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Research Article

Effects of Organizational Culture on Employer Attractiveness of Hotel Firms: Topic Modeling Approach

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As the acquisition and retention of motivated and skilled employees are key to the high performance of hotel firms, employer attractiveness of hotel firms is a critical factor in achieving competitive advantage. Focusing on organizational culture, this study analyzes how different cultural attributes affect hotel firms' attractiveness as employers. For the empirical analysis, this study collected 54,040 reviews of 157 large hotel chains and firms from Glassdoor in the United States. This study combines an unsupervised machine learning tool for topic modeling (latent Dirichlet allocation) with the coding process of researchers to measure the different cultural attributes of hotel firms. The research results show the positive and significant impact of four cultural attributes—collaborative, employee development, fair compensation, and customer focus—on employer attractiveness measured by both users' employer satisfaction and recommendations to friends. In contrast, an innovation culture has no significant effect on attractiveness.

1. Introduction

The goal of this research is to analyze the influence of organizational culture on hotel firms' employer attractiveness. According to the Bureau of Labor Statistics in the United States, the employee turnover rate in the hospitality industry was 78.9% in 2019, while the national average turnover rate was 36.4%. The hospitality industry has been dealing with chronic turnover problems caused by high job strain, role stressors, and emotional labor. As a result, the acquisition and retention of skilled human resources is an essential condition for gaining a competitive advantage in the hospitality industry. [1, 2]. Given these issues, improving employer attractiveness is an important responsibility of hotel management to win against competitors. Employer attractiveness refers to an organization's image and perception as an employer based on the evaluation of the employment value and benefits offered by the organization [3–5].

Although researchers have long implied the potential influence of organizational culture on employer attractiveness (Sheridan [6]; Lievens and Highhouse [7]; Chhabra and Sharma [4]; and Theurer et al. [5]), no prior research has analyzed the influence of organizational culture on hotels' attractiveness as an employer. This study aims to fill this gap in the existing literature and investigates the impact of diverging attributes of organizational culture on hotels' employer attractiveness, based on the topic modeling of big employer review data.

Organizational culture, as a prominent characteristic of successful organizations, plays a critical role in developing and maintaining employees' dedication and commitment to an organization [8–10]. Organizational culture is a set of shared values, beliefs, customs, and assumptions that define employees' perceptions, thinking, and behavior in their work and coping with problems [8–10]. Organizational culture is a shared pattern of basic assumptions invented, discovered, or developed by leaders and organizational members to deal with the problems of external adaptation and internal integration [10]. Once organizational members have learned how to hold common assumptions and beliefs,

organizational culture generates common perceiving, thinking, and behaving patterns, which provide organizational members with meaning, stability, and comfort [10]. Governing the employees' perceptions, the different attributes of organizational culture define how an organization conducts its business and becomes valuable, inimitable, and rare resources to determine organizational performance [8]. In hotel services, organizational culture directly affects the policies, practices, and procedures of employees' activities, all of which have a significant bearing on service quality and customer satisfaction [11–13]

This study generates theoretical predictions about how different attributes of organizational culture affect hotel firms' employer attractiveness and constructs big data of employee reviews to overcome the limitations of traditional survey methods. It adopts a topic modeling tool to measure and test the influence of organizational culture based on text data.

First, existing hospitality studies on organizational culture have examined a relatively narrow scope of outcomes, such as the identification of different dimensions of organizational culture [14–17], an investigation of its influence on employee behavior ([18, 19]Li and Huang [12]; Kang et al. [20]; and Kang and Busser [13]), and an analysis of the impact on organizational performance [21, 22]. Highlighting the problems of employee retention in hotels, this study focuses on employer attractiveness as a critical result of hotel firms' organizational culture.

Second, to empirically analyze the impact of organizational culture on employer attractiveness, this study collected employees' review data in Glassdoor, the largest job-searching platform in the United States [23], constructed a sample dataset of 54,040 reviews from 157 hotel firms, and developed a language-based measurement of organizational culture [23].

Third, to measure cultural attributes in hotel firms, this study adopts the topic modeling tool of latent Dirichlet allocation (LDA; Blei [24]; Maier et al. [25]; Corritore et al. [23]). The topic modeling approach helps researchers identify the hidden structure of documents by showing interpretable topics, and LDA reports the cultural attributes by generating a probability distribution of cultural topics in the employees' review data (Blei [24]; Maier et al. [25]; Corritore et al. [23]). By combining the unsupervised machine learning of LDA and the researchers' coding process, this study assesses the different cultural attributes of hotel firms and analyzes their impact on employer attractiveness measured by both "employer satisfaction" and "employee's recommendation to friends."

Advancing the existing studies on the organizational culture of hotels and employer attractiveness, this study proposes a new methodological approach beyond the traditional self-reporting survey using a large-scale dataset of employee reviews and the application of machine learning tools.

2. Literature Review

Existing studies on organizational culture in hospitality have a relatively long history, and the major literature has not only focused on identifying different dimensions of organizational culture and scale development (Bellou and Andronikidis [14]; Dawson et al. [15]; Bavik [16]; Datta and Singh [17]), but also on their influence on employee behavior (Tepeci and Bartlett [18]; Yang [19]; Li and Huang [12]; Kang et al. [20]; Kang and Busser [13]) and organizational performance (He et al. [21]; del Rosario et al. [22]).

2.1. Identification of Culture Dimensions. One significant aspect of organizational culture research in hospitality is the effort to identify cultural attributes and develop scales to measure them. Given that an accurate understanding of the prevalent organizational climate helps optimize service performance by identifying organizational strengths and weaknesses, Bellou and Andronikidis [14] proposed and measured 17 dimensions of the organizational climate based on a survey of 217 hotel employees in Greece. Dawson et al. [15] tried to identify both a measurably distinctive hospitality industry culture and personal attributes to facilitate the culture-person matching process. Based on a survey of 741 employees in various hospitality sectors in the United States, the authors identified four valid dimensions of organizational culture. With the goal of identifying distinguishable organizational cultures in the hospitality industry, Bavik [16] conducted 18 interviews and a survey of 281 hotel employees in New Zealand, generating nine dimensions of organizational culture. To help hotels improve their organizational climate, Datta and Singh [17] clarified four dimensions based on a survey of 504 hotel employees in India.

2.2. Employee Outcomes. As organizational culture significantly affects employee behaviors, researchers have performed empirical analyses on how different cultural attributes influence a variety of positive employee outcomes. Based on a survey of 182 hospitality management students with hospitality jobs in the United States, Tepeci and Bartlett [18] investigated the influence of organizational culture, individual values, and fit between two dependent variables, such as job satisfaction, intention to quit, and recommendation of the organization. The author found that organizational culture had a positive effect on job satisfaction. Given the significance of effective knowledge management in hotels, Yang [19] analyzed the influence of organizational culture on knowledge-sharing behavior. A survey of 1,200 hotel employees in Taiwan showed that collaborative culture has a significant effect on knowledge-sharing behavior. Based on a survey of 500 restaurant employees in China, Li and Songshan [12] found that the service climate has a positive impact on employee performance. Hee et al. [20] also showed the positive influence of service climate on turnover intention based on a survey of 263 casino hotel employees in the United States. Based on a survey of 362 managers and employees in casino hotels in the United States, Hee and Busser [13] found that employee engagement plays a mediating role between service climate and turnover intention while also showing the moderating effect of hierarchy.

2.3. Organizational Outcomes. In addition to employee outcomes, hospitality researchers have investigated how organizational culture affects organizational performance, such as customer satisfaction and innovation. He et al. [21] examined the influence of organizational climate, such as customer orientation, managerial support, and work facilitation, on customer satisfaction based on a survey of 216 hotel employees in China. The same study showed that employee commitment plays a mediating role in the relationship between organizational culture and customer satisfaction. They found that customer orientation has a direct and positive impact on customer satisfaction, whereas managerial support and work facilitation are indirectly associated with customer satisfaction through employee commitment. Given the rapidly increasing environmental significance of the tourism industry, Maria del Rosario et al. [22] presumed organizational culture as an import predictor of eco-innovation in hospitality. They adopted the competing values framework as an analytical model of organizational culture and hypothesized the influence of different organizational cultures such as hierarchy, market, clan, and adhocracy cultures. Based on a survey of 130 hotels in Mexico, they found that clan and adhocracy cultures have a positive and significant effect on hotels' eco-innovations.

2.4. Limitations and New Approach. Although researchers in hospitality studies have long conceptualized cultural attributes and their impact on employee and organizational outcomes, this research finds some restrictions. On the one hand, existing hospitality literature has focused on a relatively restricted scope of employee outcomes, such as employee job satisfaction and turnover intention as well as organizational outcomes, including service satisfaction and innovation performance. However, because it is deeply related to employee satisfaction and dedication to the organization, organizational culture can affect the attractiveness of a hotel firm as an employer to both current and prospective employees.

On the other hand, regarding research methodology, most researchers have relied on employees' self-reported questionnaires, in which few employees' personal perceptions and impressions dominate the assessment of the cultural attributes of an organization [21]. There have been concerns among researchers that the culture survey methodology can compromise the reliability and validity of research results [26]. Addressing the limitations, this study proposes a research model which focuses on employer attractiveness as an important outcome of organizational culture and, for empirical analysis, it introduces a novel methodology of topic modeling analysis using the big review data of current and former employees.

3. Theory and Hypotheses

3.1. Organizational Culture and Employer Attractiveness. Organizational culture is more significant in the service and hospitality industries than in other industries, as it directly affects the policies, practices, and procedures of frontline employees' service activities, informing what is rewarded, supported, and expected in the organization (Glisson [27]; Schneider et al. [11]; Li and Huang [12]; Kang et al. [20]). The attitudes, behaviors, and performance of frontline employees play a crucial role in defining service quality and are strongly influenced by organizational culture (Schneider et al. [11]; Li and Huang [12]; Kang et al. [20]). Rather than management's formal monitoring, cultural norms and values in an organization can more effectively guide, control, and drive employee service behaviors. Organizational culture creates a link between a firm's internal portfolio of resources and capabilities and its external customers [11]. Thus, different attributes of organizational culture lead to considerable variations in employee satisfaction, service quality, and organizational effectiveness [28].

Employer attractiveness refers to the envisioned benefits that current and potential employees perceive when working in a specific organization [4]. Employees and potential applicants develop an organization's image as an attractive employer based on the assessment of the benefits and value provided by the organization (Gehrels and de Looij [3]; Chhabra and Sharma [4]; and Theurer et al. [5]). Understanding and enhancing employer attractiveness is a significant first phase in initiating employer branding strategies. As a systematic human resource management approach, employer branding adopts the branding strategy concept in marketing research and aims to promote the employment image of firms to gain advantage against competitors in the labor market (Gehrels and de Looij [3]; Chhabra and Sharma [4]; and Theurer et al. [5]). As a critical element of employer branding, employer attractiveness provides a competitive advantage in acquiring, nurturing, and retaining talented employees in the competitive labor market.

Hotel firms chronically suffer from a shortage of skilled labor and should make themselves stand out from competitors as attractive employers to win talent (Lievens and Scott [7]). However, this is a huge challenge, because jobs and work within the same industry are very similar (Lievens and Scott [7]). Successful employer branding not only increases the organizational loyalty of current employees but also effectively attracts prospective employees (Gehrels and de Looij [3]; Leekha Chhabra and Sharma [4]; and Theurer et al. [5]). Employer branding is the process of establishing a hotel firm's image as an employer in the labor market (Lievens and Scott [7]; Leekha Chhabra and Sharma [4]). This is a process of communicating what it expects from employees and what it offers to them (Leekha Chhabra and Sharma [4]). Employer attractiveness is the core element of employer branding strategy and is closely associated with varying organizational conditions, such as organizational culture, management style, quality management, and impressions of products or services.

Among the many factors that affect an organization's attractiveness as an employer, organizational culture is one of the most significant (Sheridan [6]; Lievens and Scott [7]; Leekha Chhabra and Sharma [4]; Theurer et al. [5]). An important theme in employer branding literature is the significance of unique organizational attributes that an

organization promotes to gain talent (Sheridan [6]; Lievens and Scott [7]; Leekha Chhabra and Sharma [4]; and Theurer et al. [5]). The shared values and norms in an organization strongly influence employees' work and organizational experiences, constitute enduring and distinctive characteristics of the organization, and determine employer attractiveness and brand image for potential applicants. Thus, organizational attributes are the key factors in attracting applicants, and the first positive impression increases the likelihood of an applicant accepting an employment offer (Leekha Chhabra and Sharma [4]).

The critical attributes of organizational culture clarify the uniqueness and distinctiveness of an organization, relative to its competitors, and help prospective employees form a clear idea of the employment value proposed by the organization. Organizational culture determines variations in employee acquisition and retention across organizations in an industry because it fosters varying levels of employees' organizational commitment and loyalty (Sheridan [6]). Favorable attributes of organizational culture enrich employees' work experiences, enhance their organizational commitment and loyalty, and promote career development and growth. Favorable attributes of organizational culture generate a positive image and intensify employer attractiveness for current and prospective employees. Thus, it is predictable that favorable attributes of organizational culture have a positive impact on the employer attractiveness of hotel firms.

3.2. Hypotheses. Among various cultural dimensions, this study focuses on five attributes of organizational culture that have gained relatively wide attention and generated ample discussions in the studies of hospitality organizations. The list includes collaboration, employee development, fair compensation, customer focus, and innovation cultures (Tepeci and Bartlett [18]; Yang [19]; He et al. [21]; Dawson et al. [15]; and Bavik [16]). The following section develops the hypotheses to predict the positive effect of cultural attributes on employer attractiveness.

Collaborative culture emphasizes sharing common vision, mission, and norms of behaviors among organizational members, cares about employees as people, and values collaborative efforts—all of which develop a cohesive and productive workface and enhance organizational commitment (Karl-Erik and Simons [29]; Yang [19]). In this culture, employees regard collaboration and trust as key elements of organizational culture and have a positive attitude toward knowledge sharing and learning from others (Karl-Erik and Simons [29]). Collaborative culture stresses the importance of teamwork and attempts to develop an organizational climate in which employees work well not only within their team but also across different groups, teams, and departments of the organization (Yang [19]). As collaborative culture allows favorable working conditions in which employees develop strong teamwork, cohesion, and commitment, it has a positive impact on the attractiveness of hotel firms as employers.

H1: Collaborative culture has a positive effect on hotel firms' employer attractiveness.

Employee development culture stresses equipping employees with new knowledge and skills and helps them prepare for new job requirements (Lee and Bruvold [30]; Kuvaas and Dysvik [31]). In this culture, organizations emphasize work as a pleasant experience, value human resources, and care about employee growth and development. An employee development culture provides employees with continuous learning opportunities to develop current skills and competencies and gain new ones (Lee and Bruvold [30]; Kuvaas and Dysvik [31]). In this culture, employees can effectively adapt to new changes and achieve high job performance (Lee and Bruvold [30]; Kuvaas and Dysvik [31]). Thus, an employee development culture promotes employees' job satisfaction, affective commitment to the organization (Lee and Bruvold [30]), and intrinsic motivation to service. As employee development culture effectively promotes employee growth and takes care of long-term career plans, it has a positive impact on hotel firms' employer attractiveness.

H2: Employee development culture has a positive effect on hotel firms' employer attractiveness.

Fair compensation culture values norms of fairness in the process and the results of distributive managerial decisions. A fair compensation culture develops employees' perceptions that the organization strongly ensures fairness in the guidelines, policies, and principles to make compensation decisions (Namasivayam et al. [32]). A fair compensation culture provides employees with sufficient value and benefits, significantly promoting employee participation. As it provides employees with fair rewards and benefits according to their contribution, a fair compensation culture motivates work performance, helps attract and retain competent employees, and serves as a core element of enhancing employment relationships (Namasivayam et al. [32]). As it can strongly promote employees' work engagement and job satisfaction, a fair compensation culture leads to a significant increase in hotel firms' employer attractiveness.

H3: Fair compensation culture has a positive effect on hotel firms' employer attractiveness.

A customer-focused culture is highly concerned with understanding customers' needs, wants, and expectations (Bartley et al. [33]: Fan and Ku [34]) and places the customer at the center of the organizational activities and operations (Fan and Ku [34]). In this culture, service employees develop a strong commitment to customer satisfaction and pursue high-quality service in a proactive manner to achieve long-term growth (Bartley et al. [33]; Fan and Ku [34]). As it enables organizations to perform the necessary behaviors to create superior value for customers, customer focus culture can realize continuous superior performance (Bartley et al. [33]). A customer-focused culture may generate a favorable service climate in which employees and customers work together to create higher service value, generating great satisfaction for both customers and employees (Chi and Gursoy [35]; Jeon and Choi [36]). The theory of emotional contagion suggests that interacting individuals experience transference and sharing of emotion, strongly supporting a positive relationship between employees and customer satisfaction. Service literature suggests that customers and employees in service encounters tend

to automatically mimic and synchronize critical emotional cues, such as facial expressions, vocalizations, and postures, to converge emotionally. Furthermore, when customers are satisfied with employees, they actively engage in cooperative behavior to reciprocate employees' efforts, care about employees' well-being, and develop emotional bonds with employees Jeon and Choi [36]. Given the close relationship between customer satisfaction and employee satisfaction in service (Chi and Gursoy [35]; Jeon and Choi [36]), it is suggested that a customer-focused culture is closely related to employees' job satisfaction and enhances hotel firms' employer attractiveness.

H4: A customer-focused culture has a positive effect on hotel firms' employer attractiveness.

Innovation culture develops the norm of risk-taking by allowing freedom to try things and fail (O'Reilly [9]). It provides rewards for changes and creative ideas, while ensuring openness through active communication and knowledge sharing (O'Reilly [9]; Turnipseed and Turnipseed [37]; Chandler et al. [38]; and Li and Hsu [39]). Innovation culture is responsive to customer needs and emphasizes changes and improvements in high-quality products and services (Turnipseed and Turnipseed [37]). This enhances employees' perception that management supports them and develops reward systems to promote commitment to innovation (Chandler et al. [38]). In this culture, service employees explore new opportunities and ideas, perform formative investigations, and implement new ideas for better services (Li and Hsu [39]). In the process of transforming creative problem-solving ideas into applications, service employees not only advance their personal competences and abilities (Li and Hsu [39]), but also achieve high work performance and job satisfaction. Thus, it is predicted that innovation culture has a positive effect on hotel firms' employer attractiveness.

H5: Innovation culture has a positive effect on hotel firms' employer attractiveness.

4. Methodology

4.1. Data Collection. For an empirical analysis of the theoretical model, this study collected reviews of hotel firms by current and former employees on the Glassdoor website in the United States from January 2014 to December 2019. We collected review data from the Glassdoor website using Matlab's webread function. (According to Matlab's documentation, the webread function reads content from a website and returns the content in the form of data.) Moreover, anyone can sign up for Glassdoor and view the review data on-site. Therefore, data collection was difficult.

As one of the largest job search platforms (Corritore et al. [23]; Sull et al. [40]), Glassdoor has accumulated 55 million reviews since its launch in 2008 and has 67 million unique monthly visitors, covering approximately 900,000 organizations (Figure 1). After their identities are authenticated by Glassdoor, former and current employees write reviews anonymously without fear of reprisal by employers (Corritore et al. [23]), and firms cannot remove critical reviews. Users search for job post reviews in exchange for detailed site access (Corritore et al. [23]).

For the review of hotel employers, Glassdoor operates abrand- or firm-specific review site rather than individual hotel properties in the region. To identify hotel firms, we not only used a list of hotel chains in the United States provided by the website Looking for Booking but also used the search function in Glassdoor. In the search process, we used the terms "hotel(s)," "motel(s)," "lodge(ing)," "resort(s)," "vacation(s)," "casino(s)," "park(s)," and "hospitality." Based on these approaches, we initially collected 78,563 reviews from 189 hotel firms on Glassdoor, with at least 100 reviews in November 2020. As this study measures organizational culture at the corporate level by combining reviews, we must ensure sufficient reviews to estimate cultural attributes (Corritore et al. [23]). Thus, we set a restriction on the minimum number of five reviews per quarter. Regarding the frequency and distribution of reviews over time, some global hotel firms have a large volume of constant reviews, while others have a few sparse postings. After dropping the hotel firms without more than five reviews per quarter and excluding non-English reviews for the machine learning process, we obtained sample data including 54,040 reviews in 157 hotel firms for the statistical analysis of the hypotheses.

Employee reviews on the Glassdoor platform contain self-initiated and anonymous reports on employees' life experiences (Das Swain et al. [41]). The large-scale employee review data adopted in this research overcomes a variety of limitations in the traditional survey method, such as the restricted scalability of data, temporal granularity, response (or nonresponse) bias, and social desirability bias (Das Swain et al. [41]). The platform's review data encompass objective information, such as pay, work hours, and fringe benefits, and free-form textual data that inform various aspects of organizational experiences and attributes of organizational culture. The real-life languages used in the reviews reflect the shared experiences of employees without being framed by the theoretical terms of the academic researchers' survey questionnaires. The affordance of descriptive text in employee reviews provides researchers with an accessible and scalable medium for observing cultural differences and organizational characteristics (Das Swain et al. [41]).

4.2. Measurement. The independent variable of this research is the different attributes of organizational culture, and we developed language-based measures of cultural attributes by using LDA topic modeling (Blei [24]; Maier et al. [25]; Corritore et al. [23]). The topic modeling approach identifies the hidden structure of documents by generating interpretable topic distributions (Figure 1). LDA uses a mixed-membership model of grouped data, as each group exhibits multiple topics with different proportions. In the topic modeling process, LDA makes a "bag of words" assumption that discards word orders in documents (Blei [24]; Maier et al. [25]; Corritore et al. [23]). LDA inputs a document-term matrix, in which the rows have reviews and the columns have unigram counts. It identifies distinct topics across the corpus by collecting words that frequently co-occur in each review. LDA then outputs a document-topic
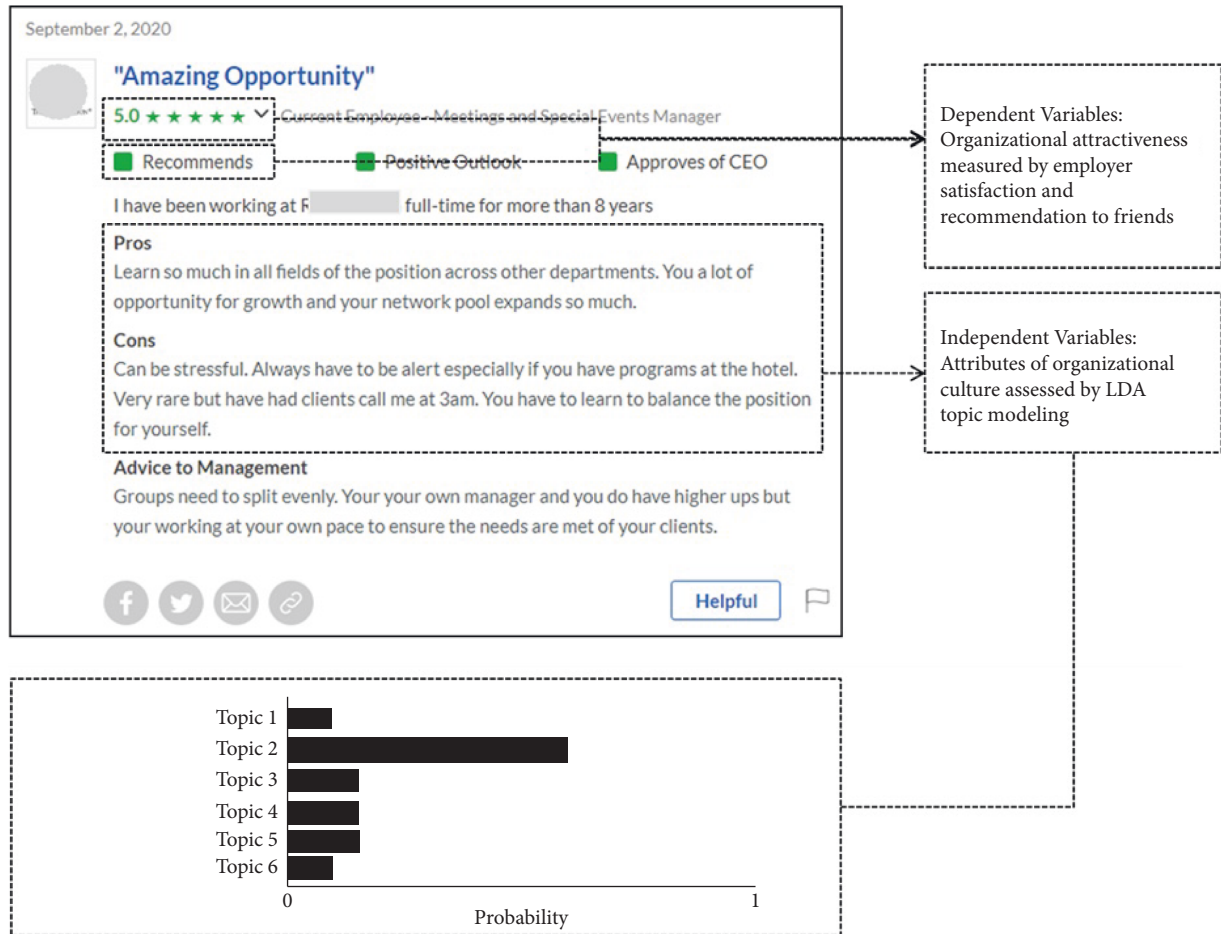
Figure 1: Example of employee review in Glassdoor and conceptualization of variables.

matrix that shows a probabilistic mixture of topics in each review document by providing percentages across all topics (Blei [24]; Maier et al. [25]; Corritore et al. [23]) (Figure 1 and Table 1).

To measure organizational culture through topic modeling of employee reviews in Glassdoor data, we integrated a firm's quarterly reviews (Figure 1), generated the probability of 100 cultural topics through unsupervised machine learning in LDA, matched relevant topics to different cultural attributes, and assessed their strength by combining the probability of relevant topics (Table 1). For more specific topic modeling processes, we followed the four-step approach proposed by Maier et al. [25]. The process consisted of (1) data cleaning and preprocessing, (2) choosing a number of topics, and (3) confirming topic interpretation and validity.

First, data cleaning and preprocessing include the standard procedures for processing unstructured text data, such as tokenization, discarding punctuation and capitalization of words, filtering out stop words, discarding both highly frequent and infrequent terms, and stemming and/or lemmatizing (Maier et al. [25]). We aggregated quarterly reviews of hotel firms and performed a basic cleaning of text documents to produce topics.

Second, in the application of the LDA machine learning function, choosing the number of topics is one of the most complicated tasks because no standard procedure exists that guides the setting of an appropriate number of topics. LDA allows users to set the number of topics freely (e.g., 30, 50, 100, and 500). Generating a small number of broad topics involves the problem of having general topics containing different themes; in contrast, accepting many topics generates highly specific and narrow topics (Maier et al. [25]). Thus, we decided to generate a relatively large number of topics (100) to obtain more precisely defined topics.

Third, topic interpretation and validity confirmation are the most important aspects of LDA modeling to effectively measure cultural attributes. Although LDA can generate multiple topics through an unsupervised learning process, it cannot present the semantics of obtained topics. The LDA model results are not deterministic and should be assessed against the background of substantive theoretical constructs (Maier et al. [25]). Thus, the most straightforward approach is to read individual topics and terms with the highest frequencies in a topic, review the meaning of the topics, and develop a label describing their substantive content (Maier et al. [25]; Corritore et al. [23]).

For the analysis of organizational culture, we adopted a bottom-up approach, in which we generated a relatively large number of 100 topics and performed the coding process. Unsupervised machine learning generated 100 topics from

TABLE 1: Construct measurement by topics generated by LDA.

Construct	Topic	Frequent Term
Collaborative culture	3	Friendly, environment, great, work, atmosphere, helpful, everyone, coworkers, team, worker, fun, sometimes, pleasant, relaxed, welcoming
	5	Work, love, great, amazing, people, really, intern, awesome, place, wish, enjoy, caring, hard, team, environment
	8	Make, everyone, help, feel, like, thing, way, every, willing, know, same, think, something, just, else
	9	Like, family, feel, stay, treat, part, friend, always just, well, number, come, definitely, enjoy, work
	14	Work, environment, place, great, really, positive, fun, team, enjoy, hard, professional, tough, exciting, supportive, chance
	16	Good, work, nice, people, far, coworker, bit, place, building, everything, load, area, definitely, heavy, generally
	22	Work, great, place, good, home, excellent, colleague, well, smart, think, social, clear, condition, tight, add
	47	Staff, friendly, management, short, always, work, sometimes, busy, good, shift, colleague, hour, environment, finish, fairmont
	51	Team, member, value, share, family, together, need, supportive, top, core, truly, well, part, wonderful, positive
	53	Environment, work, fun, great, good, fast, friendly, paced, challenge, supportive, colleague, overall. Beautiful, professional, win
	64	Work, really, love, people, back, enjoy, face, help, everyone, laid, everyday, interact, able, community, appreciate
Employee development culture	13	Opportunity, room, advancement, growth, benefit, plenty, small, little, offer, compensation, pto, competitive, position, discounted, fulltime
	23	Company, opportunity, move, grow, growth, lot, willing, advance, city, career, offer, great, quickly, limited, limited
	24	Opportunity, career, growth, growth, development, great, culture, learn, challenge, company, excellent, progression, leadership, path, compensation
	29	Company, associate, culture, care, grow, truly, hospitality, amp, leader, focus, industry, success, year, promotion, kimpton
	41	Training, program, opportunity, development, excellent, property, great, growth, promotion, company, process, promotion, career, white, engage
	45	Move, many, opportunity, position, department, different, transfer, around, location, lot, difficult, hard, advance, available, entry
	59	Company, many, culture, value, business, provide, grow, work life, lead, field, challenge, encourage, new, change, still
	61	Experience, learn, lot, skill, different, gain, knowledge, difficult, great, interaction, training, exposure, variety, new, type
	76	Expectation, management, support, training, high, well, set, goal, expect, due, little, need, pressure, issue, unrealistic
Fair compensation culture	11	Great, benefit, salary, travel, competitive, culture, amazing, package, company, rule, strict, awesome, minimal, corporate, advancement
	18	Hotel, discount, employee, room, rate, benefit, travel, perk, cafeteria, meal, advance, renovate, loyalty, paid, reduce
	20	Great, benefit, perk, awesome, location, atmosphere, sometimes, vary, strict, empower, diverse, staffed, throughout, starting, split
	26	Pay, low, good, salary, benefit, decent, compare, little, bonus, nice, workload, poor, lifestyle, odd, million
	34	Company, great, benefit, reward, well, fantastic, amazing, offer, perk, excellent, recognize, vision, especially, recognition, hotels
	42	Good, benefit, pay, union, fair, salary, plus, employee, appreciation, provide, non, teamwork, community, lower, quality
	44	Good, work, salary, environment, professional, training, standard, experience, benefit, personal, facility, great, less, worldwide, learning
	52	Great, benefit, lot, good, atmosphere, environment, fun, beautiful, culture, upward, mobility, move, movement, potential, consistent
	67	Pay, job, good, people, easy, decent, enough, suck, get, nice, sometimes, low, slow, amount, work
	79	Pay, wage, low, minimum, hourly, hour, overtime, increase, less, tip, living, fair, barely, rate, uniform
	81	Work, life, balance, personal, difficult, family, outside, compensation, environment, ring, listens, developer, staff, long, awareness, 5060
	96	Benefit, health, insurance, 401k, discount, medical, plan, vacation, offer, dental, pay, match, include, travel, etc.

TABLE 1: Continued.

Construct	Topic	Frequent Term
Customer focus culture	49	Customer, make, sure, decision, guest, feel, happy, inn, stay, take, appreciate, long, term, thing, resort, love
	69	Customer, guest, always, deal, sometimes, problem, make, happy, moment, time, job, never, keep, coworkers, create, fun
	92	Customer, customer, service, guest, experience, skill, learn, rude, quality, interact, good, kind, set, business, sometimes develop,
Innovation culture	28	Company, team, many, process, technology, big, change, talent, organization, global, leadership, focus, culture, large, spirit
	56	New, always, change, idea, come, need, way, start, person, something, right, year, bring, think, listen
	73	Management, hotel, department, allow, manager, create, team, keep, project, improve, site, revenue, director, senior, quality

quarterly reviews, and three researchers directly reviewed and selected relevant topics to match the cultural attributes of the hotel firms (Table 1). In the matching process, each researcher independently reviewed and selected relevant topics that matched theoretical concepts. Upon selecting independently coded topics, we followed the decision rule proposed by Corritore et al. [23] and selected topics in which at least two coders independently matched the cultural attributes. The decision process led to the selection of 40 topics. As Table 1 shows, the five attributes of organizational culture encompass multiple topics and key terms. Finally, we added the probabilities of the selected topics to measure the six attributes of organizational culture and added them to the analysis model as an independent variable.

The dependent variable of this research is the employer attractiveness of hotel firms, which we measure using two indicators in Glassdoor reviews. One measurement of attractiveness is "employer satisfaction," rated by employees on a 5-point scale (Figure 1); the other is the employee's answer to the question of whether the user "recommends the firm to friends" (Figure 1). Regarding this question, we input 1 for recommendation, 0 for neutral or nonanswer, and −1 for no recommendation. To make a corporate-level assessment, we calculated the means of all quarterly ratings presented by the employees.

The detailed process of creating independent and dependent variables for regression is summarized as follows:

Step 1. Create a list of famous hotels on Glassdoor

Step 2. Aggregate total reviews (sum of "pros" and "cons") of hotel firms and remove hotels with little or no review data.

Step 3. After basic cleaning of the total review text data, perform tokenization of the whole review text data.

Step 4. Vectorize the tokenization results using the bag-of-words model and fitting the LDA model to the vectorization results of the whole review data with 100 topics.

Step 5. Based on the fitted LDA model results, classify the 100 topic results into five cultural attributes using each topic's most frequent keywords.

Step 6. Calculate the topic probabilities for each review based on the fitted LDA model results.

Step 7. Define the score for five cultural attributes as a summation of the probability values for the topics belonging to each cultural attribute.

Step 8. Collect quarterly review data for each hotel and calculate the quarterly scores of five cultural attributes for each hotel as the average score for the five cultural attributes of the reviews in the quarter.

Step 9. Define the independent variables as the scores of the five cultural attributes for each quarterly and each hotel.

Step 10. For collected review data for each quarter and for each hotel, calculate average values of the "employer satisfaction" and "recommends the firm to friends" indicators in the reviews.

Step 11. Define the dependent variables as the average values of the two indicators for each quarterly and hotel.

The control variables of this research include the "logged number of total reviews" in a hotel firm, "logged number of quarterly reviews," and "classification of hotels." As the substantial difference in the number of reviews among hotel firms can cause systematic variations in cultural attribute measures (Corritore et al. [23]), we input both the logged number of total reviews and quarterly reviews to control for such potential influences. Finally, to control for hotel classification, we input 1 for the hotel brands classified as "luxury" and "upper upscale" hotels, while inputting 0 for all others. We expect that hotel firms with a large size and high service quality may offer better employment conditions than others, significantly affecting employer attractiveness.

Finally, although organizational culture reproduces itself in the socialization of new members and maintains high stability, disruptive organizational events such as new organizational leaders, mergers and acquisitions, and business crises can initiate sudden cultural changes and dynamisms (Schein [10]). This study calculated the Z-score to consider the unusual cultural changes in the statistical analysis (Cousineau and Chartier [42]) of all the probabilities of cultural attribute topics in each sample firm, to detect outliers. As an effective approach to identifying outliers, the Z-Score measures the distance of a data point from the mean using standard deviations. A positive value indicates that the

TABLE 2: **Descriptive statistics and correlations** ($n = 2,116$). *Note.* $^{*}p < 0.05$, $^{**}p < 0.01$.

	Means	S.D.	1	2	3	4	5	6	7	8	9
Log no. Total review	2.460	0.508									
Log no. Quarterly review	1.184	0.390	0.839**								
Classification	0.19	0.390	0.105**	0.067**							
Collaborative	0.107	0.026	−0.038	0.020	0.13**						
Employee development	0.077	0.025	0.057**	0.082**	0.072**	−0.045*					
Fair compensation	0.094	0.024	0.034	0.040	0.094**	−0.007	0.131*				
Customer focus	0.038	0.015	0.094**	0.086**	−0.053*	−0.073**	−0.077**	−0.216**			
Innovation	0.023	0.011	−0.035	−0.003	−0.070**	−0.073**	0.189**	−0.002	−0.037		
Employer satisfaction	3.367	0.578	0.195**	0.271**	0.214**	0.291**	0.278**	0.218**	−0.016	0.034	
Employer recommendation	0.163	0.344	0.197**	0.249**	0.165**	0.225**	0.292**	0.184**	0.002	0.018	0.832**

TABLE 3: **Results of regression analysis.** *Note.* $^{**}p < 0.01$, $^{***}p < 0.001$.

	Employer satisfaction		Employer recommendation	
	Path coefficient	T-statistic (p-value)	Path coefficient	T-statistic (p-value)
Log no. Total review	−0.072*	−2.103 (0.036)	−0.007	−0.206 (0.837)
Log no. Quarterly review	0.286***	8.326 (0.000)	0.212***	5.941 (0.000)
Classification	0.135***	7.106 (0.000)	0.091***	4.603 (0.000)
Collaborative	0.282***	14.911 (0.000)	0.225***	11.424 (0.000)
Employee development	0.239***	12.472 (0.000)	0.265***	13.326 (0.000)
Fair compensation	0.179***	9.322 (0.000)	0.146***	7.337 (0.000)
Customer focus	0.051**	2.667 (0.008)	0.057**	2.874 (0.004)
Innovation	0.020	1.029 (0.304)	−0.007	−0.332 (0.740)
F-value	102.222***		74.776***	
R^2	0.277		0.218	

observation is above the mean, whereas a negative value is below the mean. This study eliminated observations with a Z-score greater than 3 or less than −3, to consider the sudden cultural changes in the statistical analysis.

5. Analysis Result

The analysis results in Table 2 present the descriptive statistics and bivariate correlations of the variables for the analytical sample. Consistent with our expectations, four cultural attributes—collaborative, employee development, fair compensation, and customer focus—have a positive and significant correlation with employer satisfaction. Furthermore, four cultural attributes are positively and significantly correlated with employer recommendations, but innovation culture has no significant correlation. Finally, control variables such as the logged number of total reviews, number of quarterly reviews, and classification have a positive and significant correlation with the dependent variables.

To analyze the influence of organizational culture on employer attractiveness, we performed a linear regression analysis using SPSS Version 25. Table 3 reports our main findings. On the one hand, the statistics support many of our predictions and show that the four cultural attributes of collaborative culture ($\beta = 0.282$, $p < 0.001$), employee development culture ($\beta = 0.239$, $p < 0.001$), fair compensation culture ($\beta = 0.179$, $p < 0.001$), and customer focus culture ($\beta = 0.051$, $p < 0.01$) have a positive and significant impact on employer satisfaction ($R^2 = 0.277$). However, contrary to our expectations, innovation culture has no significant effect on employer satisfaction. On the other hand, the results show same result that that the four cultural attributes of collaborative culture ($\beta = 0.225$, $p < 0.001$), employee development culture ($\beta = 0.265$, $p < 0.001$), fair compensation culture ($\beta = 0.146$, $p < 0.001$), and customer focus culture ($\beta = 0.057$, $p < 0.01$) have a positive and significant impact on employer satisfaction ($R^2 = 0.218$). Furthermore, the findings show that innovation culture has no significant effect on employer recommendations.

Regarding the influence of control variables, both the number of quarterly reviews and classifications of hotels consistently and positively affect employer attractiveness, suggesting that the conditions of firm size, service quality, and brand reputation cause variations in the research model and employer attractiveness. In summary, the statistical analysis suggests that four cultural attributes—collaborative culture, employee development culture, fair compensation culture, and customer focus culture—enhance hotel firms' employer attractiveness, but innovation culture in hotels is not significantly related to employer attractiveness to employees.

6. Discussion and Conclusion

6.1. Theoretical Implications. Although organizational culture is deeply related to diverse organizational outcomes, existing hospitality studies have a relatively narrow focus on employee and organizational performance. To address this limitation, this study focuses on the employer attractiveness of hotel firms as a critical outcome of organizational culture.

This study contributes to the literature by exploring the relationship between organizational culture and employer attractiveness. As hotels have chronic problems of high turnover rate and shortage of skilled labor, a hotel's attractiveness as an employer is critical to gaining competitive advantage in the labor market. This research highlights the importance of favorable cultural attributes, showing the positive effects of four cultural attributes: collaborative culture, employee development culture, fair compensation culture, and customer-focus culture. Organizational culture clarifies the benefits, uniqueness, and distinctiveness of a hotel against its competitors (Gehrels and de Looij [3]; Leekha Chhabra and Sharma [4]; and Theurer et al. [5]). This study shows that a favorable organizational culture in a hotel is an important factor for current and prospective employees in making employment decisions. It also helps hotels acquire and retain talent.

This study adopted a novel approach for operationalizing cultural attributes. Large-scale review data produced by current and former employees and combined machine learning and researchers' theoretical reasoning were used to confirm the validity of the construct measurements. The measurement process included aggregating reviews at the hotel firm level, extracting cultural topics through LDA, and calculating the probability of cultural attributes by combining topics in accordance with the theoretical definition. This new methodological approach enables researchers to overcome the limitations of self-reporting surveys. Although the classic survey methodology is less expensive and time-consuming, it cannot access "deeper" cultural attributes that are represented in the form of symbolic meanings, semiotics, and fundamental assumptions prevalent among employees (Denison et al. [26]). Traditional surveys measure cultural attributes using general theoretical terms and words presented in the organizational culture theory. Employee reviews on Glassdoor, however, enable researchers to gain direct access to the language and expressions that hotel employees use in their workplace. Researchers can identify organizational culture directly by observing the language and terms in which employees describe the organization to outsiders, as this reveals their underlying beliefs and assumptions (Corritore et al. [23]).

Moreover, the aggregation of review data enables the assessment of cultural attributes at the corporate level, along with a comparative analysis across organizations, which is a step ahead of the traditional self-reporting survey at an individual level. Analyzing the influence of specific cultural attributes on individual outcomes, the traditional survey method focuses on evaluating the perceptions of a few individuals in an organization that are psychologically meaningful and impressive to them (He et al. [21]; Denison et al. [26]). However, surveys of a few employees in a firm can be biased and inaccurate in terms of representing the firm's organizational culture as a whole (Denison et al. [26]). For a more accurate analysis of organizational culture, meaningful data are attainable when researchers collect personal data under the same set of cultural concepts and aggregate them at the organizational level, which allows for comparison across organizations (Denison et al. [26]). The

aggregation of employee reviews in a hotel firm constitutes a more valid instrument for the study of organizational culture, as it enables researchers to measure cultural attributes at the corporate level with minimal personal bias. The large-scale data in this study ensured a higher validity of the construct measurement and enhanced the generality of the analysis results.

Finally, this study proposed a new text-mining structure for analyzing organizational culture, based on large-scale employee review data, and demonstrated its applicability and usability. The new approach in this research presented a ten-step procedure to perform data collection, tokenization of text, application of the LDA model to measure organizational culture, manual coding of cultural attributes, construction of quarterly data for regression analysis, and testing of the research model. Given the systematic analysis process and the sound statistical results supporting the hypotheses, this study's new text-mining structure can effectively guide researchers who adopt large-scale text data and topic modeling tools, to perform organizational culture and behavior studies.

6.2. Practical Implications. Hotel firms have highly labor-intensive services, and good service delivery is largely dependent on the motivation, capabilities, and attitudes of employees. Acquiring talented and capable employees is one of the most critical elements in the hospitality industry because of the chronic problem of high turnover in the United States (Dusek et al. [1]; Park and Min [2]). Improving the employer attractiveness of hotels involves a variety of positive outcomes for employees and hotels. Desirable and satisfactory employers can induce good organizational commitment and job performance among employees, as well as create good service quality and customer satisfaction (Chi and Gursoy [35]), while decreasing their absenteeism and turnover intentions (Yang [43]). Employer attractiveness reduces the cost of employee acquisition, improves employee loyalty, and ensures employee retention, all of which create solid corporate branding and competitive advantage (Leekha Chhabra and Sharma [4]).

The results of this study provide critical insights for leaders and human resource (HR) managers in attracting talent. The analysis results advise leaders to promote favorable cultural attributes such as collaboration, employee development, fair compensation, and customer focus culture to strengthen the hotel's attractiveness as an employer. In particular, as HR systems are deeply associated with the shaping of organizational culture (Lengnick-Hall et al. [44]; Chow [45]), managers should design systematic HR practices to foster employee career advancement and capability growth while offering fair compensation to promote employer brands to current and prospective employees.

6.3. Limitations and Future Research. Although this study contributes to the hospitality literature by analyzing the relationship between organizational culture and employer attractiveness, it has limitations that should be addressed in future research. On the one hand, the current research

analyzed organizational culture at the hotel firm level, but individual hotel properties may develop diverging cultural attributes, even if they belong to the same franchise or chain systems. Thus, future research may address this limitation by analyzing the influence of property-level attributes on employer attractiveness and performance. On the other hand, the empirical analysis in this research focused only on hotel firms in the United States using Glassdoor reviews written in English. Thus, the validity of our research results is limited to English-speaking users of Glassdoor in the United States. When we consider that national culture may affect the organizational culture of firms, future research can investigate the influence of organizational culture on employer attractiveness in different national and cultural contexts by using reviews in different languages to enhance the external validity of our results. Despite these restrictions, new attempts in this study, such as the exploration of new relationships between constructs, the novel operationalization of organizational culture, and a methodology based on machine learning processes, provide crucial insights for future research in hospitality studies.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors have declared that no competing interests exist.

Acknowledgments

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