



Firm engagement: Scale development and verification

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ARTICLE INFO

Keywords:

Firm engagement
Customer engagement
Employee engagement
Scale development

ABSTRACT

Stakeholder or actor (e.g., firms, employees, and customers) engagement is critical for value co-creation in the service ecosystem. As a provider of an engagement platform in a service ecosystem, the firm plays a critical role in employee and customer engagement. While customer and employee engagement have received much attention, firm engagement research remains unexplored, nonetheless, is critical for the business development and sustainability. There is no scale that has been developed to measure firm engagement. Development of this scale would provide a holistic picture of engagement from a multi-perspective. Following the conventional scale development process, this study developed and verified a scale to measure firm engagement. First, in-depth interviews with 23 managers of companies in different industries were conducted to establish initial items. Subsequently, item purification (N = 397) and validation (N = 398) were performed. The results show that firm engagement consists of eight dimensions from customer and employee perspectives. Specifically, customer engagement orientation includes empathy, employee participation, customer participation, and resource integration while employee engagement orientation includes management participation, corporate culture, interest alignment, and internal service quality. The scale contributes to the engagement literature and human resource management research and has practical implications for firms to improve employee performance and customer experience.

1. Introduction

With technological advances, high levels of customer interaction and increasing competition, it is critical for firms to adopt engagement strategies to establish a sustained competitive advantage (Pansari & Kumar, 2017). Engaging with stakeholders is imperative for firms to maintain sustainable development and interact with customers and employees actively (Kumar and Pansari, 2016; Venkatesan, 2017; Harmeling et al., 2017). Despite the importance of employee and customer engagement, very little research has identified the appropriate means to improve their engagement from a firm perspective.

The literature has explored engagement mostly from a customer and employee perspective. Employee engagement (EE) is known to have a positive effect on firm performance (Kim and Koo, 2017; Markos and Sridevi, 2010; Bailey et al., 2017; Bakker et al., 2014; Bedarkar and Pandita, 2014; Kumar and Pansari, 2016; Truss et al., 2013; Suhartanto and Brien, 2018; Gruman and Saks, 2011; Suhartanto & Brien, 2018, 2018). Engaged employees have higher satisfaction (Cole et al., 2012),

and commitment to the organization (Lee et al., 2016), and a lower turnover intention (Saks, 2006; Shah and Beh, 2016; Jung et al., 2021). Engaged employees also tend to proactively promote the firm's brand and products to customers (Gruman and Saks, 2011; Suhartanto and Brien, 2018). Customer engagement (CE) also positively influences customer purchase intention (Malthouse et al., 2016), customer loyalty (Filep, 2008; Prentice and Nguyen, 2020; Molinillo et al., 2020), customer experience (Islam et al., 2019; Hwang and Seo, 2016), firm-customer relationship quality (Hollebeek, 2011; Wang and Lee, 2020; Touni et al., 2020; Chen et al., 2021), and firm's performance and development (Rather and Sharma, 2016; Kumar and Pansari, 2016). Nevertheless, prior studies primarily discuss employee and customer engagement separately without capturing a holistic perspective by integrating them. This integration provides more sustainable competitive advantage and guidelines and strategies for managers to develop and improve engagement within the firm.

As the provider of an engagement platform and as a facilitator of engagement with other actors (e.g., employees and customers) in value

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<https://doi.org/10.1016/j.jretconser.2024.103902>

Received 4 February 2024; Received in revised form 19 April 2024; Accepted 8 May 2024

Available online 30 May 2024

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co-creation, the firm plays a key role in facilitating employee and customer engagement. On this basis, Kumar and Pansari (2016) introduced the concept of firm engagement and characterized it as the process of embedding engagement in policy decision making, to ensure strategies focus on the enhancement of customer and employee engagement to maximize value for stakeholders (Kumar and Pansari, 2016).

Kumar and Pansari (2016) offered that firm engagement should be approached by engaging customers and employees. Customers and employees play crucial roles within firms since the customer is the primary source of revenue and employees interact directly with the customer. Service dominant logic suggests that a customer is a co-producer of service and an operant resource, which emphasizes the co-creation of value between the company and the customer through the service encounter (Vargo and Lusch, 2004). The concept of the service encounter emphasizes the importance of the bond between the customer and the service provider (Surprenant and Solomon, 1987), usually represented by the employees (Solomon et al., 1985). The quality of the service encounter, which is mainly determined by interaction between the customer and the employee, impacts on customer and employee engagement.

Hence, firm engagement should embrace strategies to engage customers and employees from different perspectives. However, there are several critical research questions have not been addressed. What is firm engagement? What dimensions consists of firm engagement? How is firm engagement related to employee and customer engagement? Little research has been undertaken to understand the concept of firm engagement and the relevant implications.

Consistent with this discussion, this paper developed a measurement scale to assess firm engagement from an employee and customer perspective. While scales to measure employee and customer engagement have been designed in the research, these scales (e.g., CE, Baldus et al., 2015; Verleye et al., 2014 or EE, Maslach and Leiter, 1997; Shuck et al., 2017), focused on measuring the levels or behaviors of customer or employee engagement. To date, no measurement to firm engagement has been developed in the literature. The current study sheds light on engagement research by developing a scale to measure firm engagement to enrich actor engagement literature. The scale offers a comprehensive understanding of firm engagement and provides a measurement tool for future studies. This study also provides guidelines and strategies for managers to develop and improve engagement within the firm.

The following discussion presents a literature review of the firm engagement, then proceeds to an outline of the methods used in the development of the scale based on in-depth interviews and grounded theory. The findings will be presented, followed by discussion and implications.

2. Literature review

2.1. Firm engagement

Service-dominant logic indicates that value co-creation can only be realized by stakeholder engagement (Taillard et al., 2016). Engagement research primarily focuses on understanding customer engagement, however, employees, managers, suppliers are also important actors in the service ecosystem, and the service ecosystem engagement reflects the interrelations between these various actors.

As a value co-creator and engagement platform provider in a service ecosystem, the firm can lead and facilitate value co-creation between the actors (Grönroos, 2011), provide resources and value propositions for actors (e.g., customers and employees), but cannot create value directly. When actors accept a value proposition, value co-creation can be realized through interactions (Vargo and Lusch, 2004, 2008; Lusch and Vargo, 2006). By implementing a firm engagement orientation, the firm offers proposition of engagement through an engagement platform that facilitates value co-creation between multiple actors. Engaging with

stakeholders is nowadays a broadly acknowledged approach for firms to pursue long-lasting competitive advantage (Pansari & Kumar, 2017).

The research on firm engagement remains limited and very few studies approached engagement from a firm perspective. Kumar and Pansari (2016) defined firm engagement as the process of embedding engagement within firm policy to ensure strategies focus on the enhancement of customer and employee engagement to maximize stakeholder value. In other words, firm engagement can be enhanced through the implement of relevant strategies (Kumar and Pansari, 2016). According to service dominant logic and the service encounter triad, customers and employees are critical actors within firm development. Hence, customer (Ho et al., 2020) and employee engagement (Bakker et al., 2014; Markos and Sridevi, 2010; Truss et al., 2013) are key determinants of firm performance. Customer and employee engagement should be a key influence on firm engagement.

Alvarez-Milán et al. (2018) pointed out that firms should proactively seek strategies to engage customers. The authors identified five strategic aspects of customer engagement: conceptualization, target, domain, experiential routes and value. In the context of online community, Sheng et al. (2021) defined firm engagement as firm's online responding strategy to customer review and identified five features: response intensity, response promptness, response comprehensiveness, response standardization and response sentiment. Harmeling et al. (2017) has also stated that the firm should endeavour to enhance customer engagement. However, most studies on firm engagement considered only customers. Engagement research from a wholistic perspective remains sparse. No measurement has been developed to measure firm engagement.

2.2. Customer engagement

Previous studies have made great contributions to customer engagement by figuring out its definition and dimensions. While some scholars have noted customer engagement (CE) is a unidimensional construct where it is a specific behavior (Van Doorn et al., 2010), a type of cognition (Sprott et al., 2009), or an emotion (Prommaha, 2015), most scholars have agreed that CE encompasses dimensions of cognition, emotion, and behavior (eg., So et al., 2014; Behnam et al., 2021; Prentice and Loureiro, 2018; Islam et al., 2019; Prentice et al., 2019a,b; Prentice et al., 2019). Customer engagement has been reflected in customer interaction and experience co-creation with engaged objects (brands or companies) (Brodie et al., 2011).

The role of customer engagement has been explored in the literature. Engaged customers are more likely to make contributions to firms (Jaakkola and Alexander, 2014; Thakur, 2016, 2018; Roy et al., 2018) and actively participate in the innovation process, collaborating with firms to develop competitive strategies (Bijmolt et al., 2010). These customers can refer new customers, influence others, and provide valuable feedback (Kumar et al., 2010). Research findings also indicate that customer engagement contributes to customer well-being (Henkens et al., 2021; Prentice and Loureiro, 2018), electronic word-of-mouth (Kanje et al., 2020), customer loyalty (Bergel et al., 2019; Rasoolimanesht et al., 2019; Molinillo et al., 2020), trust (Taiminen and Rana-weera, 2019; Islam et al., 2020), and value co-creation (Rather et al., 2019; Huang and Choi, 2019; Yen et al., 2020). Customer engagement improves firm competitive advantage, firm performance and aids in maintaining a firm's sustainable development (Kumar and Pansari, 2016; Pansari & Kumar, 2017). These outcomes underscore the importance of fostering CE in business strategies.

To measure CE effectively, scholars developed the CE scale. Vivek et al. (2014) proposed a CE scale including attention, participation, and social connection dimensions. Dwivedi's (2015) CE scale included three dimensions: vigor, dedication, and absorption. Verleye et al. (2016) focused on three behavioral dimensions which included helping other customers, cooperating, giving feedback, and positive WOM. Given the context-dependent nature of CE, scholars have also developed several

scales to measure CE in different contexts, such as within a social media community (Hollebeek et al., 2014), a service organization (O'Brien et al., 2015), loyalty programs (Bruneau et al., 2018), tourism destination offline communities (Huang and Choi, 2019), and a social media activation campaign context (Mirbagheri and Najmi, 2019).

By reviewing CE literature, we found that extant CE scales have centered on measuring the level and type of customer engagement, including behavior or psychological state from a customer's perspective (e.g., Vivek et al., 2014; Verleye et al., 2016). These studies fail to explore customer engagement from a firm strategy perspective (Harmeling et al., 2017; Alvarez-Milán et al., 2018; Sheng et al., 2021; Kumar and Pansari, 2016). Customers, as the primary source of revenue for a firm, are co-producers of service and are an operant resource (Vargo and Lusch, 2004). Therefore, firm engagement can be enhanced by identifying strategies to improve customer engagement (Kumar and Pansari, 2016). To maintain a firm's competitive advantage, firm engagement should encompass a customer engagement orientation.

2.3. Employee engagement

Employee engagement (EE) is correlated with employee role performance and includes cognitive, emotional, and behavioral components (Kahn, 1990; Saks, 2006). EE can be separated into employee work engagement and organizational engagement (Saks, 2006; Andrew and Sofian, 2012; Ellinger and Franke, 2018; Ellinger and Franke, 2018). Employee work engagement (EWE) has been defined as the manifestation of positive attitudes that employees hold towards their work, which includes their willingness to invest discretionary effort into their work (Kahn, 1990). EWE is often considered the antithesis of job burnout (Maslach and Leiter, 1997), and includes three dimensions: energy, involvement, and efficacy (Maslach et al., 2001). Various definitions of EWE have been proposed. Schaufeli and Salanova (2007) defined it as an effective bond between employees and their work, while Young et al. (2018) described it as employees' active participation and energy investment in their work role. Bakker et al. (2014) further defined it as the identification of employees with their work.

Employee organizational engagement (EOE) has been characterized as the emotional identification and energy that employees invest into an organization (Richman, 2006; Schaufeli and Bakkeke, 2010). It is the positive attitudes employees have towards the organization (Mauno et al., 2010; Robinson et al., 2004), and the degree of identification, emotional investment, or sense of belonging that employee's feel towards the organization (Dernovsek, 2008). Towers Perrin (2005) described EOE as the willingness and capability of employees to contribute to the firm's success by voluntarily assuming additional duties and responsibilities. EOE encapsulates the cognitive, emotional, and behavioral contributions of employees to the organization (Shuck and Wollard, 2010; Saks and Gruman, 2014). EOE is manifested in employees' commitment to the values and objectives of the organization, prompting them to contribute and enhance their well-being (MacLeod and Clarke, 2011). Engaged employees establish close emotional and intellectual connections with the organization, fostering enthusiasm for achieving organizational goals (Schaufeli and Bakkeke, 2010). Scholars argue that EOE is crucial for maximizing organizational benefit (Robinson et al., 2004; Mauno et al., 2010).

Employee engagement scales (including EWE and EOE) have been developed to measure psychological state, cognition, or the behaviors of employees when they are engaged in their work or the organization. These scales were designed to measure engagement from an employee perspective (e.g., Saks, 2006; Rothbard, 2001; Rothbard, 2001; May et al., 2004; Soane et al., 2012).

Service dominant logic underscores the value of the customer, employee, and firm. To improve the level of firm engagement, it is necessary to embrace both customer and employee engagement strategies (Kumar and Pansari, 2016). By reviewing the literature, it was founded that raising income (Findley Musgrove et al., 2014),

organizational support (Zhong et al., 2016; Ellinger and Franke, 2018; Farndale, 2017), recognition to employee (Akingbola and Van Den Berg, 2019; Shah and Beh, 2016), listening to employee voice (Holland et al., 2017), and leader's direction giving, empathy and communication skills (Tao et al., 2022) are effective strategies to enhance employee engagement. Saks (2022) indicated that a caring human resource management system can drive employee engagement. For example, work design (Ellinger and Franke, 2018; Bailey et al., 2017; Nienaber, 2022), training (Crawford et al., 2010), and career development program (Aktar and Pangil, 2017) are all effective strategies of engaging employees (Saks, 2022). Extant studies demonstrated a number of strategies of engaging employee, however, there is lack of a scientific scale to measure those strategies and firm engagement without a narrow focus on employees not including customers.

3. Method

Following Churchill (1979) and Hinkin (1998), the scale development procedure in current study includes item generation, item purification, and validation. In-depth interviews and grounded theory were employed to capture initial items. Through expert discussion, initial items were modified and confirmed. The items were then purified through exploratory factor analysis and validated using (a) confirmatory factor analysis, (b) reliability, (c) convergent, discriminant, and criterion validity analysis. The methodological process is shown in Fig. 1.

3.1. Item generation

3.1.1. In-depth interviews

To establish item pool, semi-structured in-depth interviews were carried out in October 2020 to December 2020. The objective of conducting interviews was to understand specific measures implemented by the firm to improve CE and EE. On this basis, in combination with the interview content from Kumar and Pansari (2016), we asked interviewees to answer a series of questions (see Appendix). Participants were informed of the objective of the interview and that the study would be conducted anonymously and would not involve the disclosure of sensitive information. With approvals from the interviewees, the interviews were recorded to analyze the data. Consistent with the grounded theory method, theoretical sampling was adopted (Strauss and Corbin, 1998). All participants were middle-level and senior managers of companies in different industries who were involved and more aware of firm-level strategies. The researchers conducted the interviews and gathered the content independently to ensure content validity. After discussion, the questions were adjusted prior to the next interview. The interviews were terminated when data saturation was reached, meaning that no further new information or concepts emerged. A total of 23 managers were interviewed through face-to-face, phone calls, and WeChat. As the interviews conducted through WeChat were not

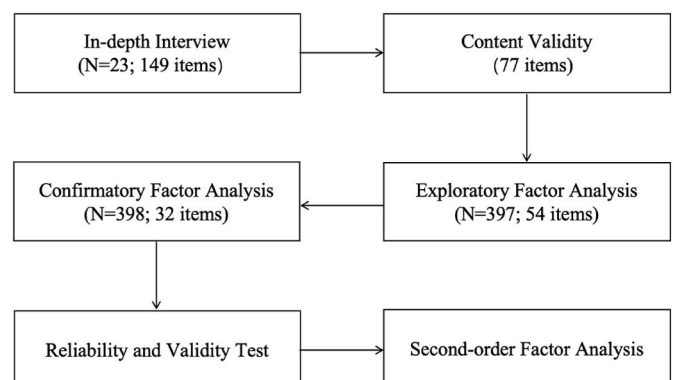


Fig. 1. The methodological process for scale development.

conducted within a set period of time, the duration was not recorded. The duration of telephone and face-to-face interview was between 25 min and 117 min. The total duration was about 1055 min, and the word count from interviews was 334,889. Demographic information is presented in Table 1.

Open coding, axis coding, and selective coding were used to analyze the interview data with NVivo 12. In this stage, two researchers coded independently, explored and categorized the words, sentences, paragraphs, and the events captured from the interviews. Other researchers in this field were invited to across-check the coding and results. By synthesizing the results of the open coding, 149 initial concepts were developed, and 70 categories were summarized. The results indicated that firm engagement should include both customer and employee engagement orientations. A total of 78 concepts and 36 categories reflected a customer engagement orientation within companies. A total of 71 concepts and 34 categories reflected an employee engagement orientation.

On this basis, a connection between concepts and categories was established (Strauss and Corbin, 1998). Finally, a total of 14 categories were extracted through continuous comparison and classification, indicating that the firm engagement consists of 14 dimensions, of which eight main categories belonged to a customer engagement orientation, and six categories belonged to an employee engagement orientation.

3.1.2. Content validity

To guarantee the content validity, five researchers majoring in business administration assessed the content of the initial scale together. The readability and legibility of each item were checked again. Items with similar meaning were combined and unrelated and unmatched items were deleted to ensure there was a strong correlation between the measurement items and the research categories. On this basis, two of the authors categorized the items and five researchers in this field were invited to discuss the classification of items. Finally, 14 categories were retained, with a total of 77 items. The customer engagement orientation included eight categories with 34 measurement items, and the employee engagement orientation included six categories with 43 items.

Table 1
Profile of interviewees.

No.	Date	Target client	Industry	Title level	Size of firm	Method	Time/mins
1	1020	C	New retail	Top	L	Face-to-face	45
2	1021	C	Education	Middle	S	WeChat	-
3	1022	C	FMCG	Middle	L	Face-to-face	30
4	1022	B	Consulting	Middle	M	Face-to-face	30
5	1023	B	Energy	Middle	M	Telephone	43
6	1023	C	Education	Top	M	WeChat	-
7	1027	C	Education	Top	M	WeChat	-
8	1027	C	Education	Top	L	WeChat	-
9	1028	B	Law	Middle	M	Face-to-face	71
10	1101	C	Communication and retail	Middle	L	Telephone	23
11	1101	C	Internet	Middle	L	Telephone	25
12	1101	C	Real-estate	Middle	L	Telephone	25
13	1101	C	Restaurant	Top	L	Telephone	71
14	1102	C + B	FMCG	Middle	L	WeChat	-
15	1104	C	Finance	Middle	L	Face-to-face	79
16	1105	C	FMCG	Middle	L	Face-to-face	117
17	1113	C + B	Insurance	Middle	L	Telephone	77
18	1114	C + B	Tourism	Middle	L	Telephone	78
19	1115	C	Airline	Middle	L	Face-to-face	56
20	1116	C + B	Human resource	Middle	L	Telephone	90
21	1117	C	Cosmetics	Top	L	Telephone	83
22	1223	C	Medical	Middle	M	Telephone	65
23	1224	B + G	Real estate and environmental protection	Middle	L	Telephone	47

Notes: B = corporate, C = customer, G = government.

The size of companies was classified according to *The Measures for The Classification of Statistically Large, Small, and Micro companies (2017)*.

3.2. Item purification and scale validation

3.2.1. Data collection

To validate the preliminary scale of firm engagement, online and offline questionnaires were conducted in December 2020. Offline questionnaires were distributed to company executives, and with encouragement, they forwarded the electronic questionnaires to other company executives. The online questionnaires were collected through Credamo, a reputable Chinese online survey platform. To guarantee the quality of the data, three rules were followed: (1) only one questionnaire could be submitted per user IP; (2) a platform acceptance rate of higher than 80% was required; and (3) participants were screened so that only top or middle managers in companies could complete the questionnaire. Two additional attention checks were set to encourage participation and ensure the quality of answers, with 7 RMB being paid for a valid questionnaire.

As a result, a total of 260 paper surveys were dispersed, and 119 of them were retained as valid. Of the 414 responses, 244 valid electronic questionnaires were retained through WeChat and out of 500, 432 valid responses were collected through Credamo. T-tests were undertaken with the data from the different sources. The results indicated that the T-test were not significant ($p = .343$), which suggested there was no difference within data from the different sources. In other words, participants' response to the measurement items remains the same. Therefore, 795 surveys were available for analysis.

Company characteristics indicated that 53% were private companies and 32% were state-owned. A total of 36% of the companies hired more than 2000 employees and 21% hired between 300 and 1000 employees. Nearly 48% of companies were B2B and 40% were B2C. Companies crossed many sectors with 26% from the manufacturing industry, finance, leasing, and business services, as well as information transmission, software, and IT service accounting for 16%, and the hospitality industry accounted for 7% (see Table 2).

A total of 795 surveys were randomly divided into two sub-samples. Sample 1 ($N = 397$) and sample 2 ($N = 398$) were used for item purification and item validation, respectively.

3.2.2. Exploratory factor analysis

This study first employed exploratory factor analysis to uncover the

Table 2
Sample characteristics (N = 795).

		N	%
Property of companies	State-owned	252	32%
	Private	410	52%
	Foreign capital	68	9%
	Others	65	8%
Total number of employees	1–100	124	16%
	100–300	133	17%
	300–1000	166	21%
	1000–2000	89	11%
	More than 2000	283	36%
Market	B2B	378	48%
	B2C	317	40%
	B2G	82	10%
	Others	18	2%
Sector	Manufacturing	210	26%
	Construction and real estate	100	13%
	Finance, leasing, and business services	130	16%
	Hotels and restaurants	56	7%
	Scientific research and technical services	53	7%
	Information transmission, IT	131	16%
	Transportation, warehousing, and postal services	33	4%
	Health, education, culture, sports and entertainment	51	6%
	Others	31	4%

underlying structure of the firm engagement scale and purify items. Kaiser-Meyer-Olkin (KMO = 0.963 > 0.5) and the Bartlett's test (p < .001) were performed with the Sample 1 data (N = 397) to confirm the use of EFA (Hair et al., 2010). The results show that the sample was appropriate for EFA. Factors were extracted with eigenvalue exceeding 1. Items were screened if their factor loadings were lower than 0.5 (Falter and Hadwich, 2020), they demonstrated cross-loading (Hinkin, 1998), or they were inconsistent with theory (Hinkin, 1998). The EFA results showed that the customer engagement orientation of a firm had five dimensions and the cumulative variance of all factors reached 64.143%. The employee engagement orientation of a firm included four dimensions, and the cumulative explanatory variance of all factors reached 69.103% (as shown in Table 3).

3.2.3. Confirmatory factor analysis

Confirmatory factor analysis (CFA) was undertaken with the Sample 2 data (N = 398) to verify the structure of the firm engagement scale and further purify the items. The model fit indices of customer engagement orientation were $\chi^2 = 247.038$, $df = 84$, $\chi^2/df = 2.941$; RMSEA = 0.07, SRMR = 0.049; GFI, CFI, and TLI, were 0.921, 0.946, and 0.933, respectively. The model fit indices of employee engagement orientation were $\chi^2 = 318.989$, $df = 110$, $\chi^2/df = 2.900$; RMSEA = 0.069, SRMR = 0.041; GFI, CFI, and TLI, were 0.914, 0.955, and 0.945, respectively. The results indicated a good fitness of the model.

Through reliability and validity analysis, one dimension with a low discriminant validity was deleted, whereby the optimal factor structure of the firm engagement was confirmed. By this step, the firm engagement scale comprised of eight dimensions with 32 items. The customer engagement orientation scale included four dimensions with 15 items, while the employee engagement orientation scale included four dimensions with 17 items.

3.2.4. Reliability and validity test

Cronbach's α values were adopted to guarantee the reliability. In this study, the Cronbach's α values for the eight dimensions were between 0.769 and 0.918 (<0.7), suggesting the good reliability (see Table 4). Convergent, discriminant, and criterion-related validity of the scale were also examined. Results showed that the loadings of each item on related factor were significant, and all composite reliability coefficients

Table 3
Exploratory factor analysis results (sample 1, n = 397).

Items(customer engagement orientation)	Factors				
	1 CM	2 FE	3 EP	4 RI	5 CPS
The firm has noticed customer behaviors beyond purchase.	0.690				
The firm has noticed customer behaviors beyond purchase are important.	0.669				
The firm invests different resources to customers with different values.	0.612				
The firm responds to customer's needs in time.	0.646				
The firm has a clear customer maintenance standard.	0.558				
The firm considers the convenience of customer participation when designing and organizing activities.		0.794			
The firm considers customer benefits when designing and organizing activities.		0.785			
The firm provides a variety of products and services to deepen the relationship with customers.		0.593			
The firm considers the attractiveness of the environment when designing and organizing activities.		0.588			
The firm wants to design and organize activities with much more fun.		0.566			
The firm provides training for employees to guide customer behavior beyond purchase			0.806		
The firm builds a professional team to guide customer behavior beyond purchase.			0.682		
The firm integrates and uses customer data to manage customers.			0.604		
The firm incorporates customer response into employee performance evaluation.			0.567		
The firm tries to increase the exposure of its business or brands.				0.646	
The firm makes use of customer social networks to guide customer behaviors.				0.680	
The firm integrates the resources of different stakeholders to manage customers.				0.671	
The firm has developed multiple channels to reach customers.				0.625	
The firm invites customers to give positive feedback.					0.661
The firm provides customers with products and services for free.					0.715
The firm invites customers to participate in different activities					0.647
The firm provides additional services to customers.					0.713
Items(employee engagement orientation)	Factors				
	1	2	3	4	
	ISQ	MP	CC	IA	
The firm has enough knowledge and resources to provide work support for employees.	0.792				
The firm responds to employee's feedback on time.	0.766				
The firm has a mature employee training system.	0.751				
The firm has abundant internal communication channels.	0.744				

(continued on next page)

Table 3 (continued)

Items(employee engagement orientation)	Factors			
	1	2	3	4
	ISQ	MP	CC	IA
The firm provides a clear career development path.	0.740			
The firm has a clear promotion system.	0.718			
The firm has clear working guidance and procedures.	0.706			
The firm has a great internal communication mechanism.	0.700			
The firm has an effective incentive policy to motivate employees.	0.670			
The firm encourages employees to provide feedback.	0.630			
The firm cares about employee growth.	0.583			
The firm gives employees a certain job autonomy.	0.553			
In my firm, work-related information is open and transparent.	0.533			
The firm creates a relaxed working environment.	0.529			
The firm promotes a good relationship between the management team and employees.		0.747		
In my firm, managers work with employees together.		0.715		
The firm creates a fair working environment.		0.710		
The firm gives full respect to employees.		0.611		
The firm is trustworthy and treats employees sincerely.		0.589		
In my firm, the management team uses self-influence to guide employee's behaviors.		0.580		
The firm cares about how employees think of the firm.		0.571		
In my firm, the benefits of the management team and employees are tied together.		0.550		
The firm provides humanistic care for employees.		0.519		
The firm believes that job engagement is important for a firm.		0.503		
The firm continues to promote corporate culture.			0.788	
The firm uses physical environments to promote corporate culture internally.			0.766	
The firm strives to make employees identify with the corporate culture.			0.635	
My daily work reflects the corporate culture.			0.626	
The firm provides training for management teams to improve their leadership.			0.527	
In my firm, the performance of employees is linked to the performance of the firm.				0.865
The firm has a clear employee incentive policy.				0.709
The vision of the firm I work for is aligned with the interests of employees.				0.618

Note: CM = customer maintenance, EM = empathy, EP = employee participation, RI = resource integration, CPS = customer participation service, ISQ = internal service quality, MP = management participation, CC = corporate culture, IA = interest alignment.

(CR) exceeded 0.7. The average variance extracted (AVE) of all dimensions were above 0.5, except for resource integration (AVE = 0.46). According to Netemeyer et al. (2003), the AVE value in a newly scale should be greater than 0.45. In current study, all CR values exceeded 0.7 and all AVE values were higher than or near 0.5, therefore suggesting convergent validity.

The current study evaluated discriminant validity by comparing the AVE values with the squared correlation coefficients between two constructs. Further, the results indicated that the AVE value for each dimension of firm engagement was greater than the squared correlation coefficients between constructs (see Table 5), indicating good discriminant validity.

3.2.5. Second-order factor analysis

To investigate the structure of the firm engagement construct, a second-order factor analysis was undertaken on the Sample 2 data using Dabholkar et al.'s (1996) method. Firstly, a first-order factor model with two factors was constructed, in which items from each sub-dimension were designated to a customer engagement or employee engagement orientation. The data demonstrated good fit with the model: $\chi^2/df = 2.112$; RMSEA = 0.053, SRMR = 0.045; GFI = 0.886, CFI = 0.944, TLI = 0.933. All factor loadings were significant, and the loading values were between 0.512 and 0.813, indicating items could effectively measure firm engagement.

Secondly, a second-order factor model was constructed. Customer and employee engagement orientations were two factors of the same high-order factor, and each item was designated to the related factor. The results indicated that both customer and employee engagement orientation had significant loadings on the same high-order factor. Factor loadings were ranging from 0.860 to 0.962. The model fit indices were $\chi^2/df = 2.091$, GFI = 0.886, TLI = 0.934, CFI = 0.945, RMSEA = 0.052, SRMR = 0.045, indicating customer and employee engagement orientation were two sub-factors of the same high-order factor (firm engagement).

Thirdly, a 2 s-order factor model was constructed, in which customer and employee engagement orientation were high-order factors and each of their four dimensions were first-order factors. The model fit indices showed that $\chi^2/df = 2.070$, GFI = 0.877, TLI = 0.936, CFI = 0.942, SRMR = 0.045, RMSEA = 0.052. The factor loadings of the four dimensions of customer engagement orientation (customer participation, employee participation, empathy, and resource integration) were significant, and the loading values were 0.751, 0.823, 0.916, and 0.921, respectively. The factor loadings of the four dimensions of employee engagement orientation (internal service quality, management participation, corporate culture, and interest alignment) were also significant, and the loading values were 0.888, 0.845, 0.882, and 0.971, respectively. The correlation coefficient of the 2 s-order factors was 0.849, and zero was not included between the two standard deviation intervals, indicating that customer engagement and employee engagement orientation are two related but different constructs.

Lastly, a second-order factor analysis with the eight sub-dimensions of firm engagement was undertaken. The model fit indices showed that $\chi^2/df = 1.844$, GFI = 0.891, TLI = 0.949, CFI = 0.956, RMSEA = 0.046, SRMR = 0.041. The factor loadings of each dimension were significant on the same high-order factor (firm engagement), and the loading values were 0.629, 0.728, 0.827, 0.803, 0.880, 0.843, 0.873, and 0.973, respectively, indicating that all eight dimensions were sub-factors of the same high-order factor (firm engagement).

The firm engagement scale was found to contain a customer and an employee engagement orientation with a total of eight sub-dimensions. The customer engagement orientation included the four dimensions of customer participation, employee participation, empathy, and resource integration. The employee engagement orientation included the four dimensions of interest alignment, management participation, corporate culture, and internal service quality.

3.2.6. Criterion validity

Criterion-related validity was also tested in this study. Firm engagement is a strategy implemented by companies to promote CE and EE. According to the theory of social information processing, individuals' attitudes and behaviors are influenced by the complex environment. How to process the information released by the environment is a key factor affecting individual attitudes and behaviors (Salancik and Pfeffer, 1978). Firm strategy is a type of social information (Salancik and Pfeffer, 1978) that influences customer and employee attitudes and behaviors. It was therefore proposed that firm engagement will positively affect CE and EE (see Fig. 2).

A total of 672 questionnaires (314 from employees and 358 from customers) were collected to examine the criterion validity of the firm

Table 4
Reliability and convergent validity analysis.

Customer engagement orientation					
Dimension	Item	Factor Loading	AVE	CR	Cronbach's α
Empathy	The firm designs and organizes activities with the interests of customers in mind.	0.777	0.605	0.859	0.856
	The firm will consider the convenience of customer participation when designing and organizing events.	0.830			
	The firm considers the attractiveness of the physical environment when designing and organizing activities.	0.733			
Employee participation	The firm provides a variety of products and services to deepen the relationship with customers	0.767	0.676	0.861	0.855
	The firm incorporates customer response into employee performance evaluation.	0.724			
	The firm has a team to guide customers' behaviors beyond purchase.	0.887			
Customer participation	The firm provides relevant training for employees to guide customer behaviors beyond purchase	0.846	0.534	0.820	0.816
	The firm invites customers to participate in various activities.	0.708			
	The firm invites customers to give positive feedback.	0.648			
Resource integration	The firm provides extra services to customers.	0.775	0.463	0.771	0.769
	The firm provides customers with free product and service experience	0.783			
	The firm integrates the resources of other stakeholders to manage customers.	0.701			
	The firm uses customer social networks to guide customer behavior.	0.738			
	The firm develops multiple channels to reach customers.	0.749			
	The firm tries to increase the exposure of its businesses or brands.	0.503			

Employee engagement orientation					
Dimension	Item	Factor Loading	AVE	CR	Cronbach's α
Management participation	In my firm, managers use their influence to guide employees' behavior.	0.661	0.582	0.847	0.846
	In my firm, managers work side by side with employees.	0.763			
	In my firm, the interests of management and employees are tied together.	0.789			
Corporate culture	The firm I work for promotes a good relationship between managers and employees	0.828	0.624	0.868	0.874
	The firm uses physical environments to promote corporate culture.	0.693			
	The firm continues to promote corporate culture.	0.812			
Interest alignment	My daily work reflects the corporate culture.	0.903	0.584	0.805	0.813
	The firm strives to make employees identify with the corporate culture	0.736			
	The vision of the firm I work for is aligned with the interests of the employees.	0.853			
Internal service quality	In my firm, the performance of employees is linked to the performance of the firm.	0.629	0.630	0.911	0.918
	The firm has a clear employee incentive policy	0.792			
	The firm has clear guidelines and policies.	0.758			
	The firm has a mature employee training system.	0.747			
	The firm has a definite promotion system.	0.775			
	The firm provides a clear career development path.	0.846			
	The firm has a salary system that can effectively motivate employees to invest in themselves.	0.788			
	The firm encourages employees to provide feedback	0.843			

Table 5
Results for discriminant validity analysis.

Customer engagement orientation	D1	D2	D3	D4
Empathy(D1)	0.605			
Employee participation(D2)	0.392 ^a	0.676		
Customer participation (D3)	0.284 ^a	0.325 ^a	0.534	
Resource integration(D4)	0.460 ^a	0.383 ^a	0.271 ^a	0.463
Employee engagement orientation	D5	D6	D7	D8
Internal service quality(D5)	0.582			
Management participation(D6)	0.479 ^a	0.624		
Corporate culture(D7)	0.460 ^a	0.393 ^a	0.584	
Interest alignment (D8)	0.456 ^a	0.437 ^a	0.461 ^a	0.630

Note: Values on the diagonals are average variance extracted (AVE) values. Values on the left diagonal are the squared correlation coefficients between constructs.

^a $p < .01$.

engagement scale. The results revealed that a customer engagement orientation positively affects both customer engagement attitudes ($\beta = 0.681, P < 0.001$) and customer engagement behaviors ($\beta = 0.609, P < 0.001$). An employee engagement orientation affects both employee work engagement ($\beta = 0.561, P < 0.001$) and employee organizational engagement ($\beta = 0.713, P < 0.001$), indicating that the firm engagement scale has a good criterion-related validity.

4. Discussion and implications

As managers look for a strategic orientation to improve engagement at the firm level, Kumar and Pansari (2016) proposed the concept of firm engagement. Firm engagement was reflected in strategies of engaging customers and employees. Based on their study, we first reviewed previous engagement research from different perspectives including the firm level, customers and employees. The review shows that research on firm engagement remains limited. There is no appropriate scale to measure firm engagement. Following Churchill (1979) and Hinkin (1998), this study developed and validated a scale to measure firm engagement and multiple studies were conducted to ensure the rigor of the scale. Results showed that firm engagement consists of a customer and employee engagement orientation.

The customer engagement orientation contains four dimensions, customer participation service, employee participation, empathy, and resource integration. Empathy at the firm level is the strategic approach of a firm to design and organize customer-centric activities, including the convenience and attractiveness of the environment, and by offering a variety of products and services to deepen relationships with customers. Employee participation is a strategic initiative undertaken by a firm to integrate customer feedback into employee performance evaluations. This initiative establishes teams to influence customer behaviors beyond purchase and provides focused training for employees to guide customer behavior. Customer participation involves the firm inviting customers to engage in various activities, to provide positive feedback, and to enjoy extra services including free products and service experiences. Resource

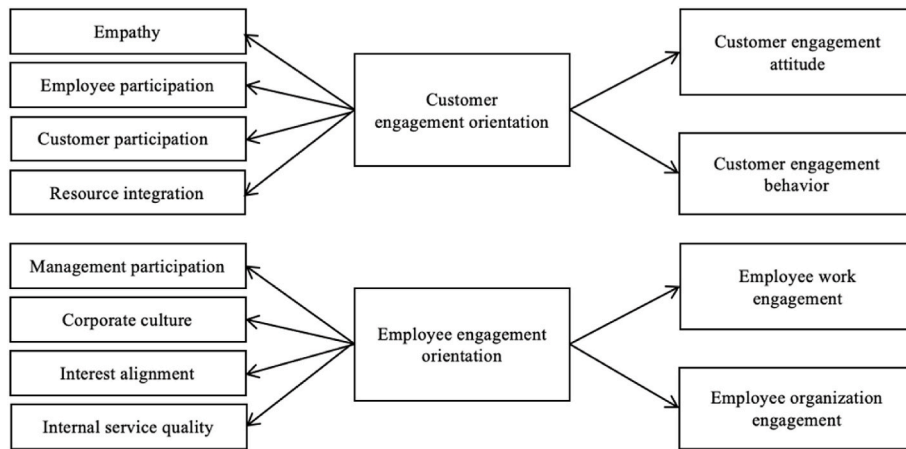


Fig. 2. Structural model for criterion-related validity.

integration refers to a firm strategy that leverages resources of other stakeholders to manage customers, utilizing customer social networks to influence customers, developing diverse channels to reach customers, and amplifying the visibility of its business or brands.

An employee engagement orientation also contains four dimensions, management participation, corporate culture, interest alignment, and internal service quality. Management participation involves managers using their influence to guide employee behavior, working alongside employees, aligning the interests of management and employees, and promoting a positive relationship between managers and employees. Corporate culture indicates that a firm strives to foster employee identification with this culture, and it is reflected in work and physical environments. Interest alignment means that the firm aligns its vision with the interests of the employees, linking employee and firm performance, and presenting a clear employee incentive policy. Internal service quality refers to a firm that provides employees with clear guidelines, effective training, a well-defined promotion system, a clear career development path, a motivational salary system, and strongly encourages employees to provide feedback.

These eight dimensions are strategies adopted by companies to increase customer and employee engagement, reflecting the nature of firm engagement is to develop initiatives to improve firm engagement by enhancing customer and employee engagement from a firm perspective.

4.1. Theoretical implications

The study makes several contributions to the literature. First, the concept of firm engagement was introduced by Kumar and Pansari (2016) as a critical element that affects firm development. However, the related research has not received much attention. Very limited measurement has been developed to the engagement from a firm perspective. Unlike previous scales to measure the level of customer (So et al., 2014; Dessart et al., 2016) and employee engagement (Shuck et al., 2017; Kumar and Pansari, 2014), this is the first study to develop and validate a scale to measure firm engagement. The developed scale can be used as an instrument to examine the level of impact from the firm's perspective.

Second, the current study provides a more comprehensive understanding of the connotations and dimensions of firm engagement, responding to the call from Kumar and Pansari (2016). As the provider of engagement platforms in a service ecosystem, engaging customers and employees is imperative to showcase the firm-level of engagement. It is plausible that firm engagement is approached from customer and employee perspectives to capture a holistic picture of engagement. This represents a contribution to engagement theory from a firm perspective, especially within research related to customer, employee, and firm engagement.

Third, our findings suggest that firm engagement positively influences customer engagement attitude and behavior, and employee job engagement and organizational engagement. The literature has tended to discuss CE and EE separately; however, this no longer meets the needs of firm development. By maintaining a long-lasting engagement relationship with employees and customers, firms can improve overall competitiveness and performance (Kumar and Pansari, 2016). Chandni and Rahman (2020) also argued that research should consider both CE and EE together rather than focusing on one or the other. This study examines the relationship of firm engagement on CE and EE, responding to Chandni and Rahman's (2020) call, and provides significant empirical support for the arguments of Kumar and Pansari (2016).

Last, employee training and job definition as commonly identified internal service quality dimensions in prior research (e.g., Wu et al., 2021; Lin et al., 2021) were also found in our study. However, our study also revealed the importance of other dimensions (for example clear job guidelines and career development paths), which contribute to internal service quality research from an engagement perspective.

4.2. Managerial implications

As the scale development involved participants from different industries, their insights are captured in the scale. The findings may be applicable to those industries. The findings of this study may help firm managers to understand the role of firm engagement in attitudes and behaviours of employees and customers, as well as shaping organizational performance. Firm engagement is critical for future development. For managers that seek to improve firm engagement and achieve a sustainable competitive advantage, the firm engagement scale may provide guidance for them to re-evaluate services for both customers and employees. The findings indicate that firm managers can create assessment forms to evaluate the level of engagement inside the firm. Managers can evaluate the performance of each facet based on the identified dimensions.

Furthermore, the study discovered that empathy had the largest impact on customers than resource integration, customer participation, and employee participation. Managers should focus on conveying empathy and provide individualized service to customers. In the case of employees, internal service quality had the largest variance in explaining firm engagement. This finding indicates that investing in improving internal service quality would be conducive to improving employee engagement and firm performance. Interest alignment, however, had the least variance in explaining employee engagement. This finding provides insights into the needs and wants of employees. Whilst financial incentive may be conventionally important, the firm must explore non-financial incentives to motivate and engage employees. For instance, identifying means to facilitate employees' in skill development

and career advancement may be more conducive to their engagement with the firm.

4.3. Limitations and future research

The study has two main limitations. Firstly, the study was undertaken in one location. The generalizability of firm engagement scale within other cultural contexts may be limited. Secondly, engagement between multiple actors within the service ecosystem is critical to realizing service ecosystem value co-creation. As providers of engagement platforms, companies play a critical role in guiding and facilitating the engagement of other actors. While customers and employees are the two main actors in the service ecosystem, other actors such as suppliers, collaborators and the government are also indispensable. The relationship between firm engagement and other actors needs to be explored in future. The firm engagement scale developed in this study can be used to investigate the relationship between firms and other key variables such as customer experience and employee performance.

5. Conclusion

Employee and customer engagement are imperative for organizational performance and sustainability. Approaching from a firm-level perspective, this study developed a scale to measure firm engagement that capture both employee and customer engagement. The scale includes customer engagement orientation consisting of empathy, employee participation, customer participation, and resource

integration, and employee engagement orientation containing management participation, corporate culture, interest alignment, and internal service quality. This study enriches engagement with a firm-level engagement measurement. The scale has implications for research and for organizations to improve employee and customer engagement for business growth and sustainability.

Funding

This research was funded by National Natural Science Foundation of China (71972188) (72332010).

CRediT authorship contribution statement

Xiaoyun Han: Funding acquisition, Conceptualization. **Yundan Zheng:** Writing – original draft, Methodology, Formal analysis. **Catherine Prentice:** Writing – review & editing, Conceptualization. **Shuping Chen:** Formal analysis, Data curation.

Declaration of competing interest

The authors declare no conflict of interest in this research.

Data availability

Data will be made available on request.

Appendix 1. Interview outline

- 1 What capabilities (characteristics) does a firm have to facilitate customer roles and their transformation?
- 2 How does the firm manage and maintain its relationships with customers beyond the purchase? (are there mature processes and systems, clear plans, etc.)
- 3 How does the firm facilitate engagement with customers beyond the purchase?
- 4 How to improve customer's participation and involvement beyond the purchase?
- 5 How does the firm establish communication channels between the firm and its customers beyond the purchase?
- 6 How does the firm gain positive impressions and evaluations from customers?
- 7 How to integrate resources to improve customer engagement (contact between customers and the organization beyond the purchase)?
- 8 How does an organization increase employee commitment to the organization and their work?
- 9 How does the firm guide, build, and strengthen its connection with employees?
- 10 How does the firm strengthen employee commitment and connection to the organization beyond their work?
- 11 How does the firm foster a connection between employees and the firm and their work?
- 12 How does the firm direct the work of its employees?
- 13 How does the firm obtain positive employee evaluations of the job and the firm?
- 14 How does the firm enhance employees' identification with the firm and their work?
- 15 What steps does the firm take to expand the role of employees in their work and the firm?
- 16 How does the firm help employees understand and integrate into the firm?

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