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Enhancing participation through organizational drivers

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Abstract

Purpose – This paper unifies previous research literature on employee participation in continuous improvement (CI) activities through the development and validation of a conceptual model. The purpose of this model is to illustrate how organizational drivers foster organizational and individual enablers which, in turn, strengthen employee participation in CI. The article also discusses the results and managerial implications.

Design/methodology/approach – Firstly, the article introduces the main variables affecting employee participation in CI, looking at the different possible relationships proposed in existing literature. In accordance with the Kaye and Anderson (1999) framework, these variables are categorized into organizational drivers, organizational and individual enablers and individual outcomes. Based on these categories, a model was put forward and empirically validated using data collected from three Spanish companies (n = 483) and using partial least squares structural equations modelling (PLS–SEM).

Findings – A model was put forward, proposing PIRK systems (power, information, rewards, knowledge) as the main organizational driver of employee participation in CI activities. PIRK impacts positively on social influence (organizational enabler), self-efficacy and job satisfaction (individual enablers). These enablers, together with employee intention of participating, help determine employee participation in CI activities.

Practical implications – Organizations with CI programmes should develop systems based on employee empowerment, information, rewards and knowledge in order to foster their self-efficacy and seek out a culture where social influence may help to improve job satisfaction. By suitably managing these organizational drivers, managers can help to further develop certain organizational and individual enablers responsible for fostering employee participation in CI activities.

Originality/value – By unifying different behavioural and CI-related frameworks, this paper carries out an in-depth study into the process of fostering employee participation as the key aspect in helping organizations sustain CI programmes. This paper shows the importance of managing PIRK organizational drivers as levers in the process of developing certain organizational and individual enablers, which are responsible for enhancing employee participation in CI.

Keywords Continuous improvement, Employee participation, Theory of planned behaviour, PLS-SEM, Social influence, PIRK

Paper type Research paper

1. Introduction

In recent years, many companies have implemented continuous improvement (CI) to face business challenges and enhance efficiency, flexibility and quality (García-Arca and Prado-Prado, 2011; Singh and Singh, 2015). Nevertheless, not all CI implementations are successful after some years of effort (Gonzalez Aleu and Van Aken, 2016), with previous research mentioning sustainability as one of the biggest challenges in CI (Galeazzo *et al.*, 2017; Rapp and Eklund, 2007). One key aspect of sustainability is employee participation in CI activities (Jurburg *et al.*, 2017). For this reason, CI systems have been described as people-centred (Yan and Makinde, 2011) and hence stems the importance of understanding employee participation in greater depth.

Different authors have identified the main organizational and individual antecedents of employee participation (Jaca *et al.*, 2012; Jurburg *et al.*, 2017), and there are also models showing the relationship between antecedents and participation (García *et al.*, 2014; Tang *et al.*, 2010). However, in the reviewed papers there is usually no clear distinction showing the

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path entailed from organizational-level antecedents to individual-level antecedents and to final employees' participation. Going further, the models found in literature do not make an explicit distinction between drivers, enablers and outcomes. This classification is important since managers can only act directly on the drivers, while the enablers and outcomes are somewhat results derived from these drivers.

Thus, the aim of this paper is to develop a model that allow organizations to understand how their actions (by means of the drivers) can enhance employee participation in CI activities. In this article, authors have first classified the existing CI antecedents found in literature according to Kaye and Anderson (1999) classification of drivers, enablers and outcomes. A distinction between organizational-level and individual-level variables have also been proposed. Also, the theory of planned behaviour (Ajzen, 1991) was used to help understand the organization–individual fit, which is how the organizational enablers impact on the personal ones and how these individual enablers foster the final employee participation.

Using these classifications, this paper presents a model that illustrates how organizational drivers foster organizational and individual enablers and how the individual enablers strengthen employee participation in CI. As a result, this paper shows the specific effect that the PIRK systems, which can be acted upon by managers, have as levers in the process of developing the right set of enablers to foster employee participation in continuous improvement activities.

The model has been statistically explored with partial least squares structural equations modelling (PLS–SEM), using a sample of 483 workers from three companies in northern Spain. The results of this study validate the model and provide future investigations into the relationships between drivers, workers' environment and individual outcomes.

The structure of this article is as follows. Section 2 gives an overview of the literature identifying the gap that will be studied and presents the hypotheses. Then the methods used to validate the model, followed by a discussion of these results (Section 3). Finally, Section 4 discusses the study's conclusions, managerial implications and future lines of research.

2. Literature review and hypotheses development

Continuous improvement has been used by companies all over the world because of the clear benefits that come with the implementation of CI programs (Jaca *et al.*, 2012). Nevertheless, some companies fail after running CI for some years (Gonzalez Aleu and Van Aken, 2016), and the literature indicates that sustaining continuous improvement is one of the biggest barriers that companies have to overcome (Jurburg *et al.*, 2017). This obstacle has boosted the number of studies on how to sustain CI programmes. On these articles, the authors agree about the key role that employee participation plays in the long-term settling of continuous improvement in the company (Fu *et al.*, 2015; Lam *et al.*, 2015; Marin-Garcia and Bonavia, 2015).

2.1 Antecedents of participation

One research area within employee participation in CI activities includes the detection of key managerial practices and individual predispositions that preceded participation, which are called antecedents of participation (Au-Yong *et al.*, 2017; Tang *et al.*, 2010). The authors analysed the literature on antecedents of employees´participation in CI activities in the past decade. The methodology used for conducting the search is shown in Table 1. The literature review was done in the ISI Web of knowledge database. The results are shown in Table 2, which shows the variables identified by various authors.

Empirical evidence found in literature also shows how some of these antecedent variables could be related to each other and to employee participation in CI activities. For example, Arsić *et al.* (2012) found that rewards, training, job evaluation, organizational support and teamwork were positively related with job satisfaction. García *et al.* (2014) found that training,

organizational support and participation were related with communication. They also found that organizational support preceded training and participation. Galleazo *et al.* (2017) found that CI alignment and teamwork preceded participation. Recently, Jurburg *et al.* (2019) found that reward impacts on satisfaction; that empowerment, training and organizational support affect self-efficacy and finally, they also found that empowerment, communications, rewards, methodology, training, organizational support, satisfaction and social influence indirectly impact on participation.

From the list of variables identified in Table 2, it could be induced that there are different types of antecedents. Some of them could be categorized as organizational policies (rewards, training, methodology, communication, etc.), others are related to supervision and leadership (middle managers´ leadership, CI facilitator, organizational support, etc.), others are more related to social interaction and collaboration (team work, social influence) and others are personal characteristics that influence participation (resistance to change, loyalty, commitment, self-efficacy). Also, some of them could be seen at an organizational level, while others are understood as individual-level variables, but this distinction is usually not clear in the existing studies.

Therefore, a first conclusion derived from the study of the CI antecedents is that, in general, these variables have different nature but they are not usually adequately classified in the existing models, causing some confusion and misinterpretations of the practical usefulness of these models.

With the intention of closing the aforementioned gap in literature, this study proposes using Kaye and Anderson (1999) classification of drivers, enablers and outcomes to properly classify the CI antecedents. These authors described drivers as the organizational practices used to ensure the appropriate context that allows for the enhancement of employee participation in CI activities. Enablers are the variables that condition, facilitating or hindering, the effects between the drivers an the individual outcomes.

Furthermore, making a proper distinction between organizational level and individual level variables would allow to understand the organization–individual fit, which is the process from drivers to employee personal participation, (Tesluk and Vance, 1999). In this vein, the use of a behaviour model can link these organization–individual fit allowing us to understand that individual antecedents would be impacted by organizational ones through individuals' perceptions of them (Elorza *et al.*, 2016).

Therefore, the main aim of this study is to propose a model that clearly explains the process going from specific organizational drivers to employee participation, through the organizational and individual enablers, and that could be used in a generic context of CI systems. To do so, based on existing literature, the study will develop the model in two stages:

Unit of analysis	Relevant books and articles whose main content focuses on the links between continuous improvement, sustainability and participation
Type of analysis	Qualitative
Period of analysis	2010–2019
Search engines	ISI Web of Knowledge
Query string	Using the keywords that were associated with each of the concepts of this research, the following query string was created *TOPIC*: ("continuous improvement") *AND TOPIC*: (sustainability) *AND TOPIC*: (participation) *Refined by: DOCUMENT TYPES*: (ARTICLE) AND [excluding] *PUBLICATION YEARS:* (2020) *Timespan:* All years. *Indexes:* SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI, CCR-EXPANDED, IC
Total number of articles evaluated	13

Table 1. Summary of used methodology in the literature review

Table 2.
Antecedents of participation and publications where they appear

	Tang *et al.* (2010)	García-Sabater *et al.* (2011)	Jaca *et al.* (2012)	Arsić *et al.* (2012)	García *et al.* (2014)	Fu *et al.* (2015)	Marin-Garcia and Bonavia (2015)	Holmemo and Ingvaldsen (2016)	Au-Yong *et al.* (2017)	Lleo *et al.* (2017)	van Dun *et al.* (2017)	Galeazzo *et al.* (2017)	Jurburg *et al.* (2019)	Total
CI Alignment			X									X	X	*3*
Selection of appropriate areas		X	X											*2*
Resources		X	X											*2*
Empowerment	X			X		X	X			X	X		X	*7*
Communication			X		X	X	X		X		X		X	*7*
Rewards			X	X			X					X	X	*5*
Methodology		X	X										X	*3*
Training		X	X	X	X		X		X				X	*7*
Job evaluation				X										*1*
Systematic control						X								*1*
Objectives and KPI		X	X											*2*
Organizational support		X	X	X	X	X							X	*6*
Middle managers' leadership		X				X		X		X	X			*5*
CI facilitator			X											*1*
Social influence	X				X	X					X		X	*5*
Teamwork			X	X	X							X		*4*
Resistance to change		X	X											*3*
Job satisfaction			X	X					X				X	*4*
Self-efficacy	X				X								X	*3*
Employee loyalty				X										*1*
Commitment						X				X				*2*
Everybody's participation	X	X	X			X			X				X	*6*

(1) Select and classify the most relevant antecedents of participation into organizational drivers, organizational enablers, individual enablers and individual outcomes.

(2) Explain the possible relationships between the selected drivers, enablers and outcomes using existing literature and using a generic behavioural framework to help explain the organization–individual fit.

2.2 Classification and selection of the antecedents of participation

Using the distinction provided by Kaye and Anderson (1999) and the differentiation between organizational and individual-level variables, the antecedents presented in Table 2 could be classified into organizational drivers, organizational enablers, individual enablers and individual outcomes. Considering the driver and enabler definition and the employee perspective, an organizational driver is something that can be changed by managerial decisions, whereas an organizational enabler is something that conditions the impact of the drivers but cannot be directly changed – as the social aspect, for example. Finally, the individual enablers are the employee internal aspects that channel the impact of the organizational part towards the employee behaviours.

In this paper, from the aforementioned list of CI antecedents, the drivers would be CI alignment and resources; the management systems (empowerment, communication, rewards, methodology, training, evaluation, control and KPIs): those aspects that make reference to leadership (organmzational support, middle managers and the CI facilitator role). Likewise, it can be differentiated into two enabler categories: organizational level enablers (social influence and teamwork) and individual enablers (resistance to change, job satisfaction, self-efficacy, employee loyalty and commitment). From those, social influence is the organizational enabler most cited and job satisfaction, self-efficacy and intention to participate are the individual enablers most cited. Finally, the outcomes identified are loyalty commitment and participation.

From the different drivers identified, the referent to management systems seem to be especially relevant. Jurburg *et al.* (2017) defended that generating a culture of everybody participation is crucial for the sustainability of CI systems. In this vein, White *et al.* (2017) stated that cultural changes require changing the way that people operate and systems defined these way. Systems define the concrete way used for the people to operate in their daily activities, so it seems to be crucial that these systems really promote employees' participation. Therefore, in this study we are going to focus on the special role of systems, as the main organizational driver, for enhancing individual participation.

From the systems defined in Table 2, there are four, which are the most cited in literature: empowerment, communication, rewards and training. These four drivers are related with the PIRK model (Lawler, 1986) and the high involvement works systems (HIWS) (Boxall and Winterton, 2018).

2.3 PIRK as the organizational driver

HIWS refers to a configuration of practices that enhances employees' skills, motivation, commitment and effort (Boxall and Winterton, 2018). One of the most commonly cited practices was proposed by Lawler (1986) on his PIRK model and specifically proposed that HIWS should cover workplace power (P), information (I), rewards (R) and knowledge (K). The aim of these practices is to empower workers to make better decisions by improving their training, providing them with the information and knowledge they need to do their jobs properly and rewarding them for it (Boxall and Winterton, 2018). Many authors have found a positive relationship between HIWS and operational, perceived performance, financial and even human resource improvements in organizations in different sectors (Conci, 2012; Kilroy *et al.*, 2017; Juarez-Tarraga *et al.*, 2016).

In the context of the literature on continuous improvement, organizations must be able to adequately manage workplace supporting everybody active involvement (Prajogo and Sohal, 2004; Jaca *et al.*, 2012; Jurburg *et al.*, 2019). Consequently, the literature of HIWS seems very appropriate to this goal. As it can be seen in the above Section 2.1, the practices proposed by the PIRK model (power, information, knowledge and rewards) have already been identified as antecedent variables for employee participation (empowerment, communication, training and rewards). However, in the existing models that relate the antecedent variables to participation they have never been used all together as a holistic variable. This article proposes use the PIRK construct as a holistic variable that enhances the participation of workers in continuous improvement activities through certain organizational and individual-level enablers. Therefore, the authors of this article propose the use of the PIRK model as a second-order variable, formed by the four first-order empowerment, communication, rewards and training. PIRK model will be studied as the main organizational driver of employee participation in CI activities.

In this vein, Figure 1 illustrates the classification of the different employees' participation antecedents selected for this study, using the four categories previously defined: organizational drivers, organizational enablers, individual enablers and individual outcomes.

2.4 The relationships between drivers and enablers

The HPWS literature also explains that employees' perceptions of practices emerge through both personal predispositions and environmental issues (Elorza *et al.*, 2016). In the CI literature, authors have studied the effects of vertical communication with a sense of belonging (Marin-Garcia and Bonavia, 2015), horizontal communication with teamwork (Au-Yong *et al.*, 2017) and empowerment as key elements for encouraging relationships between workers (Gibson *et al.*, 2007). Therefore, the PIRK system is likely to drive workers' relationships through many paths. Thus:

H1. The PIRK system has a positive relation on social influence.

In CI, some authors have proposed that antecedents of job satisfaction are empowerment (Arsić *et al.*, 2012), training (Jurburg *et al.*, 2017), communication (Rahmat and Ali, 2010) and rewards (Jaca *et al.*, 2012). However, no one has analysed whether the systems, as a holistic variable, affect job satisfaction all together. PIRK are likely to increase job satisfaction in many ways since training enhances abilities, communication and rewards facilitate the motivation and empowerment opens possibilities to act. Thus:

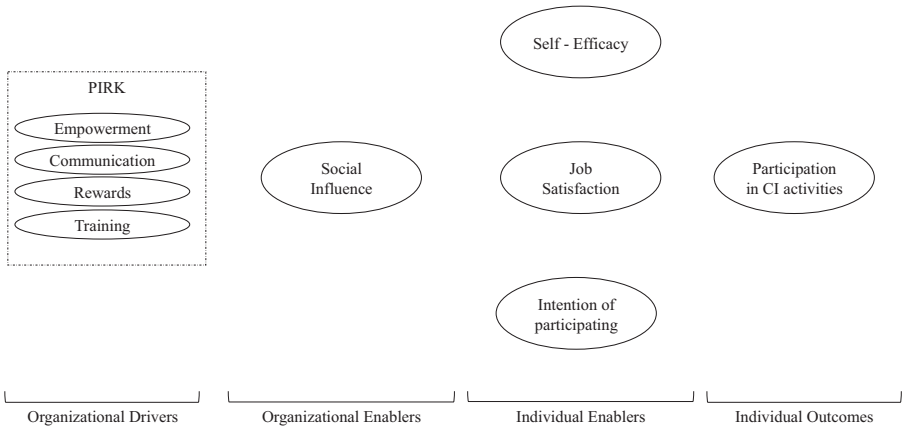

Figure 1.
Classification of the variables into the distinction drawn by Kaye and Anderson (1999) and at an organizational and individual level

H2. The PIRK system has a positive relation on employee job satisfaction.

Some authors have observed that empowerment and communication are antecedents of self-efficacy (Marin-Garcia and Bonavia, 2015). Moreover, Jurburg *et al.* (2017) found that training elevates employee self-efficacy levels due to the increase in their capacity to perform the behaviour. Therefore, it seems to be logic that the practices included in PIRK are likely to increase employee self-efficacy in many ways since training improves skills, future reward drives effort as well as the perception of capability, communication opens up channels to help and empowerment allows employees to set the tasks they feel capable of performing.

H3. The PIRK system has a positive relation on employee self-efficacy.

2.5 The organization–individual fit between organizational enablers, individual enablers and individual outcomes

Having discussed the relations between organizational drivers and enablers, the organization–individual fit will be analysed. This is how the organizational variables impact on the individual ones. To do so, researchers usually use a behavioural model that connects both levels (Tang *et al.*, 2010; Yen-Tsang *et al.*, 2012).

The theory of planned behaviour (TPB) is one of the most cited behavioural models and seems to be suitable to these requirements. TPB explains the antecedents of behaviour through intention and perceived behavioural control and posits that intention is preceded by subjective norm, perceived behavioural control and attitudes (Ajzen, 1991). These constructs do not have a specific interpretation and need to be particularized for a specific research context (Mathieson, 1991), and the TPB model has successfully been applied to different environments (Ajzen, 2011).

In this case, the behaviour under investigation is "participation in continuous improvement activities" (*participation in CI activities*), and the intention under investigation is "intention to participate in continuous improvement activities" (*intention to participate*). Subjective norm is a construct that involves the pressures of all the individual relations, including the work-related ones (Galeazzo *et al.*, 2017). In this case, social influence could be used as this variable. Perceived Behavioural Control can be explained as the perception of having the *capacity* to perform the behaviour (Straatmann *et al.*, 2018). Ajzen (1991) identifies this predictor with self-efficacy, which is understood as the individual's perception of his or her ability to carry out the specific behaviour. Finally, attitudes are an individual's predisposition towards doing the behaviour based on the outcomes expected (Ajzen, 1991). Thus, if the behaviour is expected to have *good* outcomes, there would be better attitudes towards it. Attitudes have a long tradition in the field of continuous improvement, and one of the attitudes that has been used is job satisfaction (Arsić *et al.*, 2012; Jurburg *et al.*, 2017).

Having compared the individual antecedents of CI with the ones pointed out by the TPB, this article studies the organization–individual fit, which is how the organizational enablers impact on individual enablers fostering the final employeés participation in CI.

Dahlgaard-Park (2012) reported that the support needed for CI sustainability enhances employees' perception of being part of a community, which thus covers their social needs and in turn gives them job satisfaction. Moreover, such supportive leadership ensures that employees will not fail at their tasks due to a lack of resources and enhance their perception of capability (Jurburg *et al.*, 2017). CI literature has given culture and environment a strong role in driving individual perceptions, especially job satisfaction (Arsić *et al.*, 2012; García-Arca and Prado-Prado, 2011). Likewise, supportive relationships at work would enhance employee perception of being able to call for help if necessary, thereby improving their perception of capability, and the examples of achievement set by peers would increase this feeling of self-efficacy. Thus:

H4. Social influence has a positive relation on employee job satisfaction.

H5. Social influence has a positive relation on employee self-efficacy.

TPB literature usually claims there is a correlation between attitudes and self-efficacy (Ajzen, 2011). Moreover, as Dweck (2009) stated better attitudes foster the effort that one is willing to put in the behaviour and the more the effort done, the greater the perception of capacity. Therefore:

H6. Employee job satisfaction has a positive impact on employee self-efficacy.

Finally, the antecedents of intention to participate are likely to be both job satisfaction and self-efficacy since both have an impact on participation (Au-Yong *et al.*, 2017; Jurburg *et al.*, 2017), and TPB's assumptions state that the path towards a behaviour is preceded by intention and follows a direct path from self-efficacy (Tang *et al.*, 2010). Because of that:

H7. Employee job satisfaction has a positive relation on employee intention to participate in CI activities.

H8. Employee self-efficacy has a positive relation on employee intention to participate in CI activities.

H9. Employee self-efficacy has a positive relation on employee participation in CI activities.

H10. Employee intention to participate in CI activities has a positive relation on employee participation in CI activities.

Therefore, the theoretical model outlined in Figure 2 shows that organizational drivers have an impact on individual aspects both directly and indirectly through social influence and the relationships between the individual enablers and final participation.

3. Empirical study

3.1 Data, sample and methodology

To empirically support the ten proposed hypotheses, the authors designed a questionnaire and provide printed surveys to all the staff at three companies in northern Spain with continuous improvement activities in different levels of implementation. Two of the companies work in manufacturing and assembly and are both highly committed to quality and excellence in all their activities. The third one was a public service in a city council, which started implementing CI recently. The entire staff of each company was informed about the confidentiality and anonymity of the survey. Then, the questionnaire was distributed in order to obtain workers' opinions about managerial practices and their self-evaluations of personal aspects and behaviours. The workers could respond using the paper questionnaire or the online version. The final sample consisted of 483 complete responses. The characterization of the sample is shown in Table 3.

Due to the complexity of the model and the appearance of a reflective–formative second-order construct, this study uses partial least squares structural equations modelling (PLS–SEM) to analyse the sample (Chin, 1998; Hair *et al.*, 2019), and to perform the analysis, the authors used the SMART-PLS 3 software package (Ringle *et al.*, 2015). PLS–SEM estimates the parameters of a set of equations in a structural equation model by combining principal components analysis and regression-based path analysis (Hair *et al.*, 2014). Various authors support the use of PLS–SEM in management disciplines (Hair *et al.*, 2019; Henseler *et al.*, 2009; Ringle *et al.*, 2018). The method offers various advantages for researchers using cause–effect relationship models to explain or predict a particular construct (1) handle very complex models with many indicators and constructs, (2) estimate formatively specified constructs,

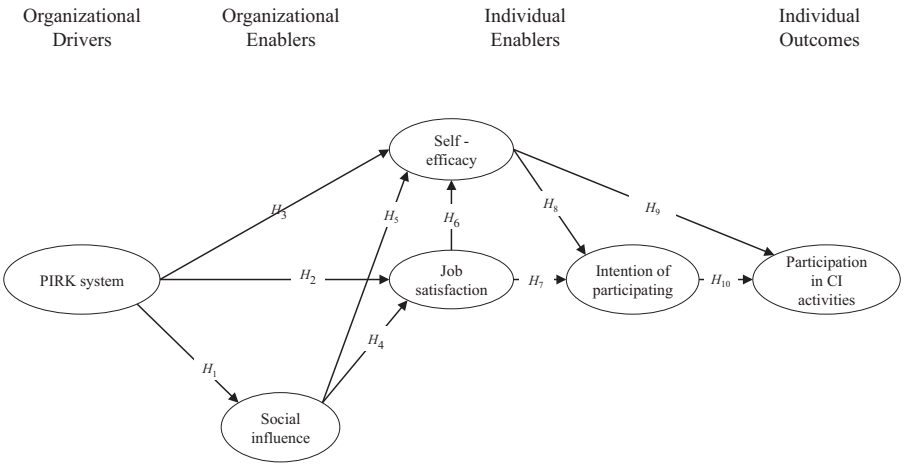

Figure 2.
Model development and definition of hypotheses

(3) handle small sample sizes with the required level of care and (4) derive determinate latent variable scores, which can be applied in subsequent analyses (Hair *et al.*, 2013, 2017; Marin-Garcia and Alfalla-Luque, 2019).

3.2 Measurement

The variables presented in Figure 2 are all considered to be *latent* as they cannot be directly measured. To measure these variables, the authors used the scales that appear in the work of Viles *et al.* (2016). All the item responses were on a 5-point Likert scale, going from *strongly disagree* (1) to *strongly agree* (5).

All the first-order variables are reflective, which means that the items measure aspects of the latent variables. The PIRK systems is a second-order formative construct created from the first-order variables of empowerment, communication, rewards system and training, which were measured with reflective items (Juarez-Tarraga *et al.*, 2016; Sarstedt *et al.*, 2019). On this view of the systems, power, information, rewards and knowledge are the dimensions of the systems, and they can be aggregated into a single higher order variable named PIRK systems. For measuring these four dimensions of PIRK systems we used the scales developed by Viles *et al.* (2016) too.

3.3 Assessment of the measurement model

To assess the validity and reliability of the reflective measurement variables, this study measures four aspects: internal consistency using the composite reliability index (CRI);

Occupational classifications	(483)
White-collar	197
Blue-collar	279
No information	7
Age	(483)
<25 years	22
25–35 years	145
36–50 years	266
>51 yrs	36
No information	14

Table 3.
Characterization of the sample

indicator reliability; convergent validity using the average variance extracted (AVE) and discriminant validity using the HTMT criterion (Hair *et al.*, 2014, 2019). The first three are presented in Table 4. All the reflective variables seem to be internally consistent as all CRI values are above 0.6 (Nunnally and Bernstein, 1994). Indicator reliability is measured through the intensity of items loading to the factor, where the mean is above 0.7 and no load is below 0.6 (Hair *et al.*, 2014). It can be observed that this is true for all factors. Also, the convergent validity of variables is assured given that all variables have AVE values above 0.5 (Fornell and Larcker, 1981).

Moreover, discriminant validity in reflective factors is observed as being acceptable in this model because all the values in the HTMT table -Table 5 are lower than 0.9 (Hair *et al.*, 2019; Henseler *et al.*, 2015).

The validity and reliability of the formative constructs were assessed with other instruments (Hair *et al.*, 2014). First, an assessment of convergent validity was performed via a redundancy analysis, and as the resultant coefficient of determination was above 0.81, it was validated (Chin, 1998). Second, the collinearity of the formative items had to be evaluated using the variance inflator factor (VIF) because higher collinearity implies higher standard errors, leading to non-significant weights. Values for this measurement instrument have to be below 5 (Henseler *et al.*, 2009), and that criterion is met. Additionally, the significance and relevance of formative constructs are assessed with the outer weight, which was obtained by bootstrapping (Hair *et al.*, 2014). The outer weights – presented in – should be lower than 0.5, as indicated by Cenfetelli and Bassellier (2009). Thus, given the VIF and the outer weights, it can be stated that the formative construct appears to be significant and relevant, and in turn it can be said that the measurement instrument t used in this model is reliable and valid.

3.4 Results and discussion

The values for significance and structural loading between variables in the hypothesized relationships are shown in Table 6.

The analysis also assures the predictive accuracy of the model. The results show that the explained variance (R^2) of the dependent factors is above 0.1 (Falk and Miller, 1992). Moreover, after performing a blindfolding procedure (Hair *et al.*, 2014) with an omission distance of 5, all the Q^2 obtained are above zero, thus illustrating the predictive relevance of the model (Stone, 1974).

From the ten hypotheses proposed, all of them except the relationship between social influence and self-efficacy have been empirical supported.

The model and the results shown in Table 6 and in Figure 3 support the process from organizational drivers to organizational enablers and individual enablers and how these enablers foster employee participation in CI activities. This is the main theoretical contribution of this work. There is abundant literature that identifies antecedents of employee participation and, moreover, there are also models showing the relationship between antecedents and employee participation (García *et al.*, 2014; Tang *et al.*, 2010). However, there is not a model that illustrates the process from organizational drivers to individual participation as the presented in this paper. The use of the TPB model is based on the idea that the selected behavioural model, that explains the organization–individual fit, should be applicable to general CI contexts (Mathieson, 1991).

These results shed light and evidence two interesting aspects. Firstly, the effects that the PIRK systems have for driving participation. These results are in line with the proposal of White *et al.* (2017), which stated that cultural changes require changing the way that people operate as how the people are going to be informed, the task and the methodologies they are going to used, what the organization wants to achieve, the level of empowerment delegated and so on.

Variable	Item	Mean	Standard deviation	Load./*Weight*	*t*-statistic	VIF	Aver. Load	α-Crombach	CRI	AVE
Self-efficacy	AUTO2	3.609	1.467	0.834***	50.938	1.473	0.825	0.766	0.864	0.680
	AUTO3			0.805***	31.861	1.593				
	AUTO4	2.704	1.503	0.834***	48.367	1.651				
Social influence	INFSOC1	3.280	1.227	0.863***	52.805	2.279	0.855	0.878	0.916	0.732
	INFSOC2			0.810***	29.674	1.899				
	INFSOC3	3.159	1.221	0.861***	42.306	2.344				
	INFSOC4	2.936	1.363	0.886***	76.688	2.537				
Intention	INTPAR1	3.965	1.283	0.952***	109.378	2.961	0.952	0.897	0.951	0.907
	INTPAR2	3.917	1.180	0.952***	116.597	2.961				
Participation	PART1	3.519	1.269	0.904***	64.897	1.594	0.897	0.758	0.892	0.805
	PART2	3.350	1.448	0.890***	47.519	1.594				
Job satisfaction	SAT1	3.538	1.689	0.726***	21.059	1.805	0.777	0.891	0.915	0.606
	SAT2	3.414	1.700	0.761***	29.764	2.129				
	SAT3	3.219	1.541	0.826***	35.76	2.639				
	SAT4	3.306	1.466	0.804***	35.393	2.060				
	SAT5	3.284	1.390	0.826***	42.491	2.380				
	SAT6	3.197	1.445	0.752***	28.165	1.879				
	SAT7	3.186	1.658	0.748***	27.456	1.790				
PIRK	P			0.468***	7.149	3.214				
	I			0.187***	3.189	2.781				
	R			0.205***	3.287	2.491				
	K			0.248***	3.362	3.220				

Table 4.
Convergent validity and reliability of the model. (***p-value < 0.001)

Secondly, the relations between the variables of the TPB explain the individual–organization fit. The results demonstrate a direct relationship between job satisfaction and self-efficacy. However, social influence does not directly affect self-efficacy; instead it does so indirectly through job satisfaction. Thus, job satisfaction could be considered as a full mediator between social influence and self-efficacy. Moreover, social influence partially mediated the relationship between the PIRK construct and job satisfaction. The variance accounted for (VAF) [1] (Hair *et al.*, 2014) shows that the majority of the effect (61%) is more indirect, through social influence, than direct.

The reflections of Boxall and Winterton (2018) on the importance of environment in the implementation of the systems are in line with these results, but they do not propose a specific mediating effect. These results illustrate the key role that PIRK system and the social influence play in enhancing both self-efficacy and personal job satisfaction, which are crucial for fostering individual participation. In this vein, develop a common purpose that integrates and guides the organization and its people could be interesting for enhancing workers' participation in CI systems. Corporate purpose is one of the topics that has become relevant in the last years (Gartenberg *et al.*, 2019; Henderson, 2020; Rey *et al.*, 2019), and some recent studies evidence the positive relationship between purpose and company performance, employee motivation and psychological wellbeing, engagement and participation, driving strong relationships and promoting collective unity (Allan *et al.*, 2019; Gartenberg *et al.*, 2019; Yemischigil, 2019).

4. Conclusions, implications and future research

This paper proposes a model that integrates the most cited antecedents of employee participation in CI activities in a newly order and relationships. After classifying the

Table 5. Discriminant validity of the model

	Intention	Job satisfaction	Participation	Self-efficacy	Social influence
Intention					
Job satisfaction	0.570				
Participation	0.758	0.509			
Self-efficacy	0.596	0.777	0.601		
Social influence	0.561	0.874	0.549	0.717	

Table 6. Path coefficients and significance of hypotheses tested

Hypothesis	Relationship	Path values	*T*-statistics
H1	PIRK → social influence	0.708***	26.899
H2	PIRK → job satisfaction	0.266***	5.078
H3	PIRK → self-efficacy	0.566***	10.639
H4	Social influence → job satisfaction	0.592***	10.757
H5	Social influence → self-efficacy	−0.032^{ns}	0.507
H6	Job satisfaction → self-efficacy	0.294***	4.941
H7	Job satisfaction → Intention of participating	0.320***	5.576
H8	Self-efficacy → Intention of participating	0.296***	4.014
H9	Self-efficacy → participation	0.197***	3.926
H10	Intention → participation	0.526***	10.274

Note(s): +*p*-value < 0.1; **p*-value < 0.05; ***p*-value < 0.01; ****p*-value < 0.001
R^2 (intention) = 0.314; R^2 (job satisfaction) = 0.644; R^2 (participation) = 0.421; R^2 (self-efficacy) = 0.595; R^2 (social influence) = 0.502
Q^2 (intention) = 0.276; Q^2 (job satisfaction) = 0.378; Q^2 (participation) = 0.330; Q^2 (self-efficacy) = 0.395; Q^2 (social influence) = 0.356

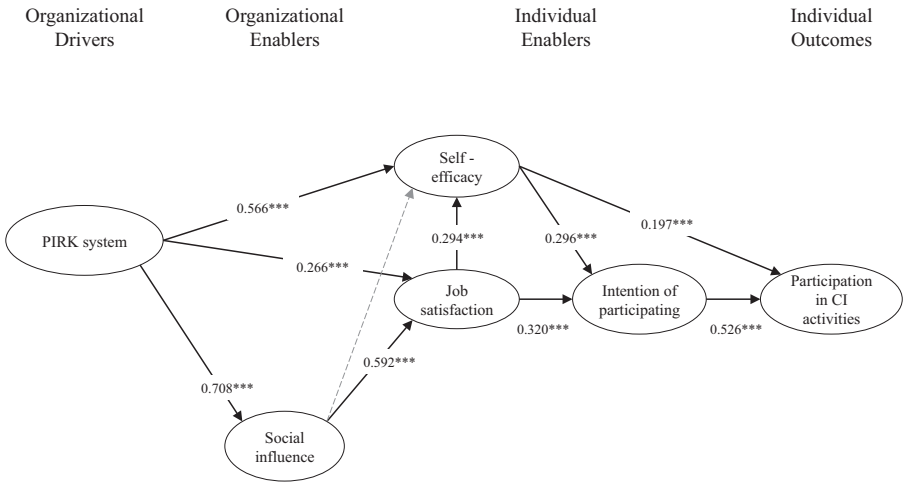

Figure 3.
Empirical model with path coefficients (+*p*-value < 0.1; **p*-value < 0.05; ***p*-value < 0.01; ****p*-value < 0.001). The dotted arrow refers to the non-validated hypothesis

antecedents of participation into organizational drivers, organizational enablers, individual enablers and individual outcomes and using the theory of planned behaviour, this model linked the organizational level with the individual level variables.

An empirical study in three different organizations of the north of Spain shows this process. Specifically, the implementation of systems that enhance power, information, rewards and knowledge for employees strengthens social influence. Both PIRK systems and social influence foster job satisfaction and self-efficacy, and through these variables intention and final participation are enhanced. The results obtained illustrate the key role of the PIRK systems and social influence variables in promoting employee participation. Derived from them, some practical implications should be pointed out.

Managers that want to enhance a culture of CI should be aware about the importance of their systems and analyse if their systems are really promoting operators' participation. Firstly, promoting and delegating power to employees. Empowerment should be encouraged to increase the autonomy of workers as a means of increasing their involvement and commitment to the organization's continuous improvement project. In this vein, giving to them the necessary resources (material, tools, time...) for participating in CI activities, encouraging them to participate in decision-making or to lead CI activities or carrying out activities for gathering employees' opinions and feelings are concrete practices for promoting empowerment. Secondly, analysing the effectiveness of the communication channels that the company has for enhancing participation. Communication and information practices should be put in place to increase transparency between the different levels of the organization. Moreover, assuring that the employees receives the information they need, encouraging employees to communicate and exchange with the rest what they learn during CI activities and guarantying the necessary channels to express their opinions are examples for promoting effective information practices. The use of information and communication technologies (digital boards, tablets, smartphones, etc.) could prove very useful to enable easy access and sharing of information throughout the organization. Thirdly, analysing the rewards systems in order to test if these rewards systems really promote participation. In this sense, recognising the effort (energy, time, resources) of employees in the CI system or giving fair and visible reward in return for effective suggestions and improvement in the system are specific actions for improving the rewards systems. Finally, revising and testing that the

organization has the necessary training activities for assuring their employees the necessary socio-technical skills and knowledge needed for participating in CI activities.

As previously discussed, organizations must not only establish a system of practices (PIRK Model) that directly promote participation but must also create an environment that sustains those practices over time. Defining and implementing a shared purpose that has an impact on the organization requires working on the system itself. To introduce the purpose at the core of the organizations and to link their workers rationally and emotionally with this common purpose, training programs could be deployed to acquire not only technical but also socio-emotional competences. Also, communication and information practices should be put in place to increase transparency between the different levels of the organization. And empowerment should be encouraged to increase the autonomy of workers as a means of increasing their involvement and commitment to an organization's continuous improvement project. Therefore, developing specific PIRK practices to further implement purpose-driven companies could be a good starting point to later deploy successful continuous improvement systems.

This research opens several future research lines. First, the empirical study was conducted entirely in the north of Spain, but there is no empirical validation for other countries that could validate this model more generally as it is proposed. Second, given the distinction between organizational–personal antecedents, multilevel studies should be conducted to prove the validity of these relationships beyond employee perceptions. Thirdly, longitudinal studies should demonstrate the relationships between the different variables over time and whether there are other variables that appear to be critical in the process of enhancing employee participation in continuous improvement. Finally, it would be interesting to carry out studies to assess whether purpose-driven companies could be related to the successful deployment of continuous improvement systems. In this vein, it could be interesting studying how the PIRK systems could be used both to develop a purpose-oriented mindset in all employees and to create an atmosphere that drives enough empowerment, motivation and communication to achieve sustainable employee participation in CI.

Note

1. VAF = indirect effect/total effect = indirect effect/(indirect effect + direct effect).

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