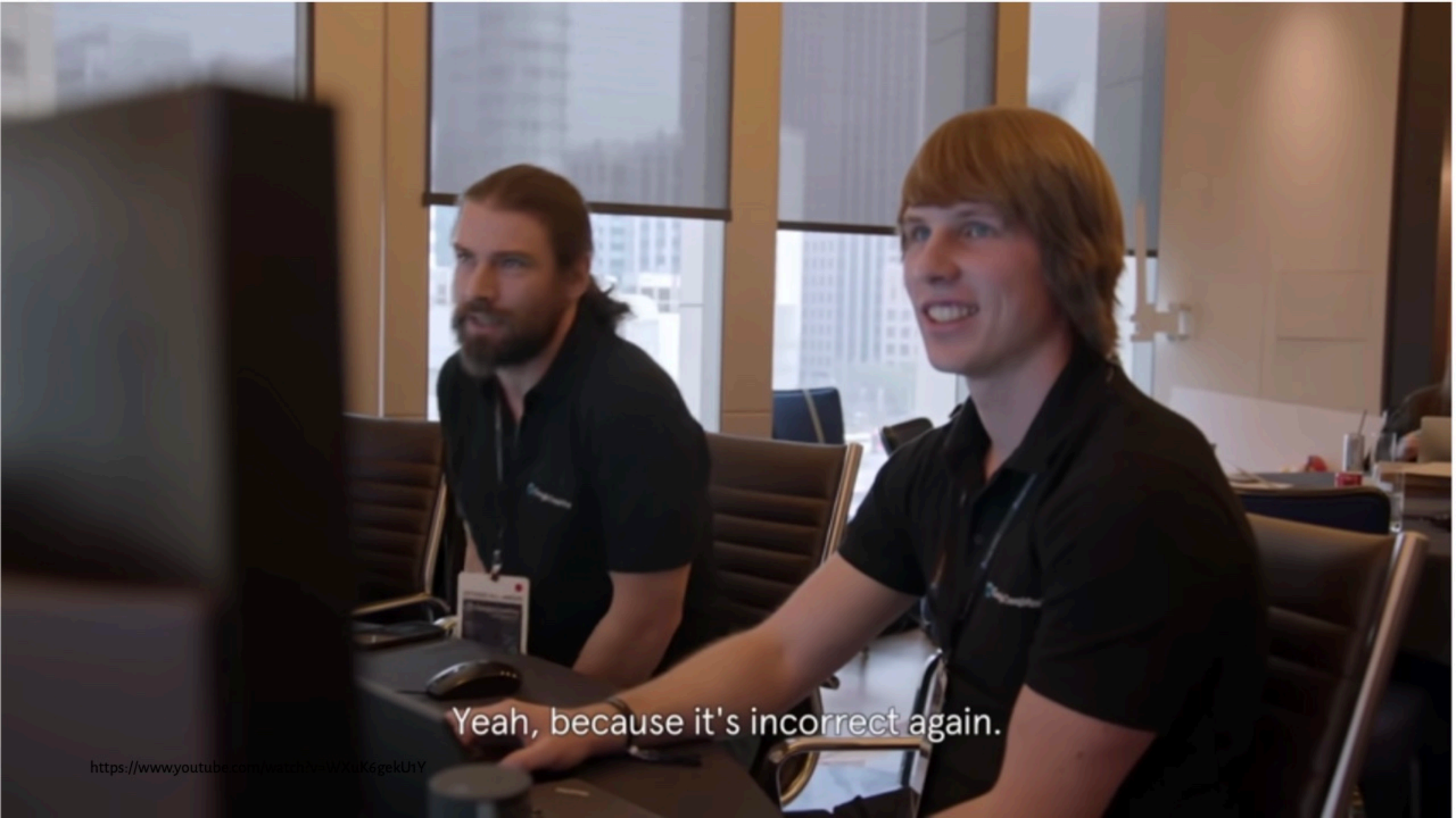
# The Next 20 Years for Requirements Engineering

gojko.net/s/2023-reconf.pdf

| Requirement | 1980-2000 | 2000-2020 | 2020-2040 |
|---|---|---|---|
| **Objective** | Analyse and describe processes | Coordinate experts and stakeholders | ??? |
| **Duration** | Months | Weeks/Days | ??? |
| **Activity** | Individual | Collaborative | ??? |
| **Tools** | Word/Excel | Tickets/Wikis | ??? |
| **Criterion** | Accuracy | Business value | ??? |

LEE SEDOL
01:25:29
ALPHAGO
01:38:39
I don't really know if it's a good
or bad move at this point.
50:46 / 1:30:27

allenge Match
8 - 15 March 2016
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
Is it fair to say
that AlphaGo made a mistake?
1:17:05 / 1:30:27




https://www.youtube.com/watch?v=WXuK6gekU1Y

## Challenge #1

# It will be a lot more difficult to know for certain what is "correct"

ai.stanford.edu/~ronnyk/ExPThinkWeek2009Public.pdf

that appears more frequently, a route favored by rats and other nonhuman animals, o
route preferred by humans. If the colors are shown randomly, the first strategy le
oss; the second strategy, preferred by humans who attempt to find the hidden pattern
e. Humans therefore commonly lose to a rat (Mlodinow, 2008).

our best efforts and pruning of ideas, most fail to show value when evaluated
th reports that success rates of ideas in the software industry, when scientifically eva
Our experience at Microsoft is no different: only about 1/3 of ideas improve the met
some bias in that experiments are run when groups are less sure about an idea, but th
azon, for example, it is a common practice to evaluate every new feature, yet the

scover the good and bad ideas after they launch, even if they do not run a controlle
ither extremely good or extremely bad. For most ideas, the change in key metrics wi
that attempt to cut corners and run sequential experiments are ill-advised, as it is v
e attempts to detect. Finally, if a team is not testing the idea, but rather launching it,
changed their rating system from yes/no to 5 stars, they lost over 80% of responses
hat version! If a metric drops by 3%, the chances that anyone will discover it and st

€6.00

| | |
|---|---|
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| Subtotal | €6.00 |
| Add promotion code | |
| Total due | €6.00 |

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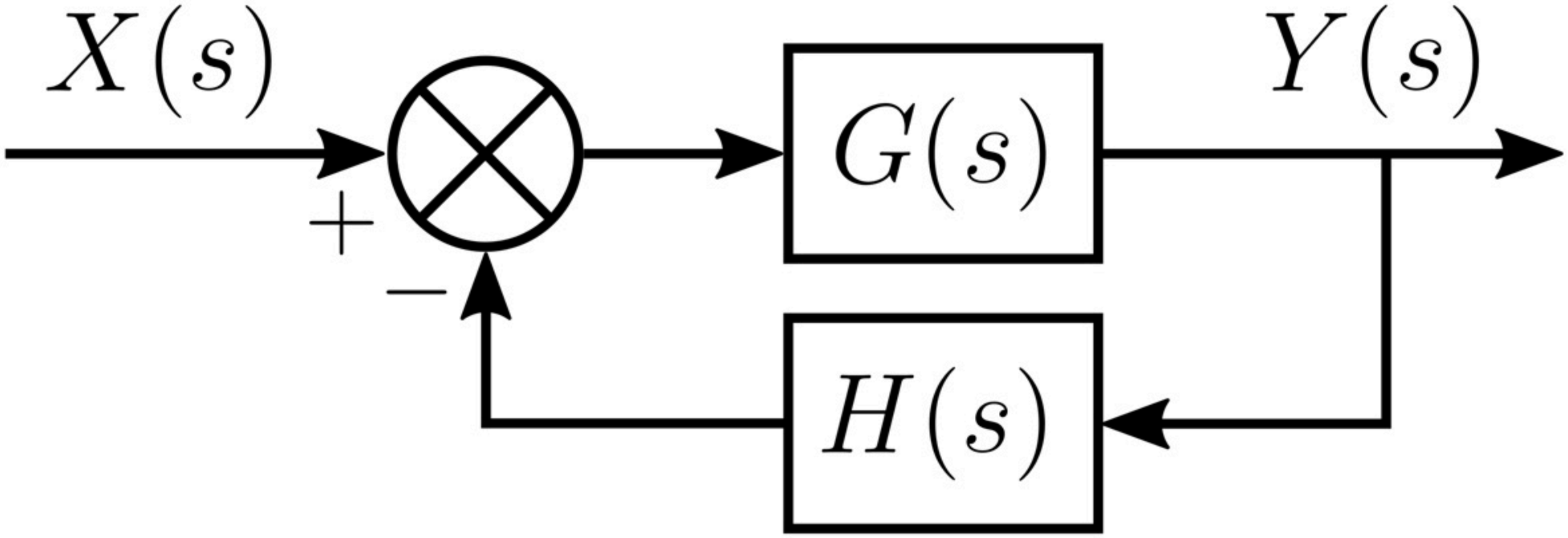
Prediction #1

# RE will involve a lot more research and modelling

Challenge #2

# Timelines will get shorter


$X(s)$
$Y(s)$
$G(s)$
$H(s)$
+
−

# Feedforward » Feedback

## Feedforward » Feedback

— Oscillations

— Runaway processes

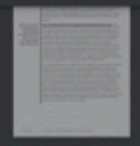
— Local maximums

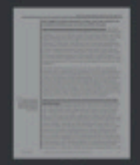
# *A £75m "Agile" BBC IT project has evaded scrutiny...*

https://www.theregister.co.uk/2016/05/10/nao_bbc_projects_agile/

**A £75m "Agile" BBC IT project has evaded scrutiny because managers could make up the benefits as they went along...**

https://www.theregister.co.uk/2016/05/10/nao_bbc_projects_agile/





https://oig.hhs.gov/oei/reports/oei-06-14-00350.pdf

pieces are not well understood at the outset. An advantage of agile development is that each increment, often completed in two-week "sprints," results in a functioning product that can be tested, so that the business owners (in this case, CMS staff) responsible for a particular process can assess whether the software meets the project's needs and adjust business requirements accordingly. This ability to adjust, however, enabled policymakers to frequently change business requirements and technical specifications on an ongoing basis. Changes made through the agile development process must still be properly considered, documented, and communicated. Managers at CGI Federal reported in interviews that the frequency of CMS's requests for change resulted in too much change too late in the process, contributing to delays. For example, CGI Federal managers reported that CMS did not define business requirements at the beginning of each sprint and often made changes throughout the sprint, which inhibited the agile method and resulted in incomplete development. An agile method also allows for pieces of the build to be completed out of order, but this also caused problems for the FFM in that some earlier pieces that were still undecided affected the build of subsequent components.

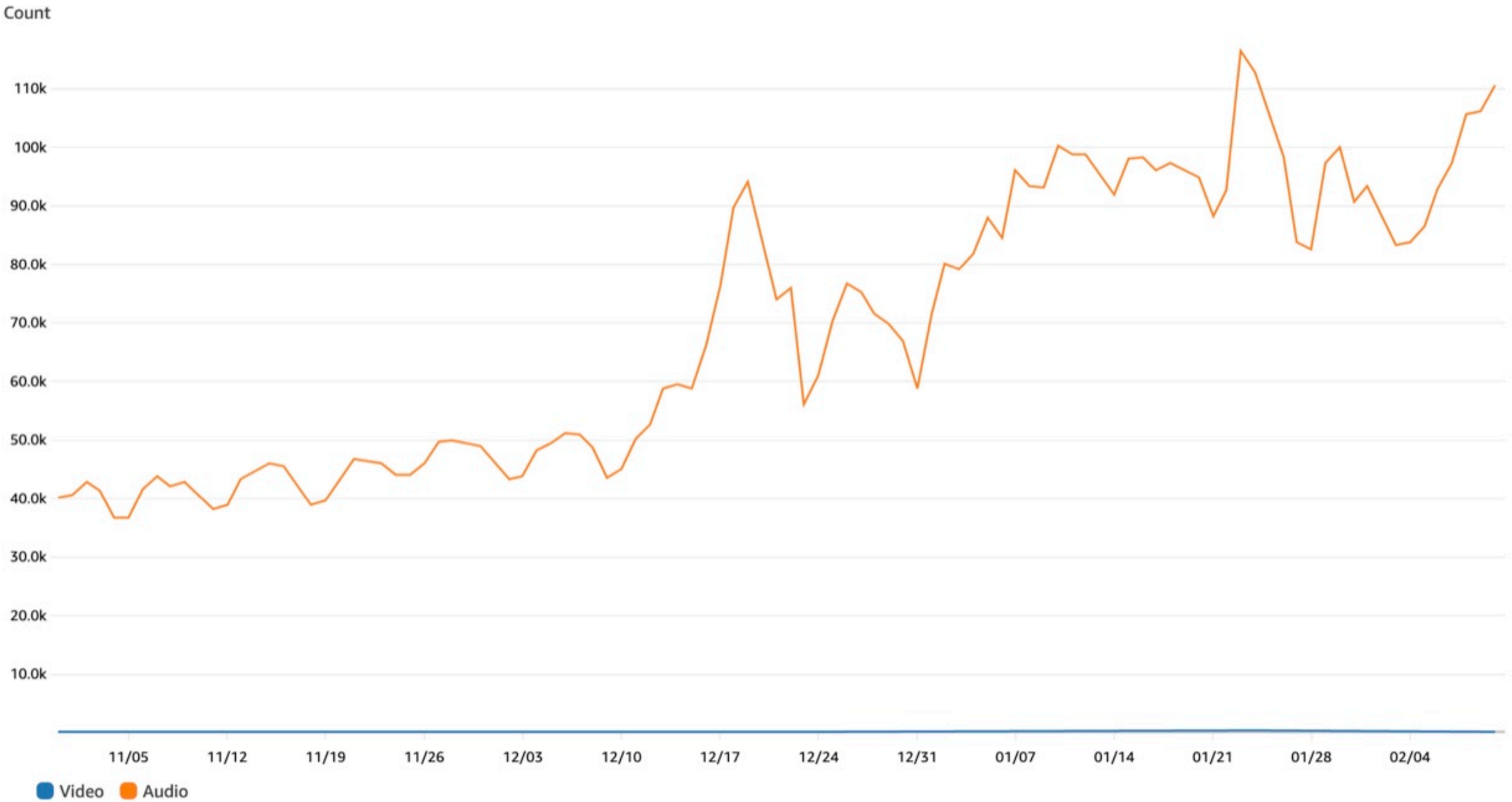
*Key technological choices and poor execution also inhibited the website build*. A number of technological decisions hampered development, including selecting a nontraditional technology that did not align with the expertise available. CGI Federal indicated in its final FFM contract proposal that it would use a combination of two types of "database platforms" (the digital structure upon which the website is built): a traditional "relational" platform such

**Prediction #2**

# RE will need to incorporate faster and more accurate feedback

Challenge #3

# Decisions will involve increasingly more people/concerns/disciplines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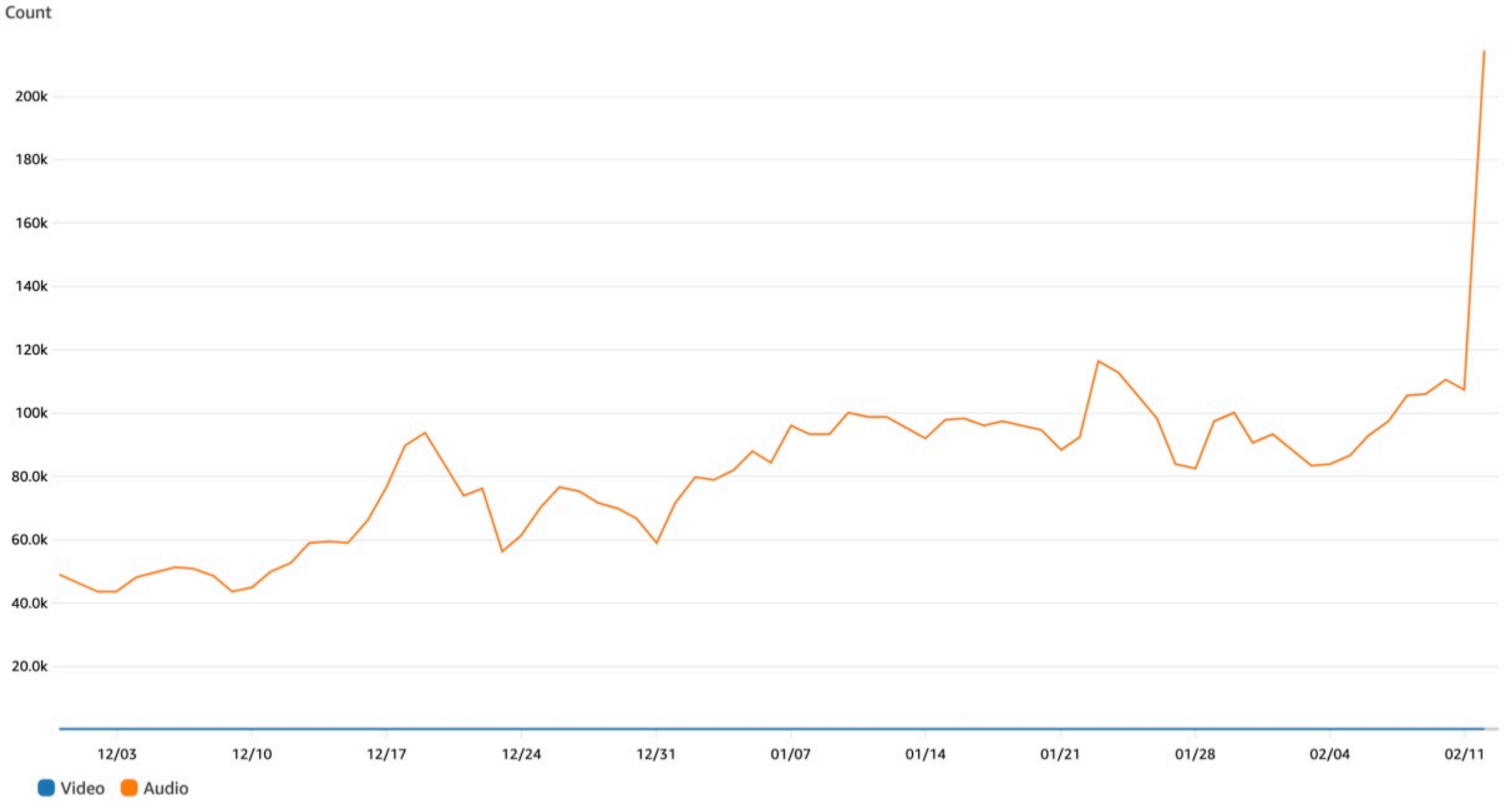
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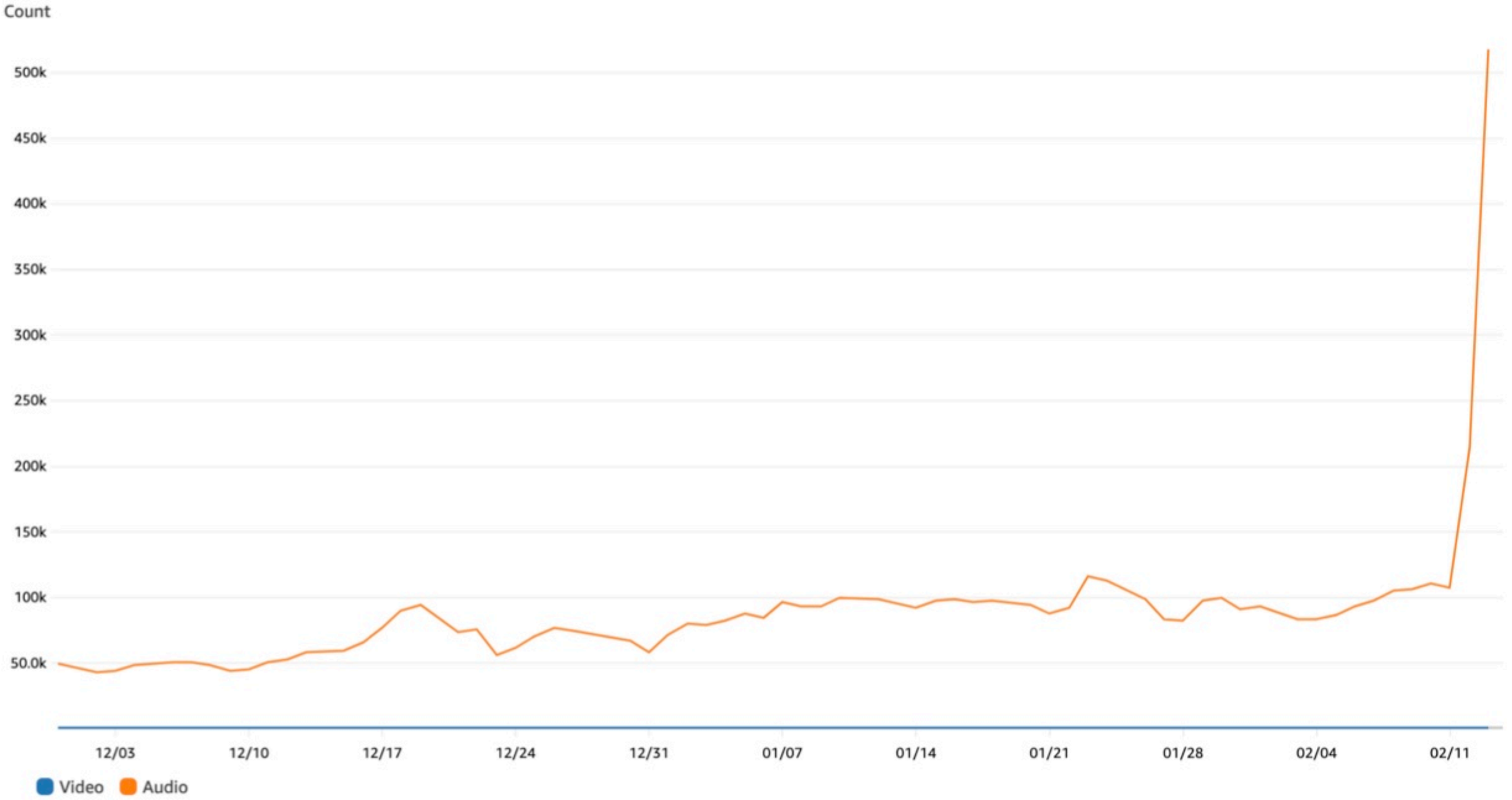
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01/28
02/04
02/11
Video
Audio

Prediction #3

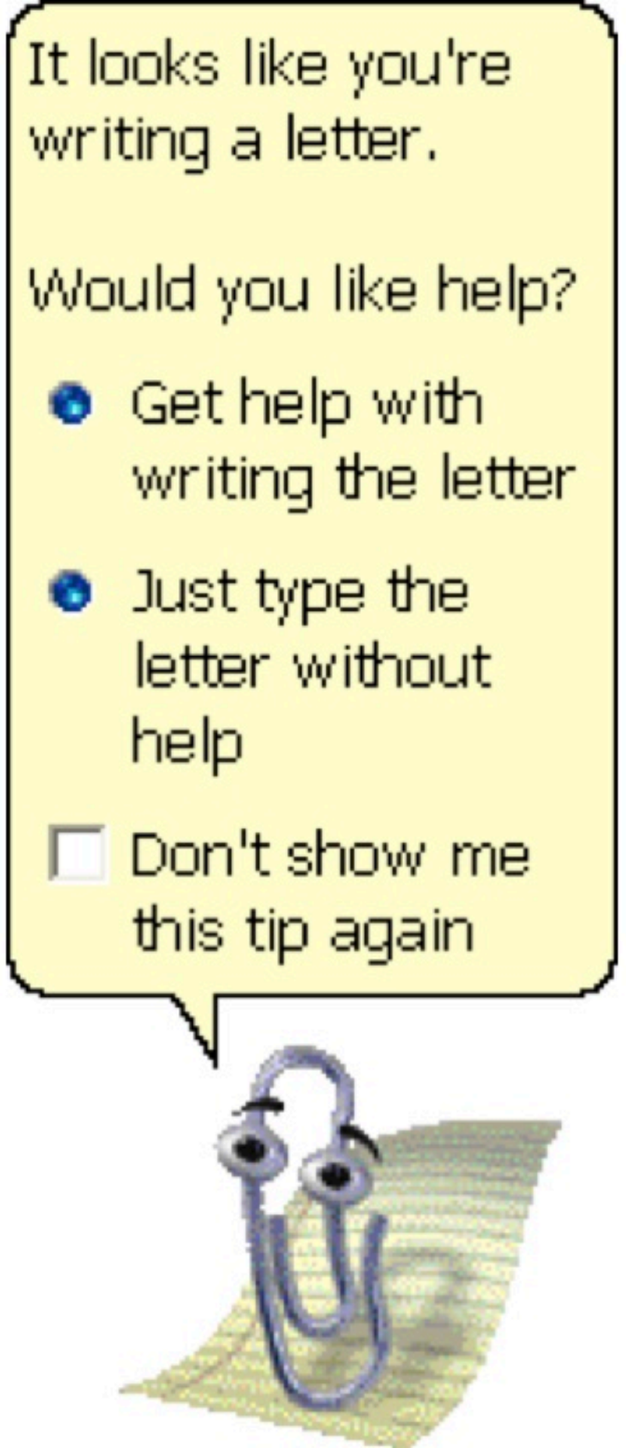
# Requirements Engineering

# »

# Continuous Re-engineering

Challenge #4

# The tooling to keep track of that does not yet exist


It looks like you're writing a letter.
Would you like help?
Get help with writing the letter
Just type the letter without help
Don't show me this tip again

explain tattersal's rule 4 with 3 examples

Tattersall's Rule 4, also known as "Rule 4 deductions" in horse racing, is a standard set of guidelines used by bookmakers to adjust the odds of the remaining horses in a race when a horse is withdrawn after the betting has begun. This rule is intended to protect both the bookmaker and the bettors in situations where a horse is withdrawn and the odds of the remaining horses change significantly.

Rule 4 deductions are based on the odds of the withdrawn horse at the time of withdrawal, with a sliding scale of deductions applied to the winnings of the remaining horses. The deductions are expressed in pence in the pound (i.e., percentage).

Here are three examples to illustrate the application of Tattersall's Rule 4:

Example 1:
The race has five horses, and Horse A is withdrawn. At the time of withdrawal, Horse A has odds of 3/1 (4.0 in decimal). According to the Rule 4 deductions chart, a 3/1 odds horse corresponds to a 25% deduction. If you have bet £10 on Horse B to win at odds of 6/1, and Horse B wins, your original return would have been £70 (£60 winnings + £10 stake). After applying the 25% Rule 4 deduction, your adjusted winnings would be £45 (£60 * 0.75), and your total return would be £55 (£45 + £10 stake).

Example 2:
The race has six horses, and Horse[illegible] ne of withdrawal, Horse C has odds of 10/1 (11.0 in decimal). Acco[illegible]tions chart, a 10/1 odds horse

Regenerate response

Send a message...

Prediction #4

# New tools will emerge to assist and speed up analysis, documenting, summarising...
(AI-Driven RE?, AI-Assisted RE?)

Challenge #4

# Wide-scale effects of software are becoming more visible

# Nvidia drivers have "detection mechanisms" that trigger a higher level of performance when certain tests within 3DMark03 are detected...

https://www.infoworld.com/article/2681233/nvidia--ati-said-to-massage-benchmark-tests.html

"engineer who helped develop a device ... sentenced to more than three years in prison and ordered to pay $200,000."

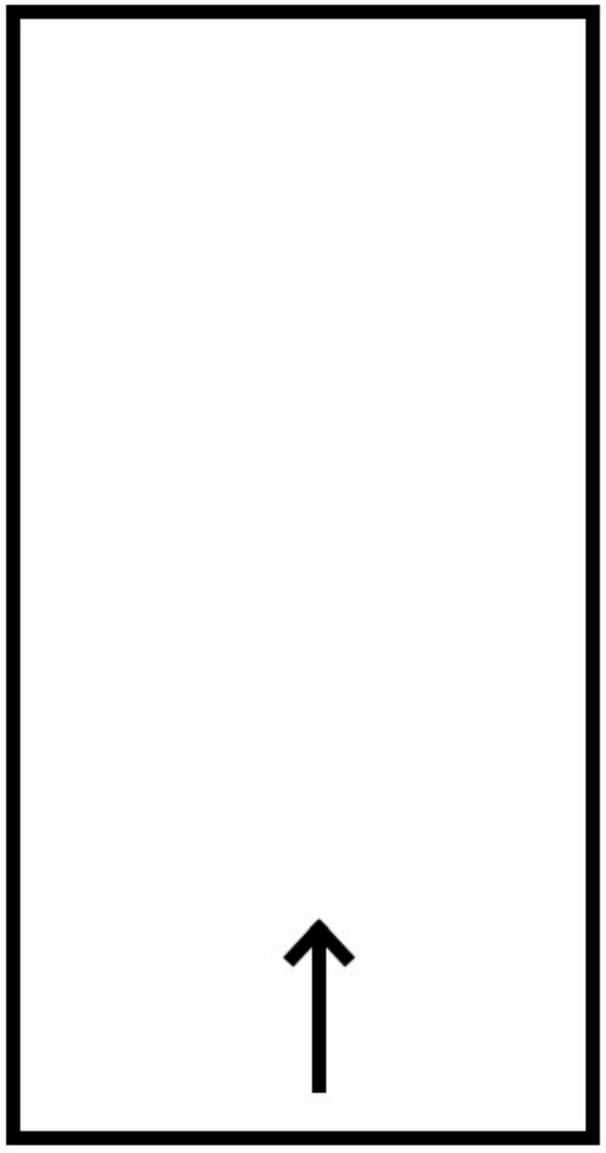
https://www.bbc.co.uk/news/business-41053740

*Wells Fargo [...] pressured employees between 2002 and 2016 to meet unrealistic sales goals, which led them to open fake accounts for customers.*

https://www.reuters.com/legal/former-wells-fargo-executive-pleads-guilty-obstructing-bank-examination-fined-17-2023-03-15/

"duped the bank into believing Frank had more than 4 million customers. In reality, the startup had fewer than 300,000"

https://www.cnbc.com/2023/04/04/frank-founder-charged-with-fraud-over-175-million-jpmorgan-deal.html



Wall

Baby

Group

Prediction #5

# Societal/Ethical/moral concerns will start to play a much larger role

| Requirement | 2020-2040 |
| --- | --- |
| **Objective** | "correct" » research/model |
| **Duration** | weeks/days » continuous |
| **Activity** | Collaborative » multidisciplinary/ user-driven |
| **Tools** | Word/Tickets/Wikis » AI assisted |
| **Criterion** | Business value » Societal + Business |

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