symitsi_2021_the_informational_value_of_employee_online_reviews

Year

2021

Author(s)

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Title

The Informational Value of Employee Online Reviews

Venue

European Journal of Operational Research

Topic labeling

Manual

Focus

Secondary

Type of contribution

Established approach

Underlying technique

Manual labeling assisted by associated documents

Topic labeling parameters

Nr of inspected documents: 10

Label generation

The top loading reviews along with representative reviews from the topic solution for each corpus were estimated.

In addition to the topic-word and topic-document distributions, we computed the proportion of each topic in the overall corpus.

Then, topic labels were assigned using input from experts in Human Resource Management through a manual labeling task.

In particular, for each topic, a selection of the top 10 loading reviews (based on maximum values of the θ loadings) was provided along with the top loading words.

The experts had to mutually agree a label comprising of up to two words and assign it to the given topic.

Table 2: Topic *Solution for Positive/Negative Feedback*

Topic Label	Prop. (%)	Top 7 FREX Words
Panel A: Positive Feedback		
Compensation/Benefits	13.25	pay, salary, benefit, good, pension, scheme, decent
Company Reputation	12.46	great, place, product, smart, really, brand, amazing
Career Progression	12.04	career, opportunity, progression, development, high, excellent, market
Task Variety	11.94	year, best, new, thing, way, just, better
Management	8.74	management, team, senior, service, member, support, manager
Work Environment	8.56	friendly, environment, atmosphere, fun, colleague, helpful, relaxed
Employee Perks	7.39	free, discount, food, staff, store, nice, pro
Work Life Balance	6.26	life, balance, work, interesting, project, hard, variety
Office Location	5.99	office, location, people, london, event, social, area
Working Hours	5.74	hour, job, easy, time, working, student, home
Flexibility	4.62	flexible, long, available, day, flexibility, plenty, different
Company Culture	3.01	culture, strong, value, worklife, employee, leadership, focus
Panel B: Negative Feedback		
No Negatives	15.40	really, con, people, place, great, good, many
Management/Leadership	13.70	poor, senior, leadership, culture, management, direction, employee
Office/Premises	9.78	office, bit, big, quite, head, need, small
Career Progression	8.96	progression, career, opportunity, development, little, process, limited
Job Role	8.04	life, lot, sometimes, difficult, project, change, fast
Benefits	7.31	salary, low, pay, benefit, market, bonus, industry
Compensation	7.17	month, never, money, even, wage, minimum, ever

Working Hours	6.66	long, shift, busy, late, break, holiday, enough
Staff pressure	6.06	high, staff, turnover, member, pressure, target, support
Recruitment	5.88	hour, short, time, term, period, recruitment, full
Work/life Balance	5.56	work, hard, balance, much, home, amount, quality
Customer Facing	5.46	customer, store, sale, service, rude, shop, colleague

Note: This table presents in Panel A and Panel B the topic solutions from Structural Topic Model (STM) using the positive and negative feedback corpora from Glassdoor online reviews, respectively. The second column presents the proportion of reviews that are assigned to each topic solution. The last column presents the top 7 FREX words, i.e., the most probable words in each topic.

Motivation

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Topic modeling

STM

Topic modeling parameters

number of topics was calculated through an iterative process based on three criteria: (i) the held-out likelihood, (ii) the semantic coherence of the topic structure and (iii) the exclusivity of topic words to the topic.

spectral decomposition algorithm of Lee and Mimno (2014) in order to evaluate the range of the topic solutions in each of the corpora and constructed a seed vector of the candidate number of topics

Nr of topics: 6 to 14 (minimum seed value is associated with the number of *Glassdoor*'s individual rating aspects)
Metric for the identification of the most important words in a given topic: FREX
FREX ω: 0.5

Nr. of topics

12

Label

Manually assigned labels with a maximum length of two words

Label selection

The experts had to mutually agree a label comprising of up to two words and assign it to the given topic.

Label quality evaluation

Assessors

experts in Human Resource Management

Domain

Paper:

Dataset:

Problem statement

This paper investigates the informational value of online reviews posted by employees for their employer, a rather untapped source of online information from employees, using a sample of 349,550 reviews from 40,915 UK firms. We explore this novel form of electronic Word-of- Mouth (e-WOM) from different perspectives, namely: (i) its information content as a tool to identify the drivers of job satisfaction/dissatisfaction, (ii) its predictive ability on firm financial performance and (iii) its operational and managerial value. Our approach considers both the rating score as well as the review text through a probabilistic topic modeling method, providing also a roadmap to quantify and exploit employee big data analytics. The novelty of this study lies in the coupling of structured and unstructured data for deriving managerial insights through a battery of econometric, financial and operational research methodologies.

Corpus

Origin: Glassdoor

Nr. of documents: 349,550

Details:

- employee reviews from 40,915 UK firms

Document

Employee online review accompanied with demographics, such as gender, age, and education and firm-specific information, such as the sector the company operates in, whether the company is public or private, and economic variables.

In addition to an overall rating, employees evaluate several job elements, such as career opportunities, compensations and benefits, senior leadership, work/life balance, and culture and values.

Pre-processing

- word text tokenization
- removal of numbers and punctuation marks
- removal of English stop words (using the SMART stop-word list)
- removal of context-specific stop words (e.g., company names, job roles)
- Part-Of-Speech (POS) tagging to extract adjectives, adverbs and nouns
- lemmatization
- frequency filtering of the terms to maintain those that appear in at least 1% of the total reviews in the initial corpus.

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quantify and exploit employee big data analytics. The novelty of this study lies
in the coupling of structured and unstructured data for deriving managerial
insights through a battery of econometric, financial and operational research
methodologies. Our empirical analyses reveal that employee online reviews have
informational value and incremental predictability gains for a firm's internal
and external stakeholders. The results indicate that when models integrate
structured and unstructured big data there are leveraged opportunities for firms
and managers to enhance the informativeness of decision support systems and in
turn, gain competitive advantage.},
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and Nikolaos Korfiatis},
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    date-modified = {2023-04-22 16:44:41 +0200},
    doi = {https://doi.org/10.1016/j.ejor.2020.06.001},
    issn = {0377-2217},
    journal = {European Journal of Operational Research},
    keywords = {Analytics, Employee online reviews, Topic modeling, Big data,
Decision processes},
    number = {2},
    pages = {605-619},
    title = {The informational value of employee online reviews},
    url = {https://www.sciencedirect.com/science/article/pii/S0377221720305269},
    volume = {288},
    year = {2021}}
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