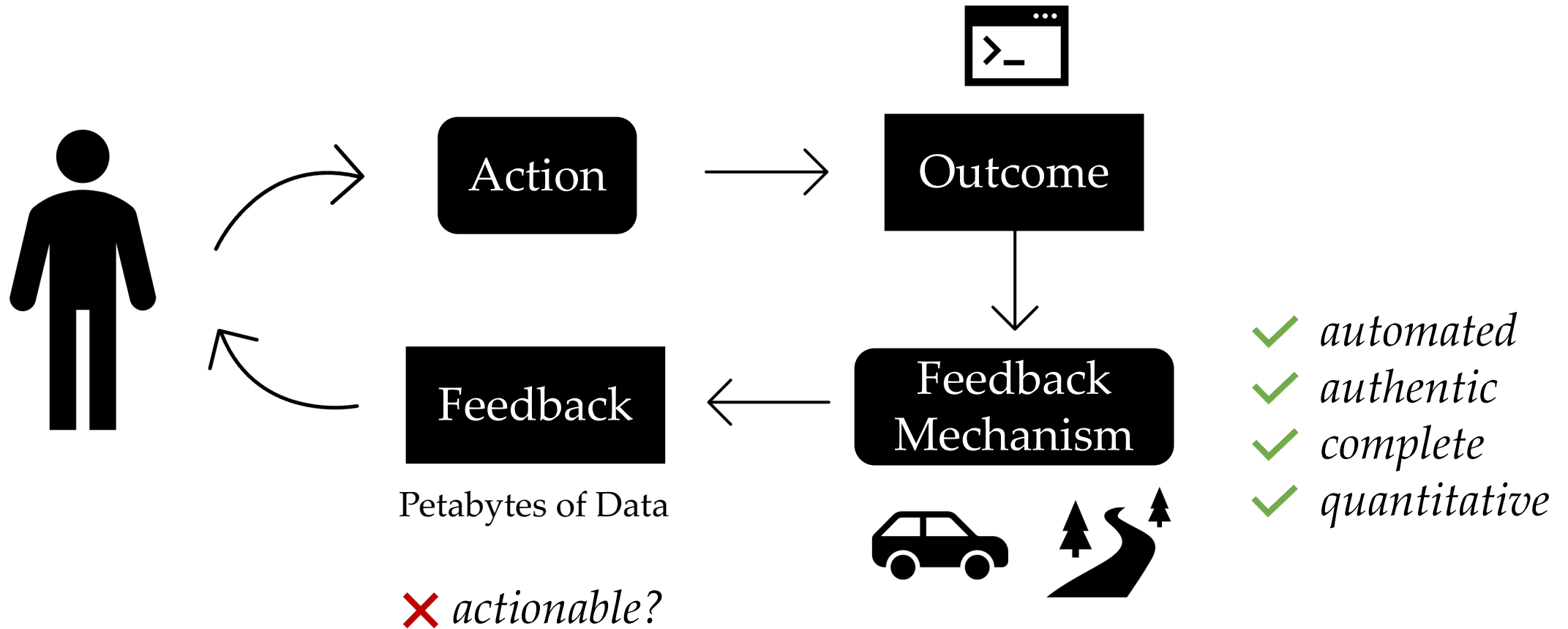
Angry Customer Calling

# A Feedback Loop (final model)

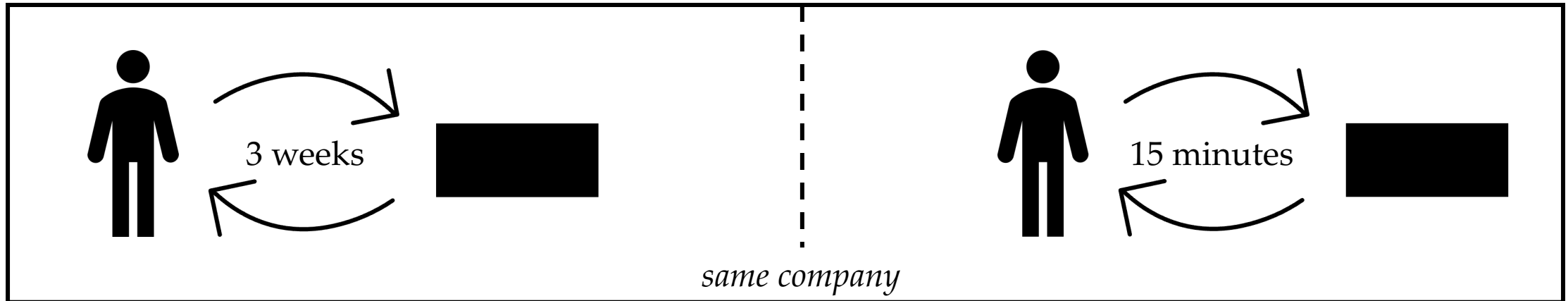




# Good Feedback is *actionable*



# Good Feedback is *timely*



feedback as interrupt, disconnected from action

feedback only when something is broken

**no feedback = "good"**

feedback is *part* of action, we wait for it

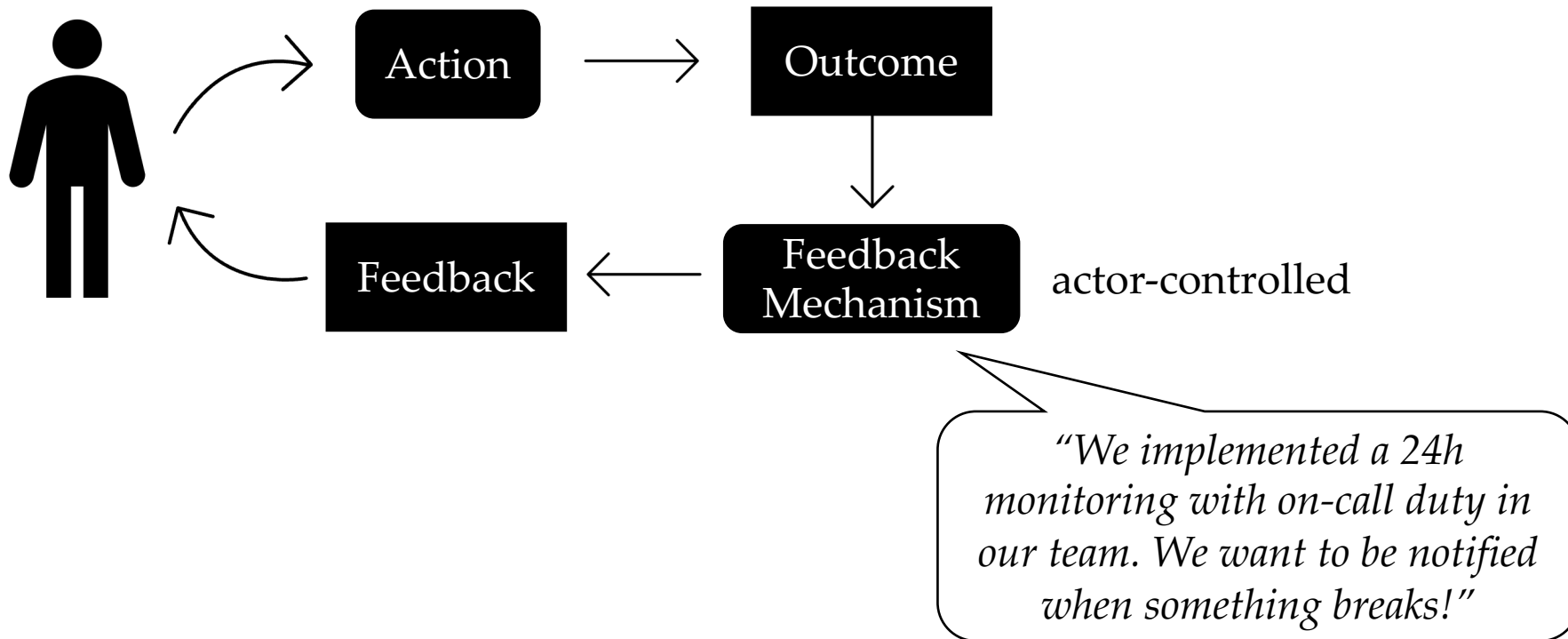
feedback is expected, for every action

**no feedback = something is broken**

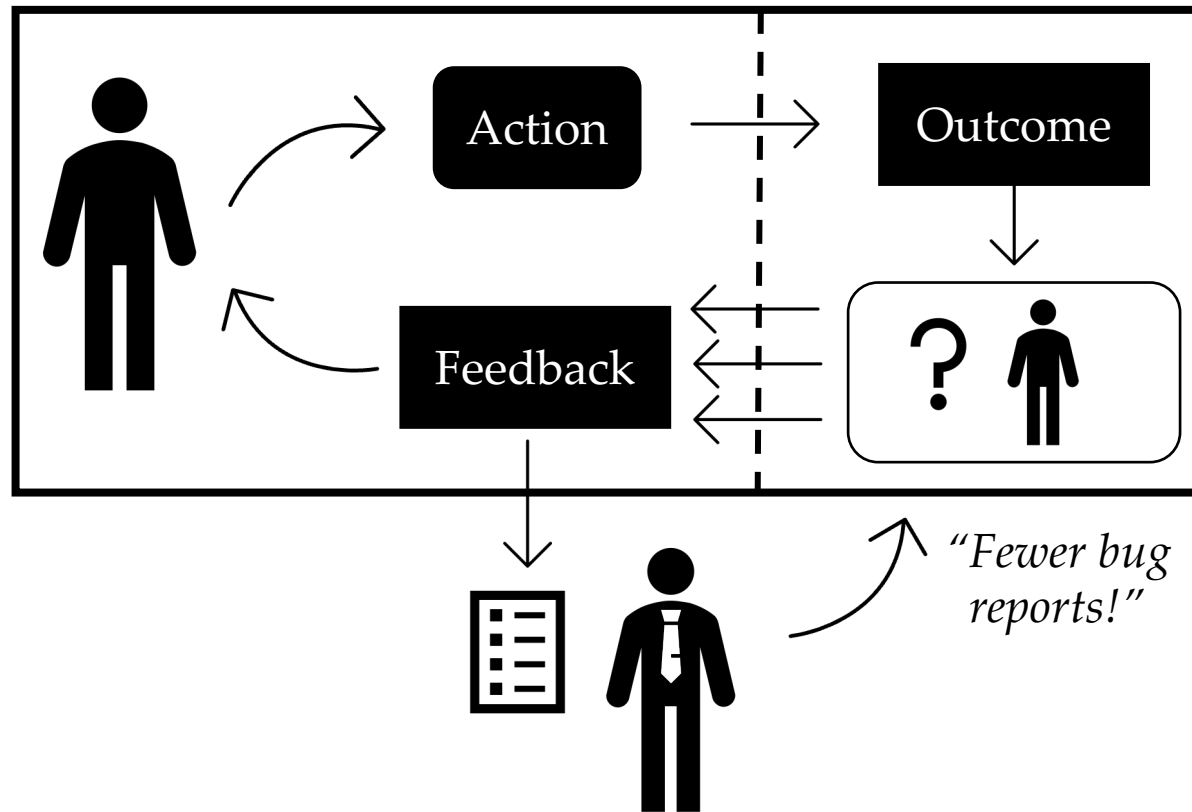
*Shooting arrows in the dark*

*Aiming with a firehose*

# Self-Governed Feedback Loops



# Corporate Feedback Loops



*"It takes hours to fill the mandatory fields, even though the customer's issue is one sentence."*

*"I'm not allowed to use all channels. I have to find someone with the proper access first."*

*"There are at least three feedback channels. I get the same response from each: Try the other!"*

*"We don't get enough time and people to do proper testing. They don't want too many bug reports."*

*"Fewer bug reports!"*

# Side Note

Case study on the collapse  
of the **Soviet Union**

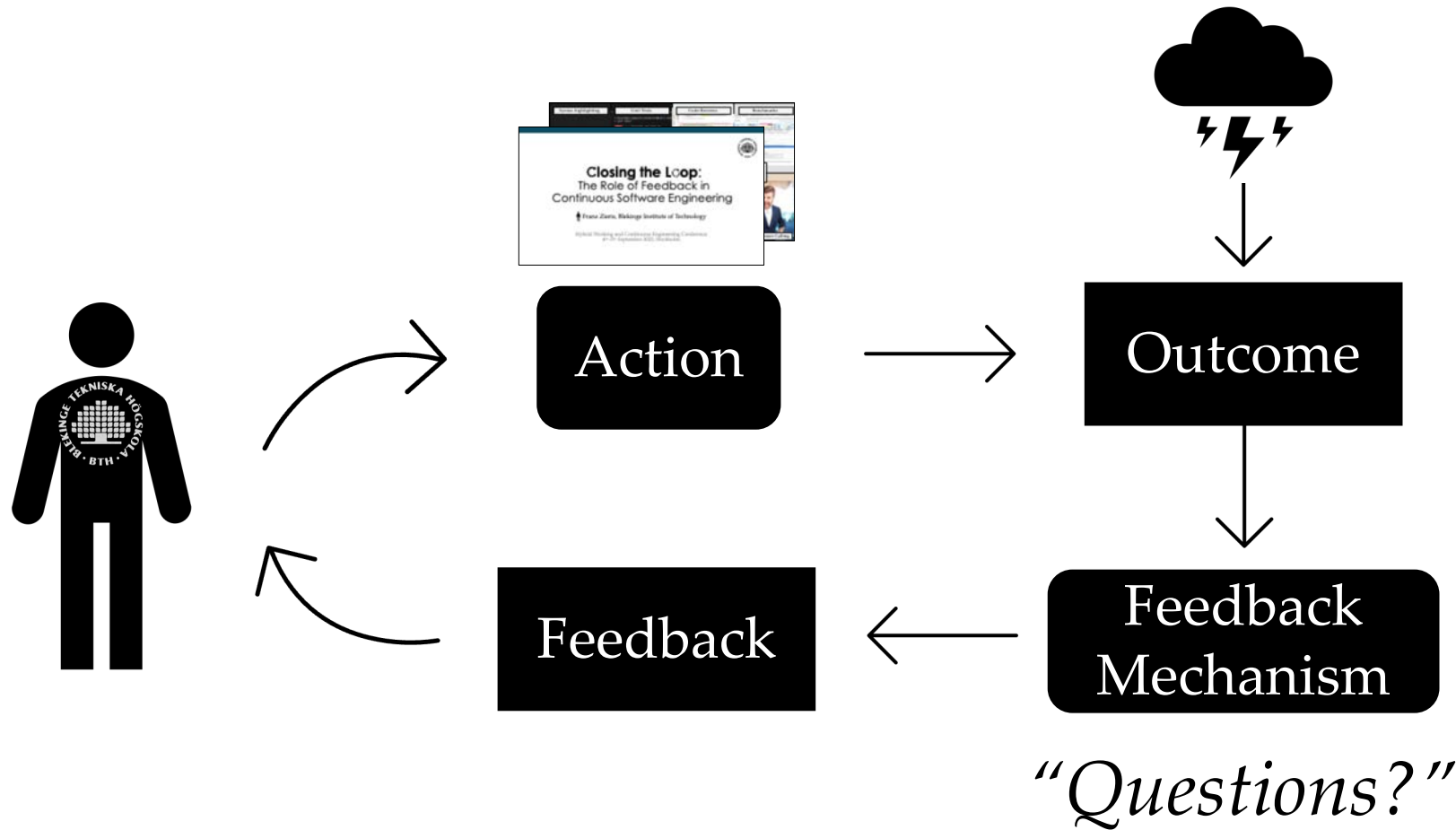
From a case study on a failed enterprise.

Main aspect: **Disincentives in managerial system**, such as ...



1. *Managers not inclined to pursue technological paths that could lead to their own **obsolescence**.*
2. *Managers receive no rewards for **taking risks**.*
3. *All resources are fully committed, so it's difficult to divert resources to **innovation**. In addition, **experimentation** increases the risks of failing to meet one's quotas.*
4. *No incentive to produce better products for other departments. Focus on quantitative results: Managers **cut corners on quality**.*
5. *Well-run departments were **punished with greater work loads**, poor performing ones were rewarded with lower quotas.*

# A Feedback Loop



# What's next?

- How large are self-governed feedback loops in your company?
- How do you assess your feedback mechanisms?
- Do you have open feedback loops?  
(e.g. feedback not finding its recipient)

What we do:

Develop a framework to evaluate feedback loops

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# Credits

## Images



<https://fhba.com/fhba-joins-coalition-opposing-pollution-incident-reporting-rule/sewage-facebook/>



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<https://twitter.com/AndreSegers/status/1336449458918158337>



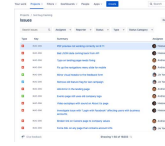
<https://www.seobility.net/de/wiki/images/2/24/AB-Testing.png> (CC BY-SA 4.0)



[https://www.freepik.com/free-photo/young-businessman-angry-expression\\_1010847.htm](https://www.freepik.com/free-photo/young-businessman-angry-expression_1010847.htm)

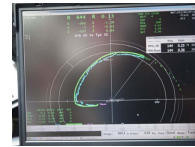


Screenshot: <https://android-review.googlesource.com/c/platform/packages/modules/Connectivity/+2721333/16..17/service-t/src/com/android/server/ConnectivityServiceInitializer.java> (2023-09-04)



Screenshot:

<https://www.atlassian.com/software/jira/templates/bug-tracking> (2023-09-04)



<https://jenikirbyhistory.getarchive.net/media/s128e010031-sts-128-telemetry-data-on-flight-deck-during-separation-bcc2c5>

## Other

- Case study on Soviet Union collapse: Michael Parent, *Blackshirts and Reds* (1997), City Lights Books. Chapter 4