

Really!

Understanding employee feedback

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**Helping employees be heard and
leadership hear what is really
happening**

Text analysis as quick, often exploratory analysis

Quantitative Analysis

Explains what happens / could happen (when, to what etc.)

Time consuming

Do you have the right and enough data?

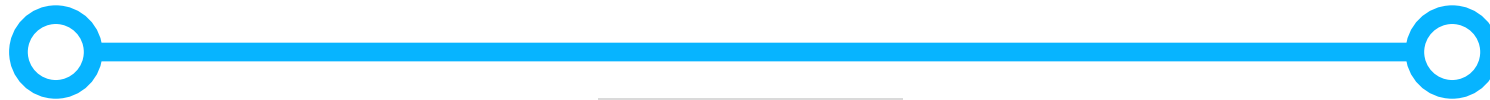
Qualitative Analysis

Explains why something is happening

Time consuming, but don't need as many subjects

Effective at driving action

Does it scale?



Text Analysis

Can indicate both what & why

Quick & 'cheap'

Doesn't need a pre-built 'hypothesis'

Can usually find existing data sources

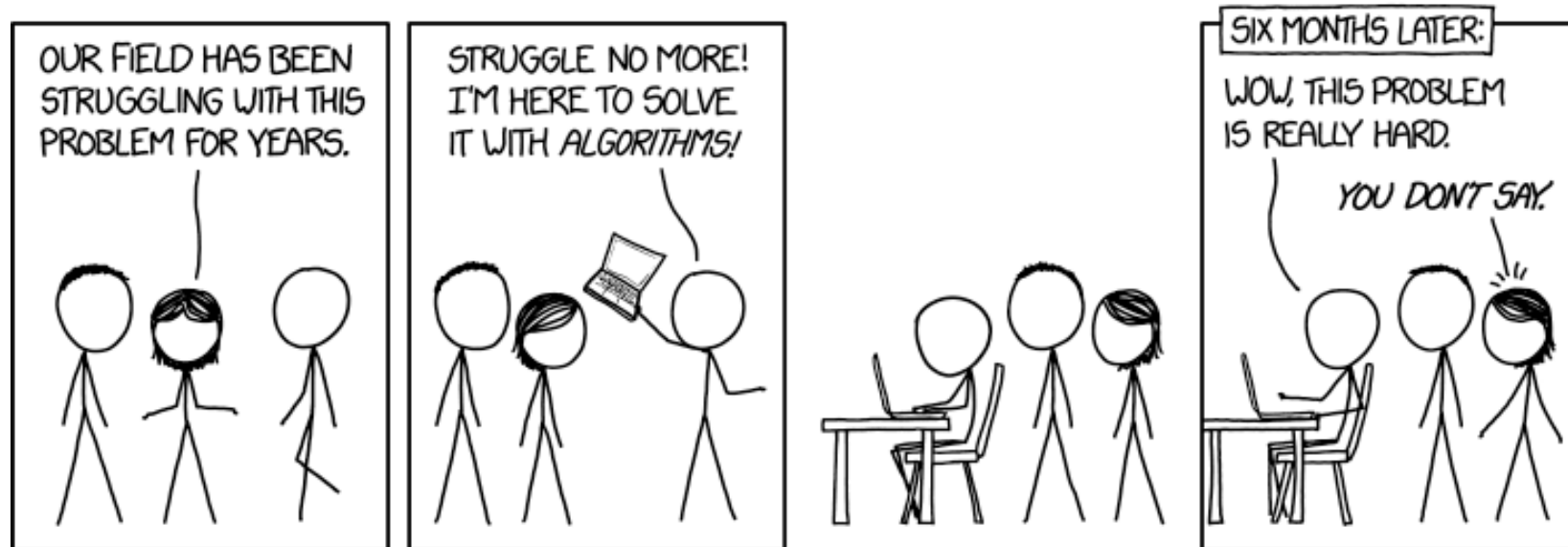
Good at showing linkages

Short distance to detail

There are no easy solutions - everything is in the long tail

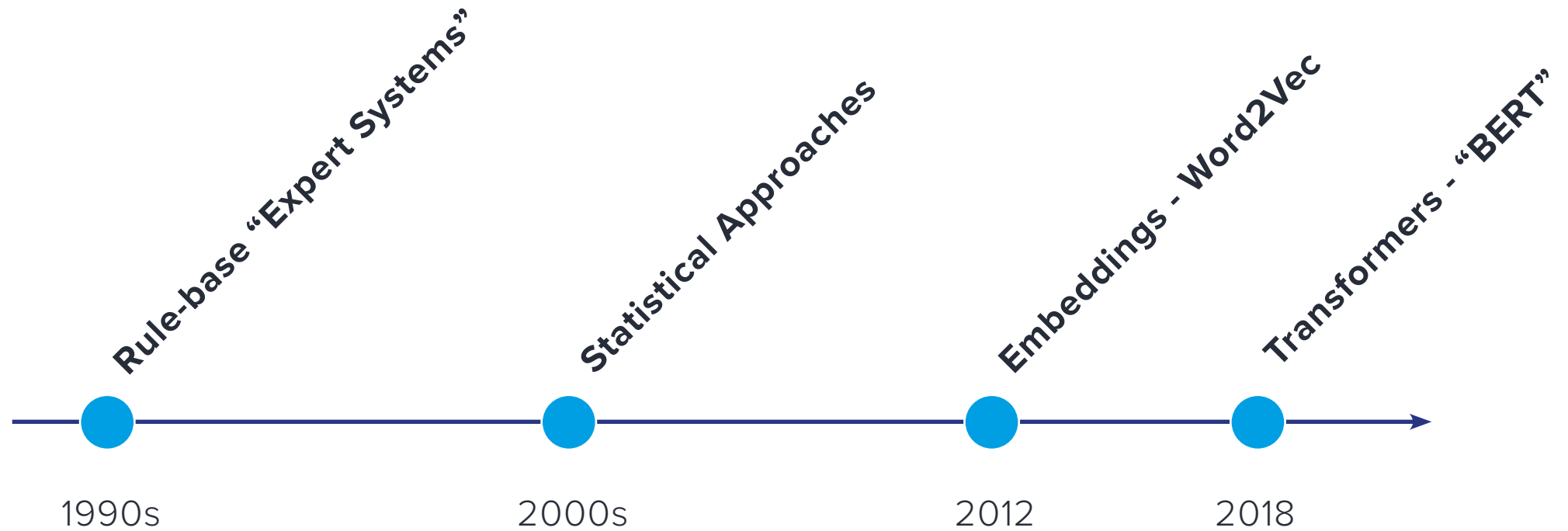
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But we're getting good at solving specific problems



History of text analytics

Computing power & availability of large volumes of text data has driven the approaches to text analysis



What is important with text analysis

It turns out, to get value from text data you need to be as close to reading all the comments as possible.

Accuracy

Themes and topics
need minimal noise

Coverage

As many answers as
possible should be
included

Detailed / Granular

How a theme is used
is critically important

Text classification requires manually created training data

There is no getting away from needing good training data

Most predictive models in HR:

There is access to a dataset which shows what you want to predict that the model can learn from.

<i>Label</i>	<i>Gender</i>	<i>Age</i>	<i>Location</i>
1	M	32	DE
0	F	25	UK
0	M	58	ES

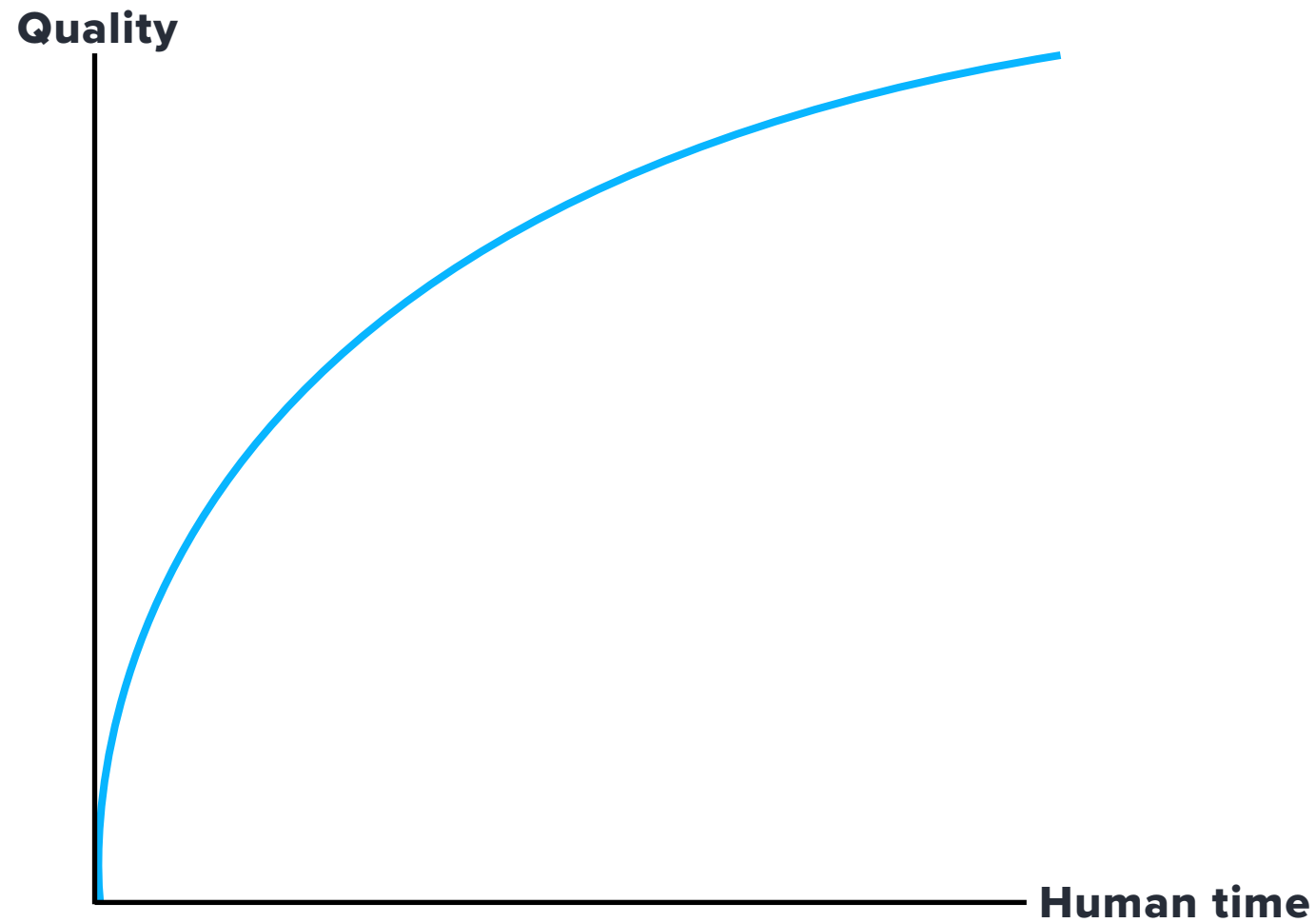
Text classification

No model exists - you have to create one!

<i>Theme</i>	<i>Sentence</i>
Pay	Can you increase my wages
Training	After the grad scheme there is no training available
Manager	My manager never provides training
Training	My manager never provides training

Optimising on two variables

Given our constraints, there are two things that define our success



How we structure our team

Our key focus is on industrialising this process to be quicker, with lower errors and cheaper

Coding and Curation team

Builds the models by editing training data

Infrastructure team

Develops WorkometryCI, our internal coding platform

Data Science team

Develops algorithms, tests ideas, monitors performance

Ambiguity is a typical feature of employee answers

Context is everything!

“lol, a raise!”

Correctly identified by our algorithms as someone wanting a pay increase

The context of the question is vital

It's not going to be possible to develop a good universal text model anytime soon

What insight is important to the decision maker depends on the question

If themes are to convey the most meaning they need to be contextual on the decision that they will inform.

How you interpret a sentence depends on the question that was asked.

Respondents answer assuming you have the context of the question. Often the answer won't mention the theme of the question explicitly

Understanding the answer by knowing the question

“For the amount of effort we do we should make more.”

Q1: What can we do to improve your working life here? (improve pay)

Q2: What ideas do you have to improve this factory? (improve productivity)

Finding the edge-cases

Understanding your algorithm and where it's struggling is vital to getting really high performance.

How do we separate....	from this
my workplace (the place I work)	Workplace , the software from Facebook
an employee's benefits package	how an employee benefits from....
more pay	pay more attention
better health	better health insurance
Moral (most common misspelling of Morale)	Moral (ethics)

Single words aren't good enough

Keyword searching is never good enough.

Better Management != Performance Management
Data Management
Financial Management
Supply Chain Management
Document management
Time management

Context of the organization is highly beneficial

Employees will often use names rather than descriptions. They assume you know these.

Bangalore	The offshoring centre
Edinburgh	The headquarters
Jane	The CEO
‘Ask Anita’	The internal chatbot
Eagle	The finance transformation programme

ESTABLISHED APPROACH

Grounded Theory Research approach

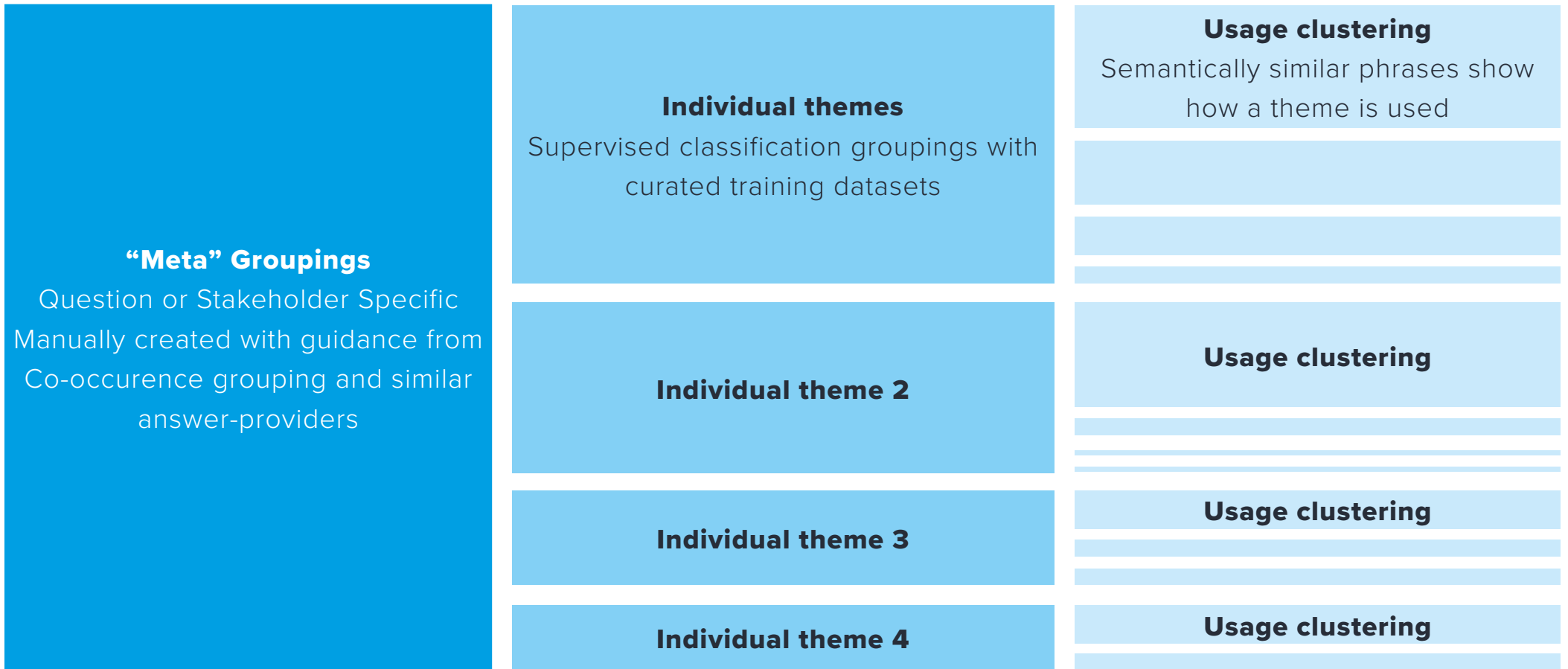
In Grounded theory we don't want to start with a framework, which might create bias in our interpretation. So we do a detailed 'line-by-line' study. We might do this before thinking about the question to be answered.



Topics should be understandable in their own right. So not "Career Development" but instead "Lack of available opportunities"

Multiple hierarchical levels

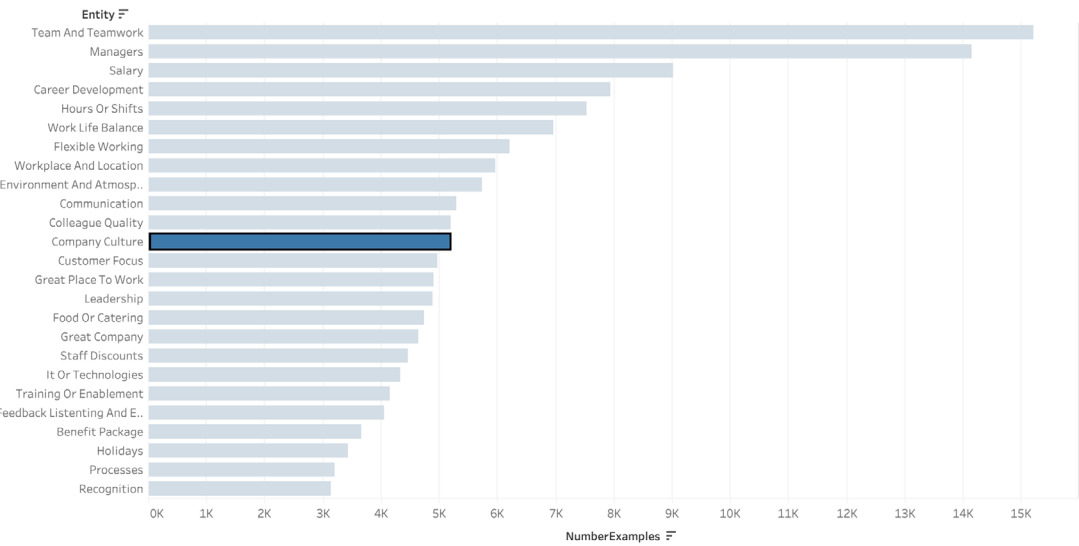
Categories should be Mutually Exclusive & Completely Exhaustive.



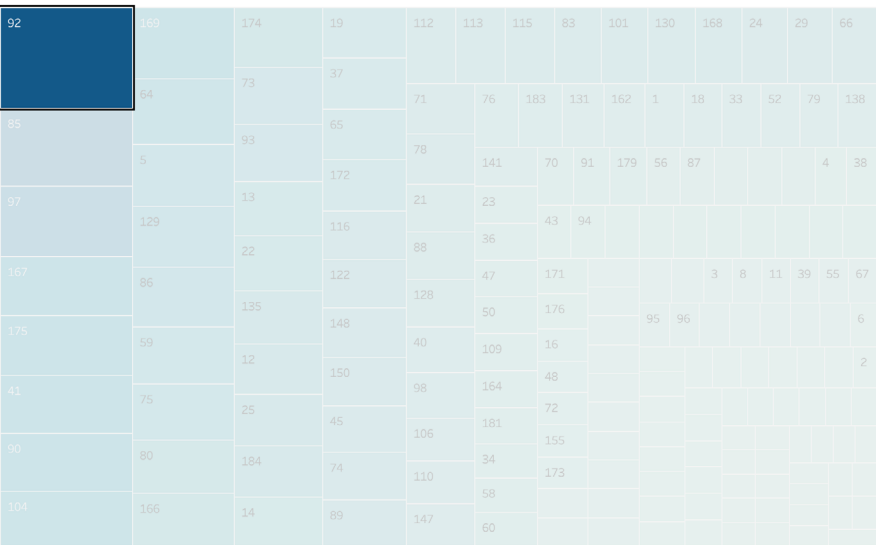
Exploring usage clustering

Biggest category is a good and flexible working culture

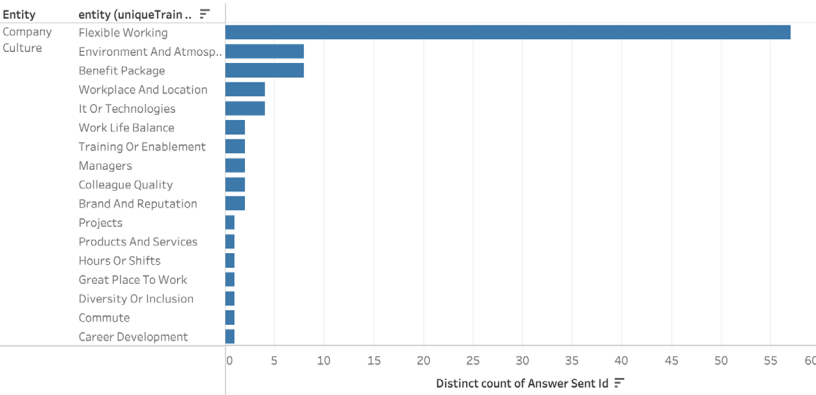
Entities



Cluster sizes



Cooccurrence



Sentences



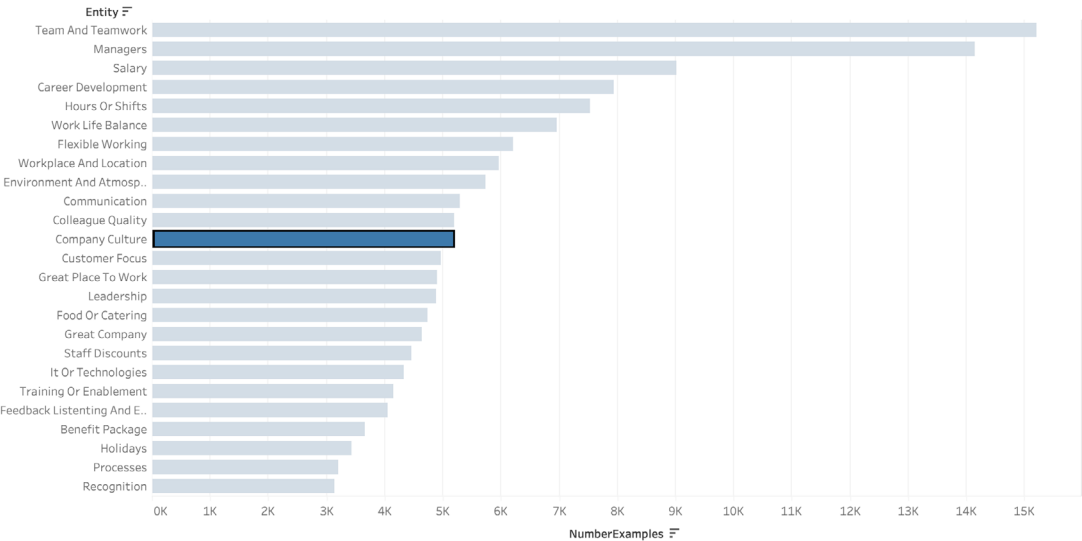
“Good Work culture and flexible work timings”

“Flexible work Good culture”

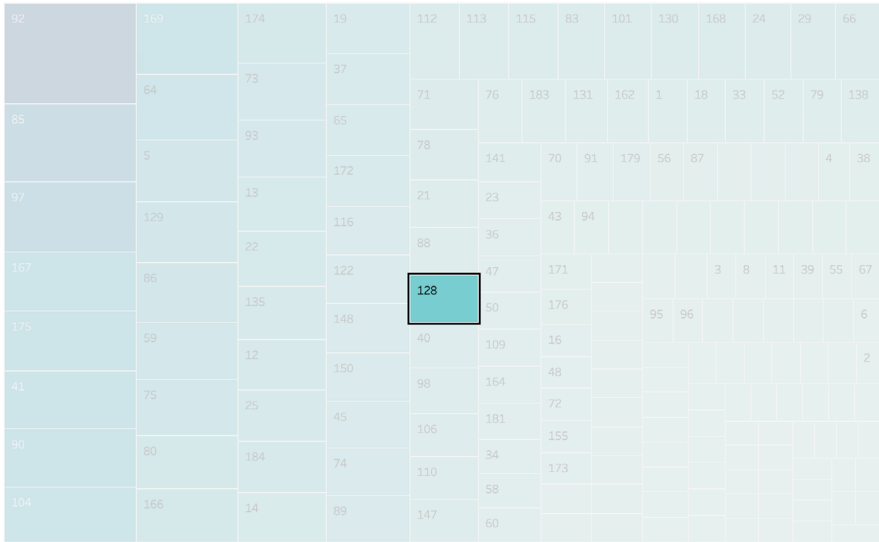
Exploring usage clustering

Whereas this one talks about how trust is important to build the culture

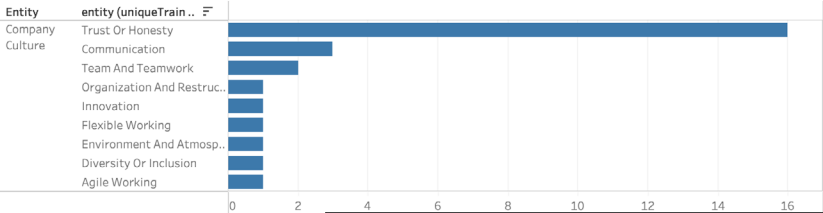
Entities



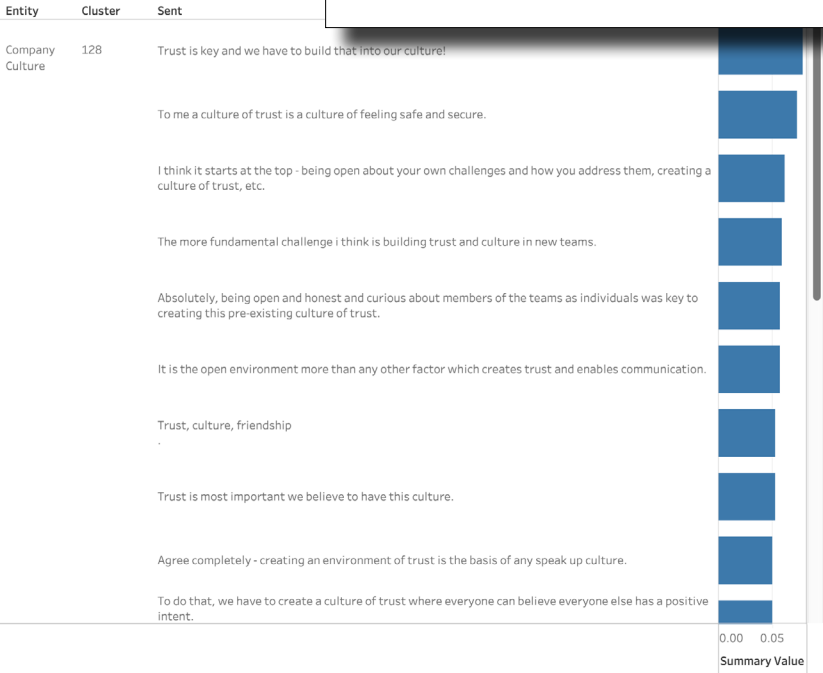
Cluster sizes



Cooccurrence



Sentences



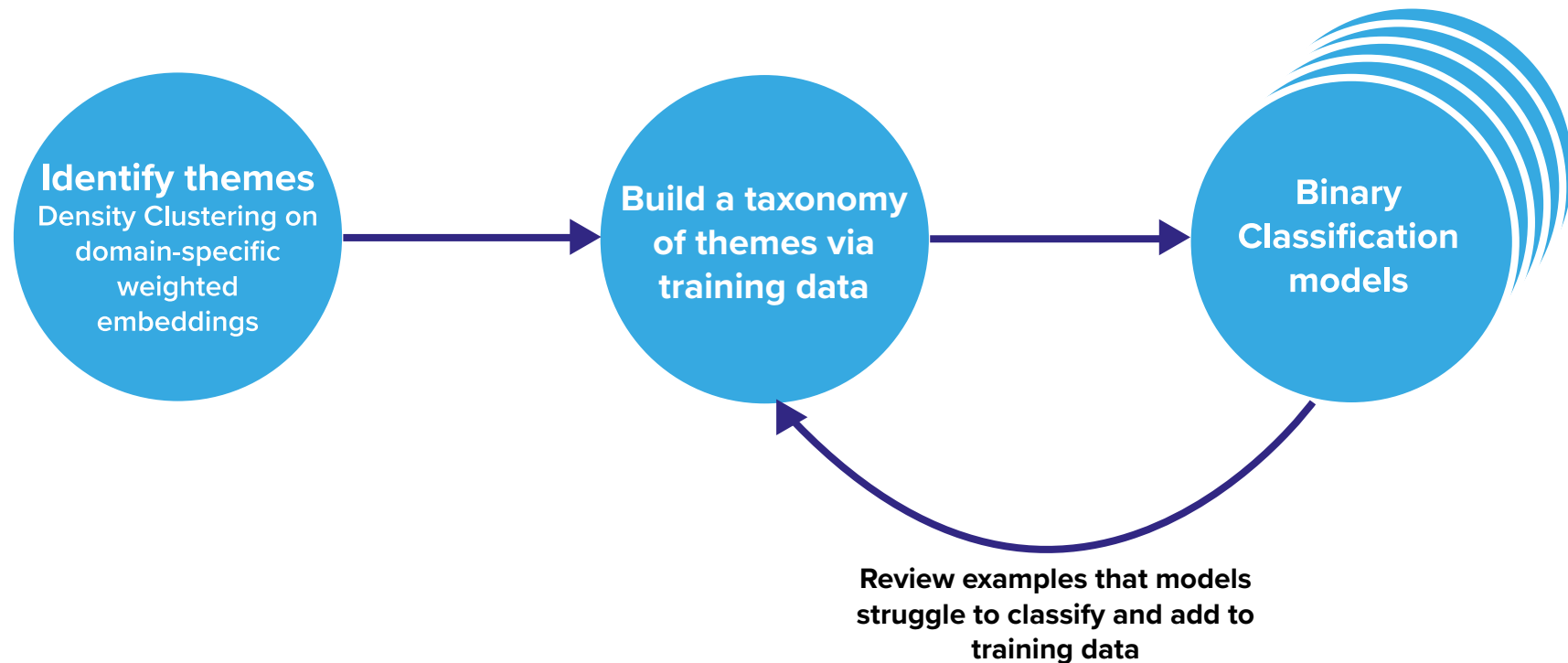
“Trust is key and we have to build that into our culture”

“To me a culture of trust is a culture of feeling safe and secure.”

ML ASSISTED ANALYSIS

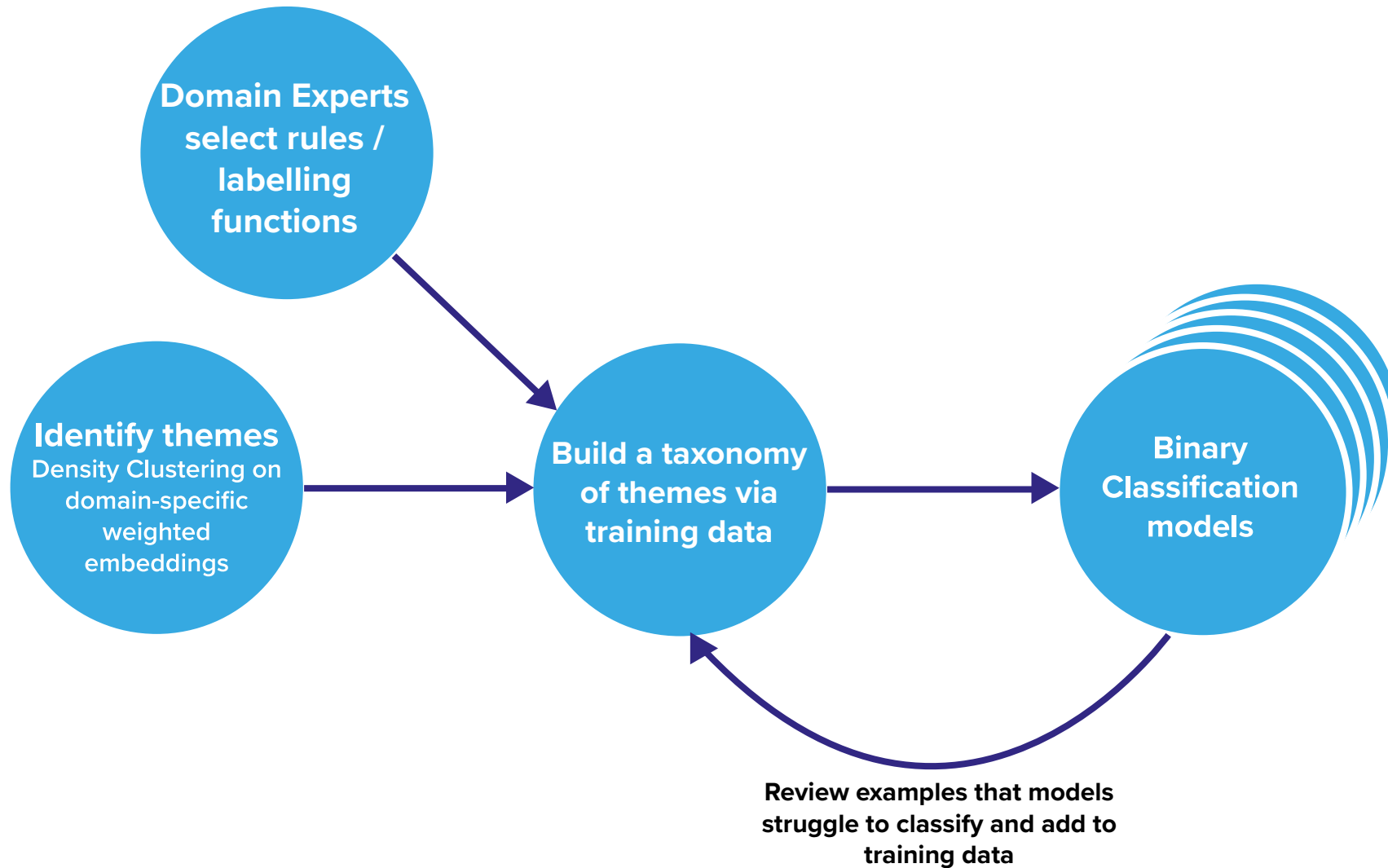
Building an inductive model with ML assistance

We modelled our approach on the 'best-practice' manual methodology of skilled qualitative researchers.

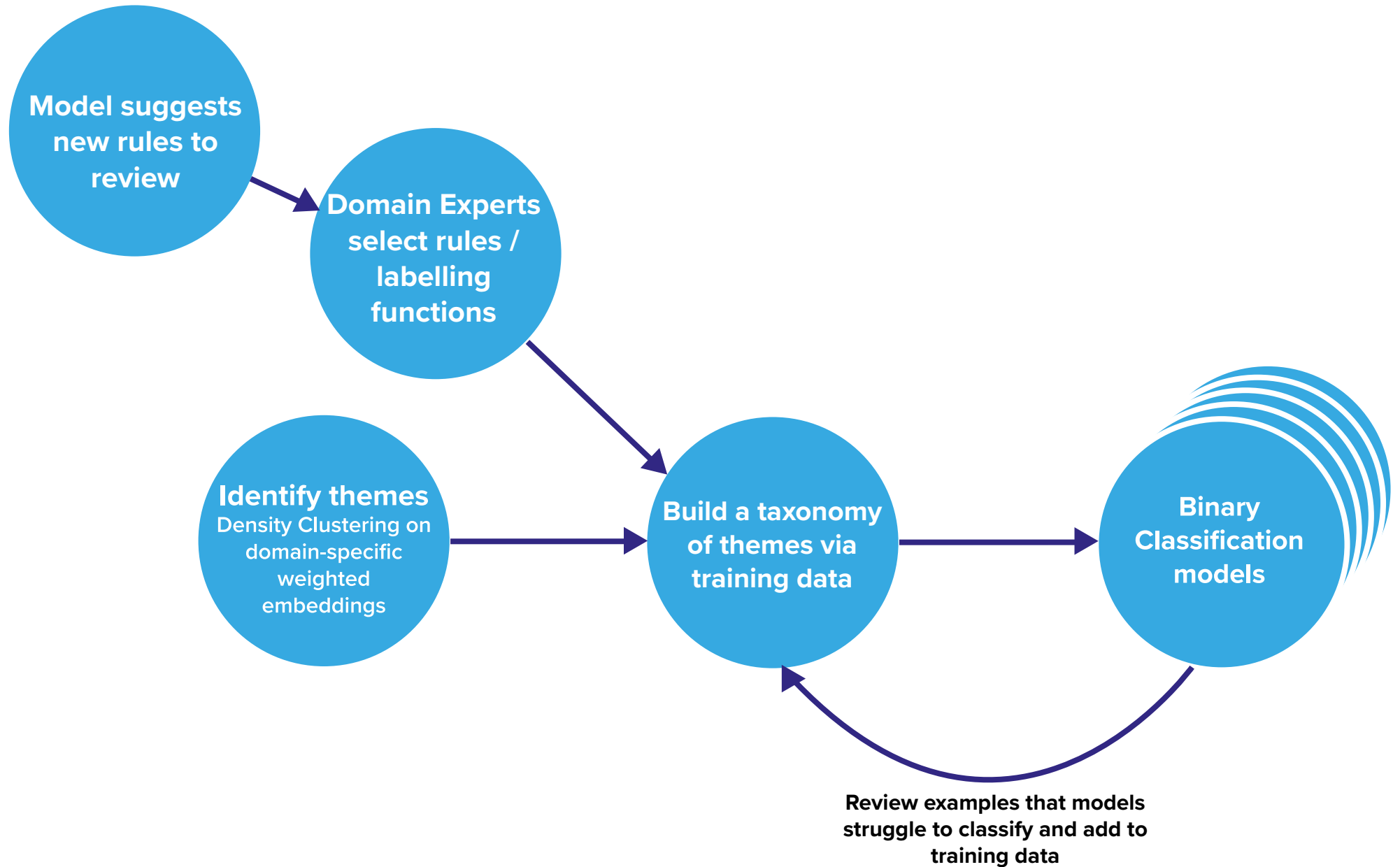


Adding 'Weak Supervision'

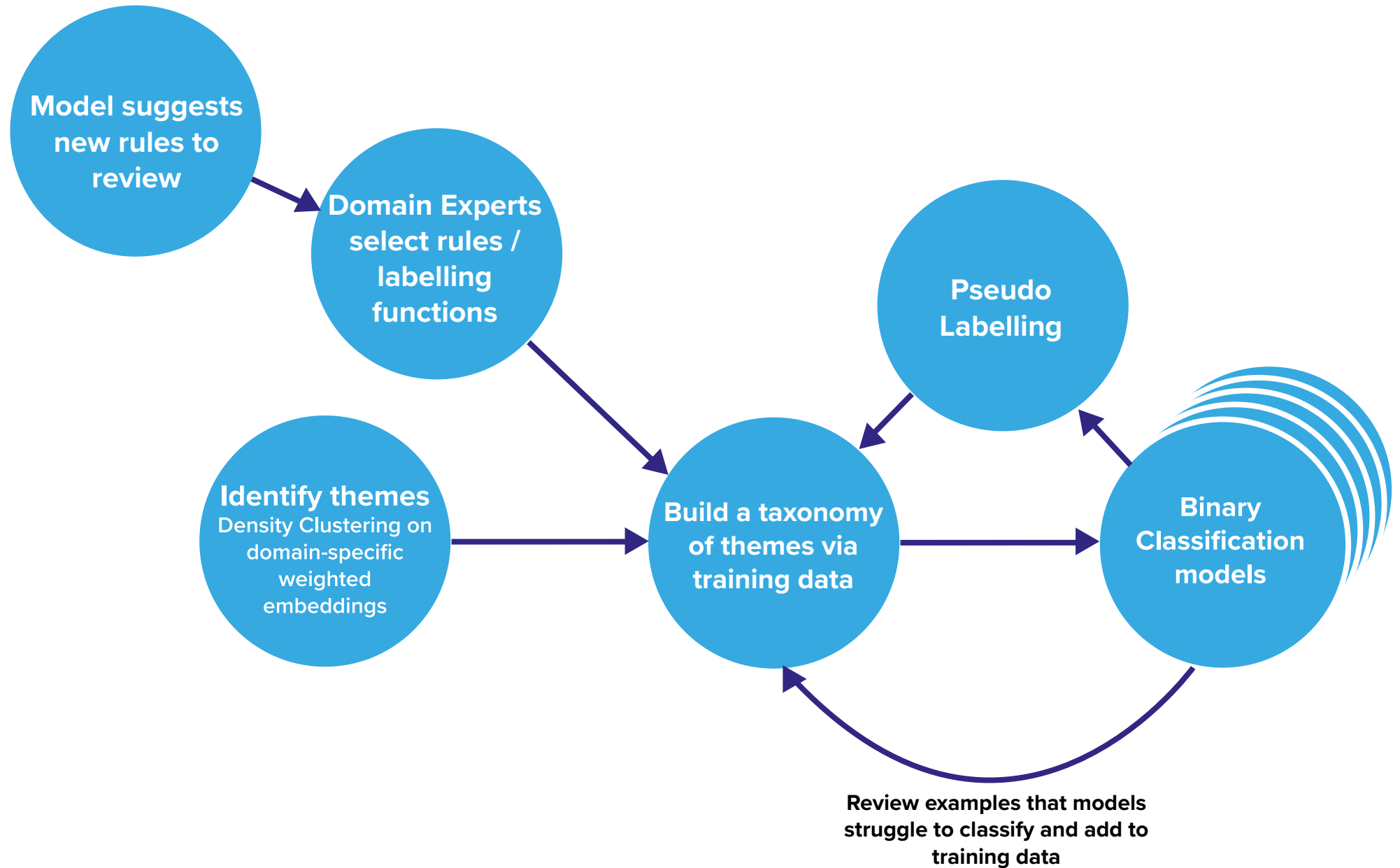
Labelling functions are efficient ways of quickly building training sets



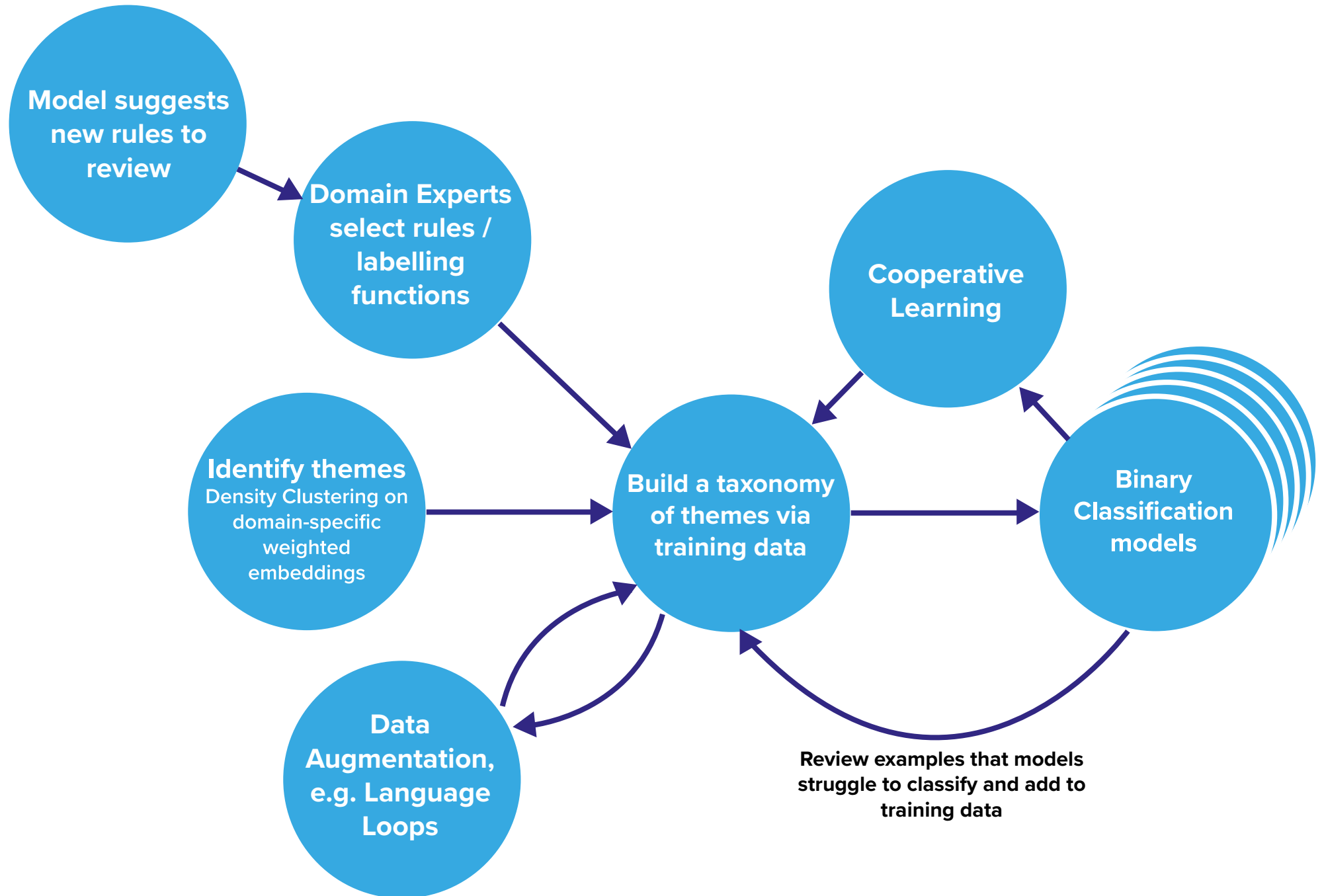
Assisted Weak Supervision



Pseudo Labelling



Data Augmentation



Internal tooling to enable Domain Experts to build & curate models

Workometry Lite

+

Manage Projects

Weak Labelling

Confidence / Voting Uncertainty

Review not-coded

AUTOMATE-API

FOLDERS

SEARCH

EXPAND

REFINE

UPLOAD

FORCE

LOGOUT

List of entities for

Low0.15

High0.5

REFRESH

SEARCH AGAIN

Sort

ALPHABETICALLY

BY MEDIUM

BY MEDIUM PERCENTAGE

Work Life Balance

Last revised: 2021-04-03 08:14:12

Training examples: 1144

LOW: 235

MED: 273

HIGH: 1948

Workplace And Location

Last revised: 2021-04-03 08:14:12

Training examples: 86

LOW: 251

MED: 231

HIGH: 1179

Colleague Quality

Last revised: 2021-04-03 08:14:12

Training examples: 426

LOW: 195

MED: 218

HIGH: 1240

Environment And Atmosphere

Last revised: 2021-04-03 08:14:12

Training examples: 49

LOW: 204

MED: 209

HIGH: 699

Flexible Working

Last revised: 2021-04-03 08:14:12

Training examples: 395

LOW: 112

MED: 193

HIGH: 1031

Team And Teamwork

Last revised: 2021-04-03 08:14:12

Training examples: 202

LOW: 222

MED: 189

HIGH: 870

Salary

Last revised: 2021-04-03 08:14:12

Training examples: 425

LOW: 160

MED: 179

HIGH: 1169

It Or Technologies

Last revised: 2021-04-03 08:14:12

Training examples: 200

LOW: 194

MED: 162

HIGH: 787

Benefit Package

Last revised: 2021-04-03 08:14:12

Training examples: 535

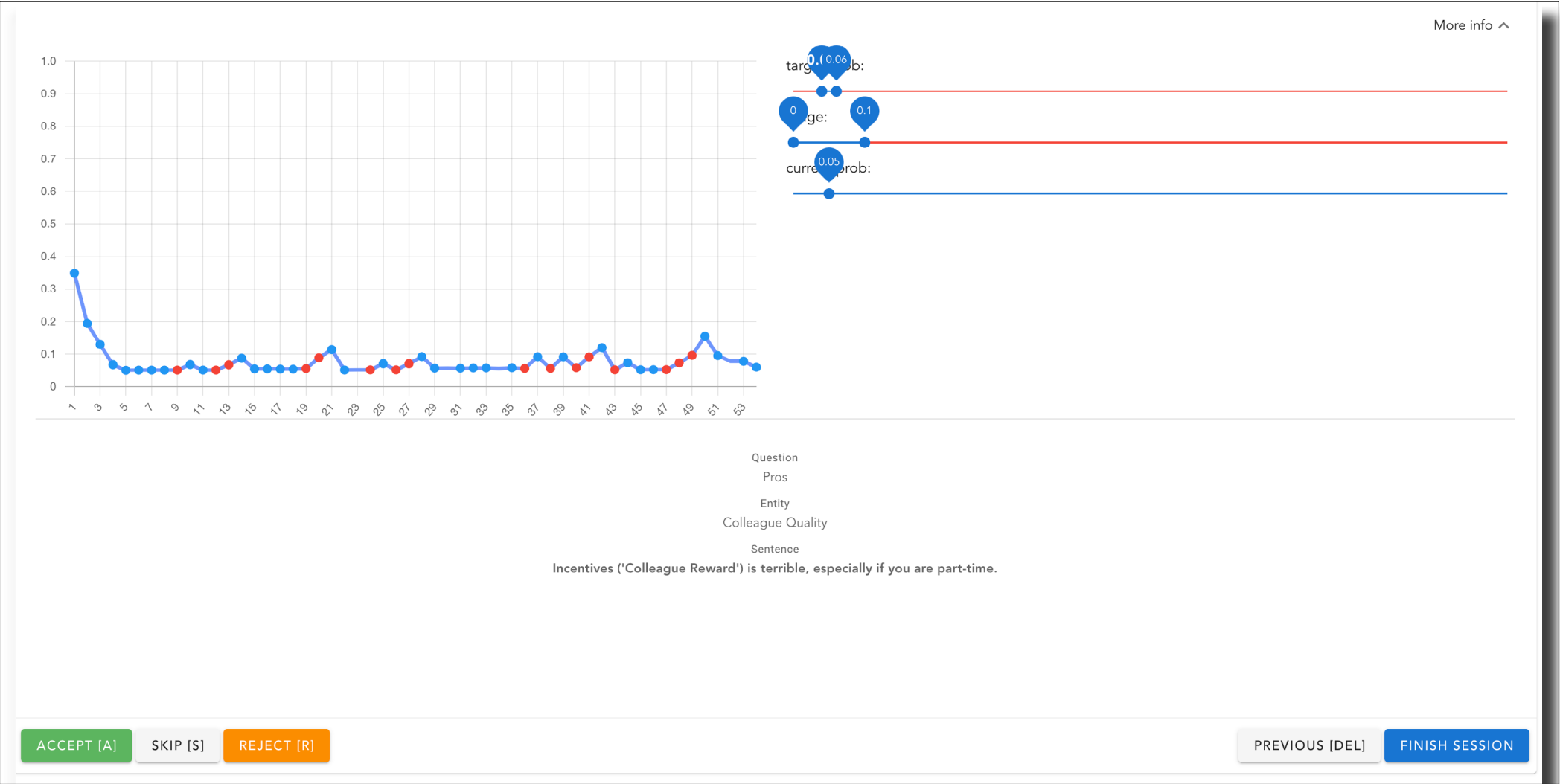
LOW: 146

MED: 134

HIGH: 1166

Finding the uncertain region by a guided walk

Progressing from spreadsheets and scripts is key to enable you to scale.



Labelling consistency / Inter-reviewer agreement

It's vitally important that labellers have a clear set of written guidelines for reviewers

Themes should be mutually exclusive

Themes should be objective

You need a process for managing theme evolution

Bias needs to be monitored & dealt with

Large language models can ‘impose’ their own interpretations of the data.

**“A really French
working style”**

Theme: “Bureaucracy”

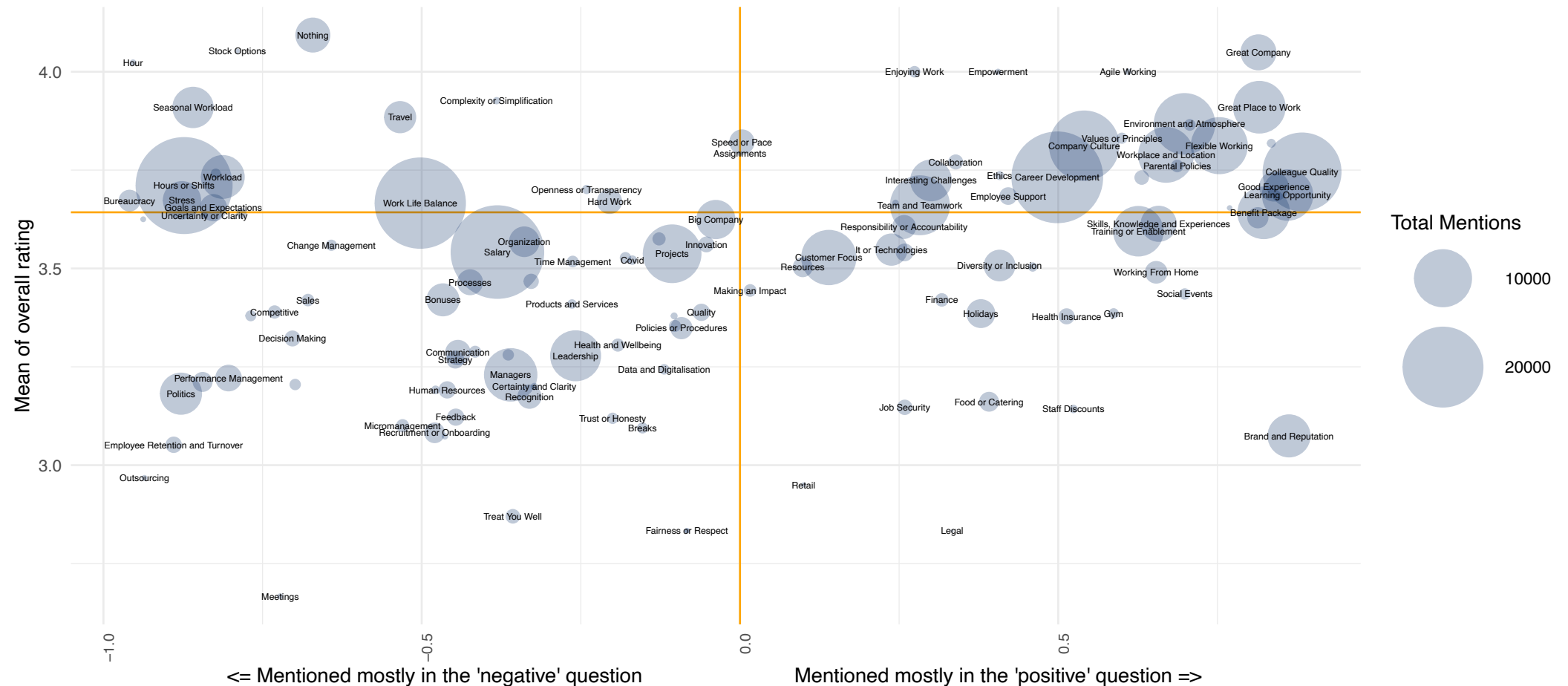
**CLASSIFYING TEXT ISN'T THE
END GOAL**

Understanding text usage in different states

Using a key variable as an alternative to sentiment

How are the themes related to sentiment?

Sentiment measured by the average overall rating of reviewers mentioning that theme and the balance between positive and negative mentions
Orange horizontal line shows mean overall rating (3.64)



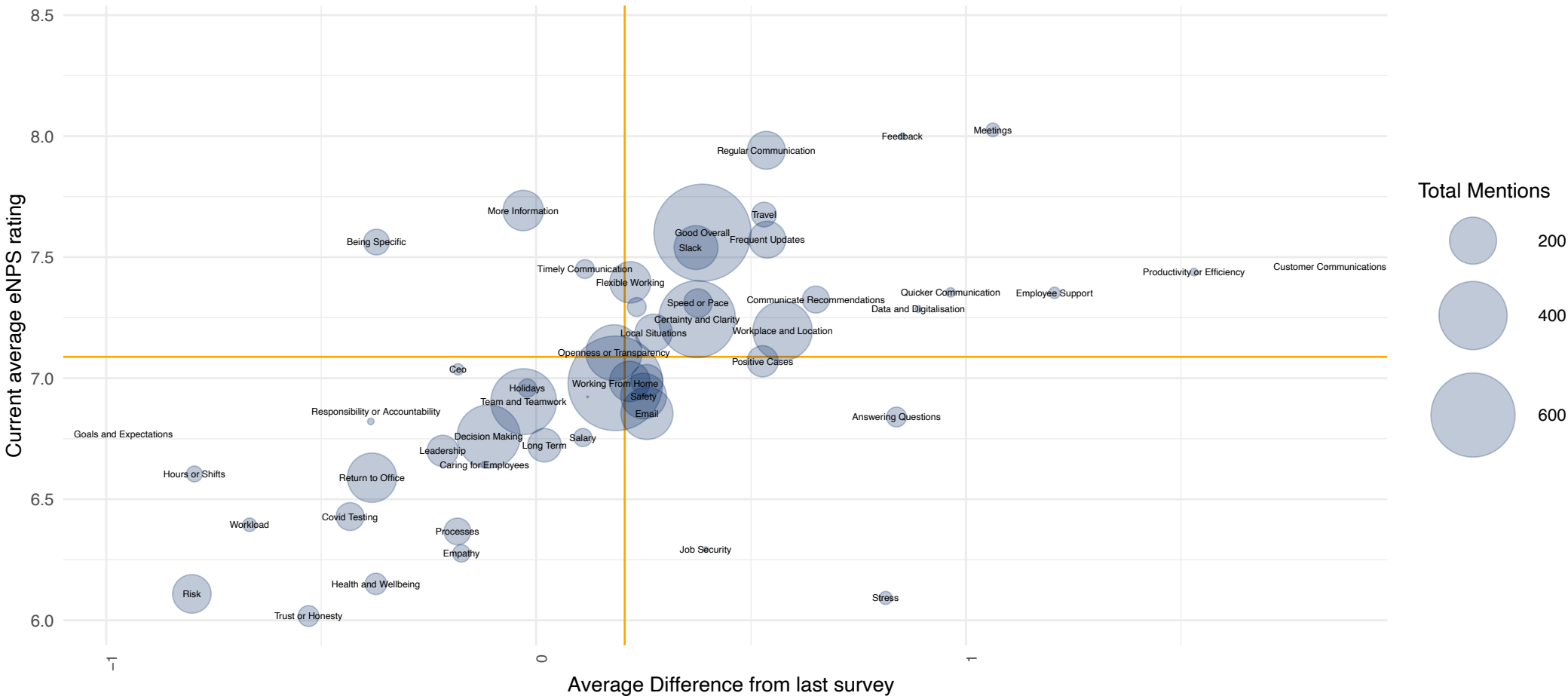
Understanding changes in perspectives

Longitudinal ‘panel’ data lets us explore topics associated with changes in NPS

How are the themes related to an individual's current and recent change in NPS?

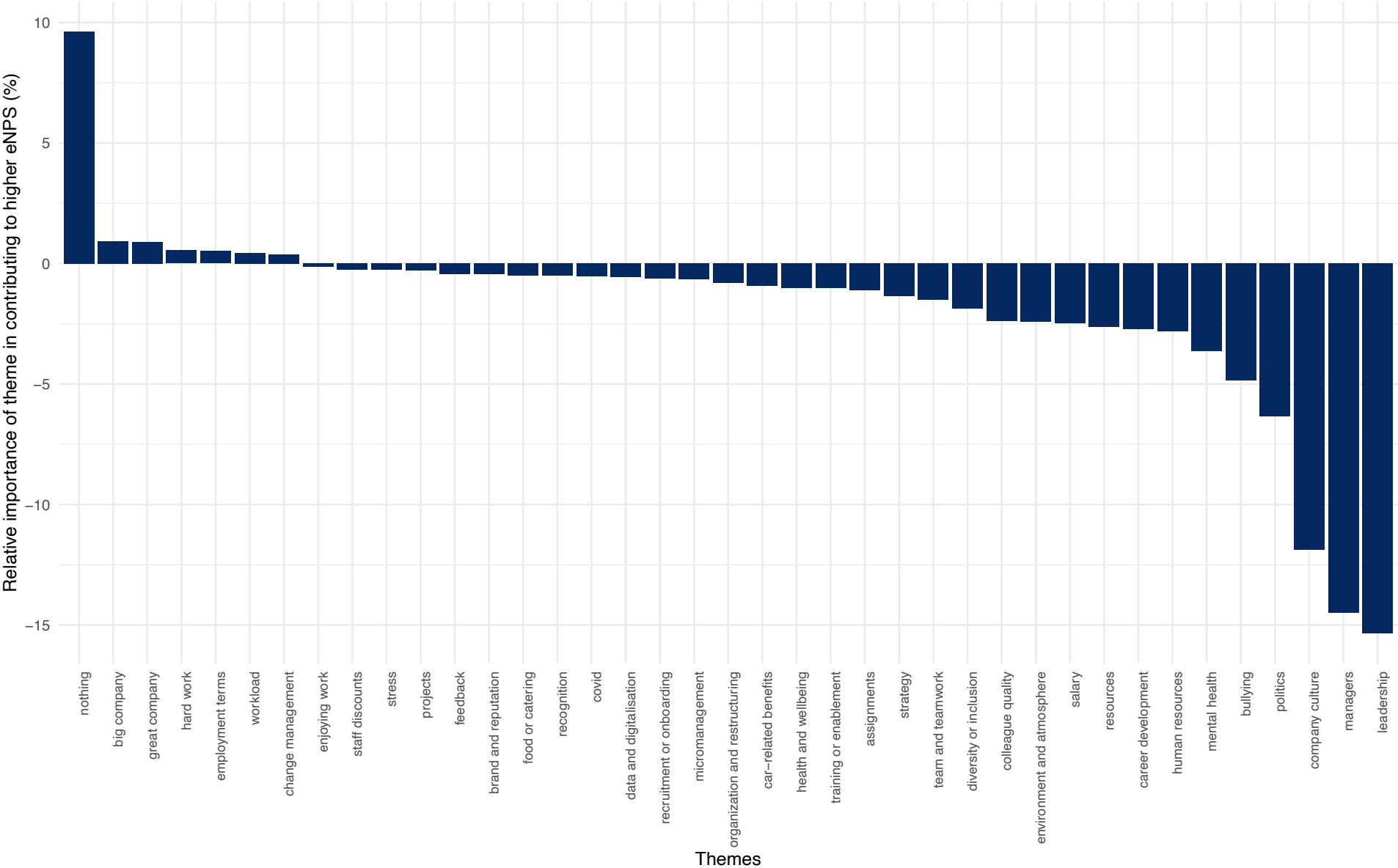
Orange reference lines indicate the current mean score or change.

Showing only themes with at least 25 mentions



Exploring drivers of key metrics

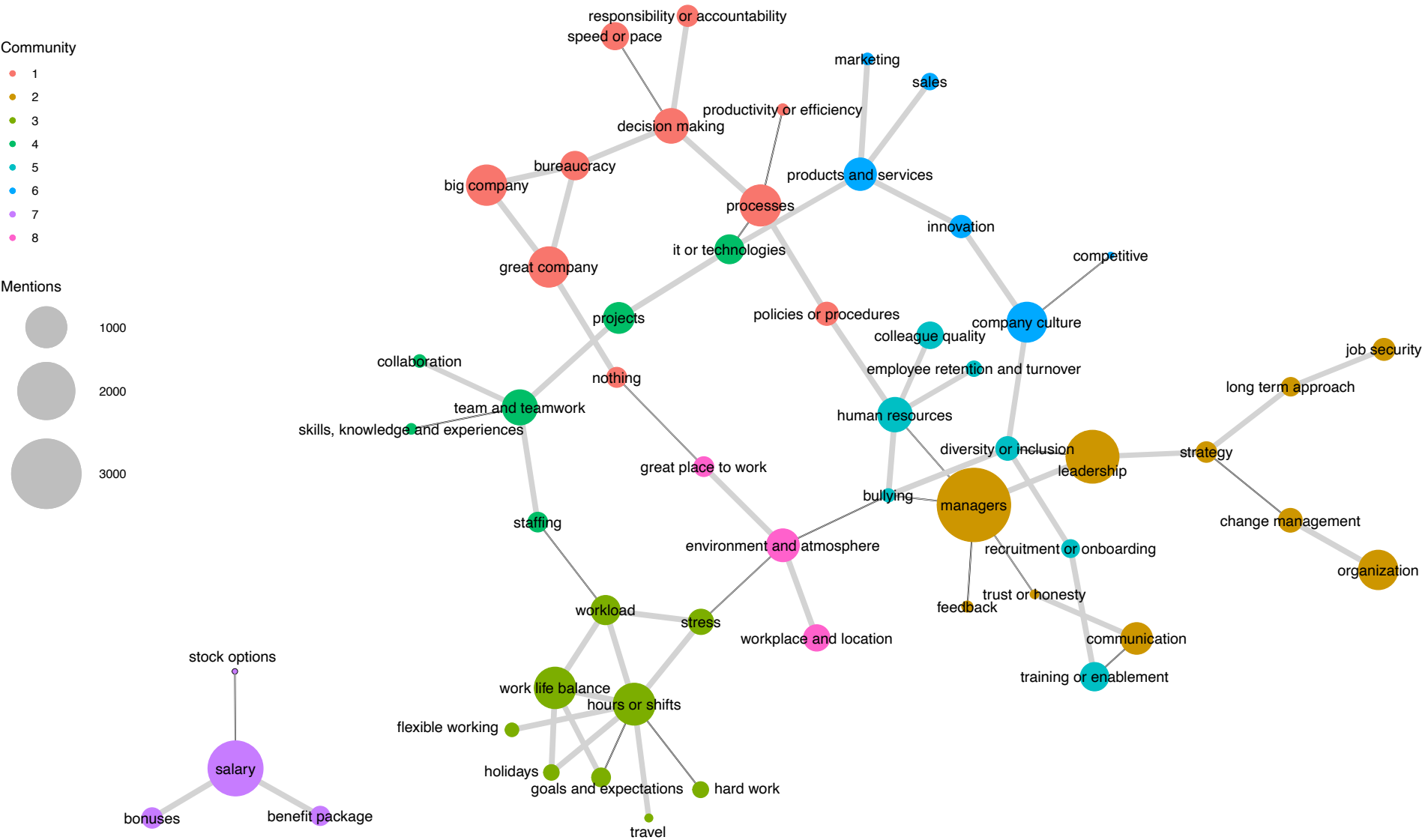
Which topics are the most importance for increased eNPS scores?



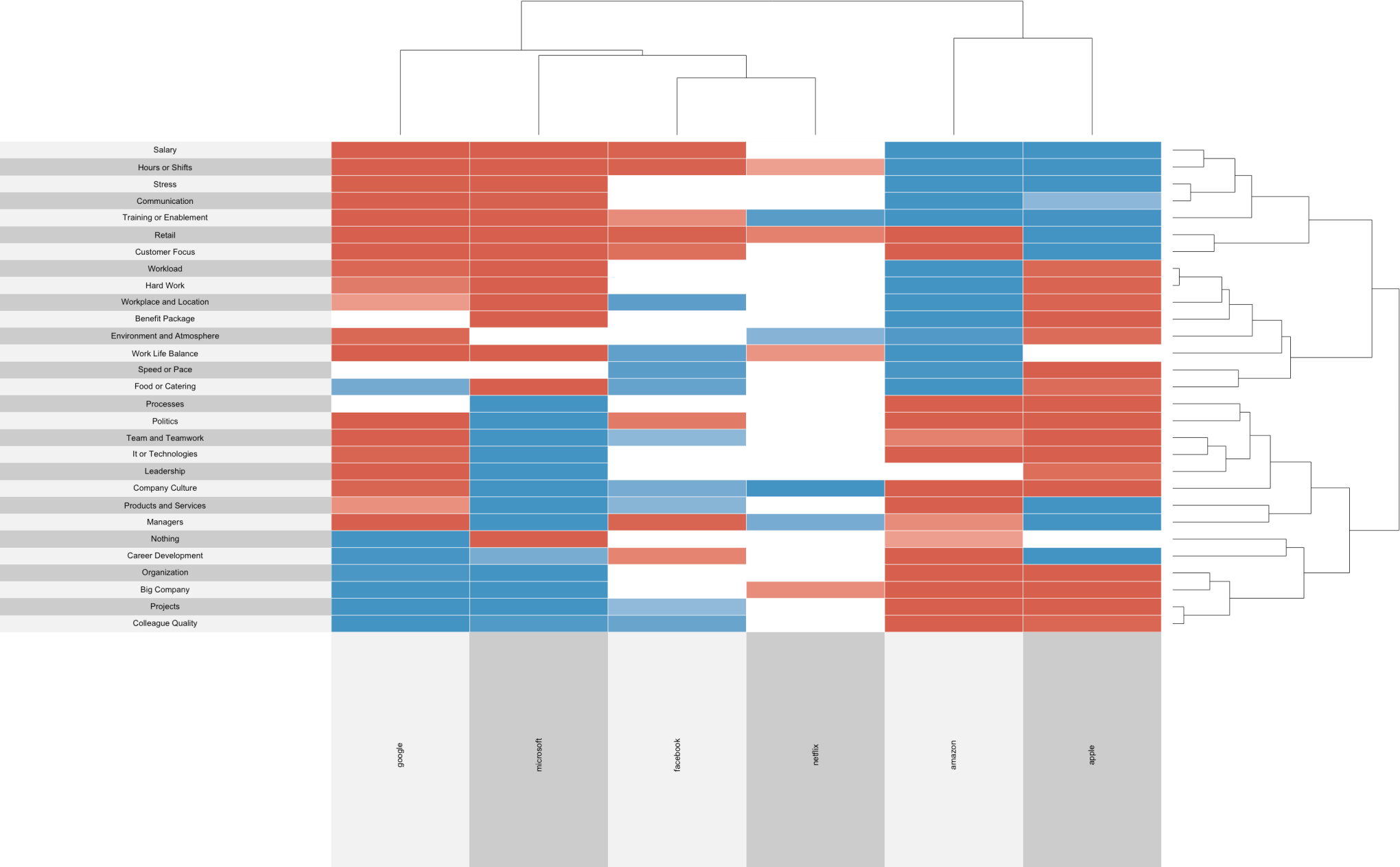
Co-occurrence shows patterns in ‘speech’

Network visualisation of topic cooccurrence

Showing relationships where the probability of them being strongly related is at least 98%



Look at differences between key groups



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