

Interactive performance measurement systems, self-profiling, job challenge and individual performance

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Abstract

Purpose – This study aims to investigate the extent to which interactive performance measurement systems (IPMS), self-profiling and job challenge can improve individual performance.

Design/methodology/approach – The authors study the service sector in companies listed on the Indonesian Stock Exchange. From 200 distributed questionnaires, they obtain 89 usable data points, which they analyse using SmartPLS.

Findings – The authors find that IPMS improves both self-profiling and job challenge. Both variables significantly boost individual performance.

Research limitations/implications – This study implies that managers can open communication channels to a subordinate to increase individual self-profiling that leads to the improvement of job challenge to generate excellent performance.

Originality/value – This study investigates the importance of self-profiling and job challenge at middle- to lower-level employees in the service sector who receive less attention in the field of management accounting.

Keywords Job challenge, Individual performance, Interactive use of performance measurement systems, Self-profiling

Paper type Research paper



1. Introduction

PMS studies in the past actively investigate its relationship with only middle to top managers in an organisation (Abernethy *et al.*, 2013; Aranda and Arellano, 2010; Hall, 2008, 2011; Kruis and Widener, 2014; Lau, 2015; Sholihin and Pike, 2009; Sholihin *et al.*, 2010; Yuliansyah *et al.*, 2016b; Yuliansyah and Razimi, 2015), and studies of interactive performance measurement systems (IPMS) in lower-level employees are uncommon. Yet, PMS is surely more important in lower employees because most services (which are, after all, the business strategy of companies in the service sector) are performed by precisely those employees. Lower-level performance directly influences an organisation's overall performance (Yuliansyah and Khan, 2015b). Our study investigates the extent to which IPMS supports self-profiling. Good self-profiling implies communication skills to share one's personal knowledge and ability, both internal and external (Akkermans *et al.*, 2013b; Preenen *et al.*, 2015). One characteristic of IPMS is that an employee can usefully discuss business strategies, explore ideas and reveal valuable information to their organisation (Simons, 1995).

Preenen *et al.* (2015) note that self-profiling stimulates an individual to enhance their career competencies to reach their KPIs. We predict that people with a higher job challenge make higher efforts to do the job. Several studies confirm that people make higher efforts when they have clear goals (Adhikari, 2010; Latham and Baldes, 1975; Locke and Latham, 2002). Thus, job challenge may mediate an individual's job performance. It follows that if an IPMS enables self-profiling, which leads to improved responses to the job challenge, then it increases individual performance. Therefore, we propose the following research question:

RQ1. To what extent does IPMS boost an individual's self-profiling, job challenge and individual performance?

To answer our research question, we survey the service sector; a fruitful contribution, as this sector draws less attention in the field of management accounting (Chenhall, 2003; Kihm, 2010; Yuliansyah *et al.*, 2017; Yuliansyah and Khan, 2015b). Our study is important from a practical and societal perspective as well. Firstly, management accounting has much more research at the managerial level, and much less at the middle to lower level (Yuliansyah and Khan, 2015b). Secondly, management accounting study of behavioural aspects extensively discusses psychological and behavioural factor such as fairness, trust, job satisfaction and commitment. Self-profiling and job challenge remain largely unstudied. Our study fills the gap in management accounting.

This paper has five sections, including this one, the introduction. Section 2 reviews the literature and develops our hypotheses. Section 3 explains the research methodology. Section 4 gives the results of our analysis of the data by partial least squares structural equation modelling. Section 5 contains our conclusions.

2. Review of literature and hypotheses

Previous studies in management accounting study have agreed that performance measurement systems can leverage performance both in organisation and performance. According to theorist in management control systems, Simon (1995) notes that management control can provide benefit to open a communication channel interactively from top management to lower management and vice versa. However, this interactive performance measurement can be only stimulated when top management can provide interactive communication from upper- and lower-level management (Bisbe *et al.*, 2007). Based on those organisational atmosphere, IPMS allows managers to obtain strategic information and to remain actively involved in decision-making by subordinate employees (Bisbe and Otley, 2004; Simons, 1995; Yuliansyah and Khan, 2015a; Yuliansyah and Razimi, 2015). Thus, IPMS provides impetus to open communication

channels between managers and employees that help people explore valuable ideas and share information for the benefit of the company (Yuliansyah *et al.*, 2016a).

These characteristics of IPMS encourage bidirectional communication between subordinates and managers, and such discussion and knowledge sharing and performance evaluation improve self-profiling. That is, IPMS helps an individual's self-profiling. Similarly, self-profiling can be a bridge between IPMS and job challenge. If self-profiling encourages someone to accomplish their business strategy, and also if job challenge enables them to work to their full competence, then (because a benefit of individual self-profiling is that individuals have the competence to communicate both internally and externally) this competence can support individual job challenge (Preenen *et al.*, 2016).

Preenen *et al.* (2016) describe a job challenge as a challenging task or piece of work that an individual should complete. There is general agreement that the more challenging the task, the higher the motivation to succeed (Adhikari, 2010; Latham and Baldes, 1975; Latham and Kinne, 1974; Locke and Latham, 2002). Those who have higher motivation make higher efforts to do the job. It follows that job challenge increases individual performance. We conclude that IPMS improves self-profiling, which supports job challenge, with the ultimate result of better individual performance. Hence, the research framework can be seen in Figure 1 below.

This theoretical structure allows the development of hypotheses in the following section.

2.1 IPMS and self-profiling

Akkermans *et al.* (2013) and Preenen *et al.* (2015, p. 341) define self-profiling as “presenting and communicating one's personal knowledge, abilities and skills to the internal and external labor market, whereas career control concerns setting goals and planning how to reach them”. In the above definition, we note that individual goals are bounded by a person's own ability and skill. How far an individual goals reflect company performance depends on individual KPI. Some scholars note that IPMS suits conditions of environmental uncertainty (Bisbe and Malagueño, 2009; Bisbe and Otley, 2004; Demartini and Mella, 2014; Moulang, 2013; Sakka *et al.*, 2016; Simons, 1990, 1991, 1995; Simons, 2000; Webster, 2006; Yuliansyah *et al.*, 2016a; Yuliansyah and Khan, 2015a).

As aforementioned, IPMS allows superiors and subordinates actively to communicate with each other to discuss and debate plans and achievements (Demartini and Mella, 2014; Sakka *et al.*, 2016; Simons, 1990). Although we do not find studies of the relationship between IPMS and self-profiling, both the definition of self-profiling and the pattern of IPMS have the same characteristic of achievement through communication:

H1. IPMS has a positive effect on self-profiling.

2.2 Self-profiling and job challenge

Job challenge is defined by Jones and James (1979) as “an individual's opportunity to improve themselves using their own capability and skill”. Hackman and Oldham (1976) define

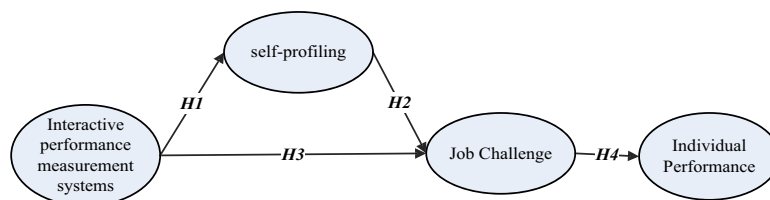


Figure 1.
The research framework

job challenge as an individual's motivation to increase job performance. Other researchers define job challenge as the worker's challenge to accomplish the tasks of the job (Preenen *et al.*, 2016). If such achievements are regularly communicated to upper-level management, self-profiling is positively related to job challenge. Preenen *et al.* (2015) find that self-profiling has a positive effect on job challenge:

H2. Self-profiling has a positive effect on job challenge.

2.3 IPMS and job challenge

We believe that IPMS helps a worker to meet their job challenge. IPMS increases organisational performance via knowledge sharing and communication between subordinates and managers, creating firm strategy for the future (Simons, 1995; Simons, 2000). Furthermore, IPMS motivates workers who face a job challenge (Preenen *et al.*, 2016) because communication and dialogue give job satisfaction and also encourage self-development, creativity and problem-solving ability (Moulang, 2013). IPMS motivates employees to achieve their targets, gives employees a vote (or at least a voice), promotes positive behaviour personally and on the job and draws attention to issues of strategic uncertainty (Sakka *et al.*, 2016; Simons, 1995). IPMS, says Henri (2006), leads to two-way communication between subordinates and their managers (Henri, 2006):

H3. IPMS has a positive effect on job challenge.

2.4 Job challenge and individual performance

A task can be seen as a job challenge when the task is quite new and difficult compared to a standard job (Preenen *et al.*, 2016). Individual task challenge may increase individual motivation to accomplish a better job. Fried and Ferris (1987) note that job challenge has five basic fundamental positive effects: it:

- improves motivation;
- raises the quality of performance;
- increases job satisfaction;
- allows innovation; and
- enriches individual knowledge through feedback (Preenen *et al.*, 2016).

Locke and Latham (2002) find that specific challenges improve individual performance, and that to implement job challenge generates benefits for the employee and the organisation alike. Preenen (2010) and others agree that job challenge improves the employee's long-term career development. For example, Berlew and Hall (1966) link the employee's discipline level in their first task upon joining an organisation's staff to their subsequent performance and their career. As Bray *et al.* (1974) pointed out, job challenge in the first year of employment has a positive relationship with individual performance in subsequent years. Thus, we propose *H4* as follows:

H4. Job challenge has a positive effect on individual performance.

3. Research methodology

3.1 Sample of the study

Our population is employees working in the service sector in Indonesia Stock Exchange-listed companies. Listed companies are big, well-managed companies

(Lau and Sholihin, 2005; Yuliansyah *et al.*, 2017; Yuliansyah *et al.*, 2016c). Their strategic planning and their PMS are advanced (Yuliansyah *et al.*, 2016c). To improve the response rate, we follow Dillman (2007) and Yuliansyah (2016) in designing the questionnaire as a booklet. From 200 posted questionnaires, we obtain 89 usable responses (44.5 per cent). See Table I for demographic information on the sample.

3.2 Variable measurement

3.2.1 Interactive performance measurement system (IPMS). IPMS is a two-way interactive process between subordinates and managers in an organisation (Henri, 2006). We use a questionnaire developed by Abernethy and Brownell (1999) with a five-point Likert scale ranging from 1 (very much disagree) to 5 (very much agree).

3.2.2 Self-profiling (SP). For self-profiling (SP), we follow Akkermans *et al.* (2013a) with three questions and the same five-point Likert scale 1 (very much disagree) to 5 (very much agree). This instrument was used by previous author such as Preenen *et al.* (2015).

3.2.3 Job challenge (JC). For job challenge (JC), we follow De Pater *et al.* (2009) and Preenen (2010) with six questions and the same Likert scale.

3.3 Individual performance (IP)

Individual performance (IP) is the record of a task, its achievement and the time taken (Deadrick and Gardner, 1997). We ask seven questions developed by Burney *et al.* (2009) with a five-point Likert scale ranging from 1 (very much disagree) to 5 (very much agree).

4. Partial least squares structural equation modelling

We use partial least squares structural equation modelling (PLS-SEM), in particularly using SmartPLS. Researchers agree that SmartPLS has several advantages for, as here, non-normal data, small sample size, the predictive relevance and testing theory (Faizan *et al.*, 2018; Richter *et al.*, 2016; Patricia Oom do and Guy, 2015; Urbach and Ahlemann, 2010). Analysis of PLS-SEM requires two sequential steps: the measurement model and the structural equation model, detailed below.

Category	<i>N</i>	(%)
<i>Sex</i>		
Male	52	58.04
Female	37	41.6
<i>Age (years)</i>		
<30	8	9.0
31-40	35	39.3
41-50	46	51.7
<i>Education</i>		
High school-diploma	11	12.4
Undergraduate (S1)	50	56.2
<i>Years in employment</i>		
<5	17	19.1
6-10	39	43.8
>11	33	37.1

Table I.
Respondent sample

4.1 Measurement model

The measurement model is used to see the appropriateness of reliability and validity. Reliability of the measurement model is measured to see Cronbach's α and composite reliability. Good reliability is in excess of 0.7 (Barclay *et al.*, 1995; Hair *et al.*, 2010; Hair *et al.*, 2011; Hulland, 1999; Ringle *et al.*, 2012). Table II illustrates that all variables have good reliability. Thus, the measurement model of reliability of the study is good.

Another measurement model is the test of validity. The test of validity can be analysed using convergent validity and discriminant validity. Convergent validity can be seen through average variance extracted (AVE). Hair *et al.* (1998) note that the rule-of-thumb value of AVE is no less than 0.5. Table II shows that all variables have good AVE as those variables are more than 0.5.

The Fornell–Larcker criterion is used to measure discriminant validity. Richter *et al.* (2016, p. 387) specify that AVE squared “should be higher than its squared correlation with any other construct”. Table III below shows that the Fornell–Larcker criterion of discriminant validity is fulfilled.

Variables	Indicators	Factor loading	Composite reliability	Cronbach's α	AVE
IPMS	PMS1	0.716	0.882	0.842	0.556
	PMS2	0.711			
	PMS3	0.826			
	PMS4	0.788			
	PMS5	0.669			
	PMS6	0.753			
SP	SP1	0.727	0.885	0.744	0.664
	SP2	0.855			
	SP3	0.855			
JC	JC1	0.706	0.851	0.734	0.658
	JC2	0.905			
	JC3	0.811			
IP	KK1	0.773	0.898	0.867	0.558
	KK2	0.795			
	KK3	0.793			
	KK4	0.655			
	KK5	0.730			
	KK6	0.741			
	KK7	0.731			

Table II.
Factor loading,
composite reliability,
Cronbach's α and
AVE

Notes: IPMS = interactive performance measurement systems; SP = self-profiling; JC = job challenge; IP = individual performance

Construct	IPMS	SP	JC	IP	R^2
IPMS	0.746				
SP	0.253	0.815			0.064
JC	0.362	0.390	0.811		0.226
IP	0.618	0.306	0.483	0.747	0.233

Table III.
Fornell-Larcker
criterion

Notes: IPMS = interactive performance measurement systems; SP = self-profiling; JC = job challenge; IP = individual performance

4.2 The assessment of structural model

The assessment of the structural model is used to test the hypotheses. We use R^2 , path coefficient (β) and t -statistical analysis. With a bootstrapping with 500 calculations, the results can be seen in the hypotheses tested, as seen in Figure 1. All hypothesis are accepted.

4.3 Hypotheses tested

H1. IPMS has a positive effect on SP.

IPMS has a positive relationship with SP with significant values ($\beta = 0.254, t = 2.620, p < 0.01$). H1 is supported.

H2. SP has a positive effect on JC.

SP has a positive effect on JC with significant values ($\beta = 0.319, t = 3.650, p < 0.01$). H2 is supported.

H3. IPMS has a positive effect on JC.

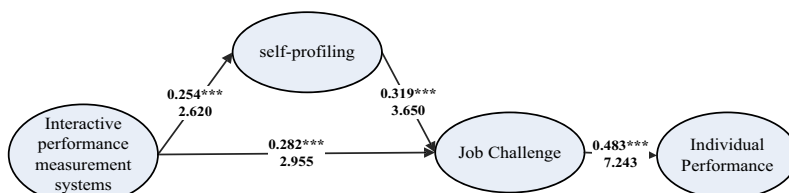
IPMS has a positive effect on JC with significant values ($\beta = 0.282, t = 2.955, p < 0.01$). H3 is supported.

H4. JC has a positive effect on IP.

JC has a positive effect on IP with significant values ($\beta = 0.483, t = 7.243, p < 0.01$). H4 is supported (Figure 2).

Based on the result of the study, we confirm that IPMS has a positive effect on SP. This means that a firm that applies performance measurement system interactively can facilitate a communication channel between upper- and lower-level employees, which will impact the improvement of individual SP. In addition, upper-level managers can encourage lower-level employees to actively communicate about the achievement of business or individual target, motivate and solve problems when individual gets a problem to raise individual KPI. Previous studies note that IPMS can improve innovativeness, organisational learning or creative; this study provides a different angle to the benefits of IPMS.

According to this study, IPMS can improve job challenge directly and indirectly through SP. Support to Preenen *et al.*'s (2015) study, we find that an individual who has higher SP tends to receive a higher challenge of their jobs. Again, when communication to lower-level individual is opened by top management when an organisation implements an IPMS, it motivates an individual to accomplish their job. With this pattern, it can increase individual JC.



Notes: ***Significant at 1% (one-tailed); **significant at 5% (one-tailed); *significant at 10% (one-tailed)

Figure 2. The result of PLS structural model: path coefficient, t -statistics

According to [Locke \(1968\)](#) and [Latham and Kinne \(1974\)](#) an individual will work hard even when they know their job has a higher challenge, if they know clearly their jobs. In this study, the interactive performance measurement system helps an individual to know clearly their jobs, which can improve JC. The ultimate achievement of JC in this study is the improvement of job performance.

5. Conclusion and recommendations

We establish the relationship between three variables (IPMS, SP and JC) and IP. This study is inspired by the fact that discussion of SP is relatively new in the field of management accounting. We show that the use of IPMS leverages individual SP, and that both IPMS and SP enhance job satisfaction. Some scholars strongly believe that individual job satisfaction is the main mediator of job performance. The results confirm our four hypotheses, that is, IPMS significantly affects both self-efficacy and job satisfaction.

This study provides practical implications. Firstly, a firm can improve IP by implementing IPMS because these performance measures facilitate SP and JC. Secondly, if firms want to increase SP and JC, firms should open a communication channel between upper- and lower-level management. This open communication can avoid misunderstanding between them. In addition, it can motivate and encourage employees to work harder to achieve their KPIs.

No research is without limitation. This study has several limitations, being conducted in the service sector and in well-managed companies. More research is needed to generalise the finding to other populations. What is more, our data come from only a single written survey. A deep personal interview method in the future will contribute wider data. To sum up, then: IPMS lets superiors and subordinates evaluate KPI and enhances individual satisfaction and job satisfaction, and job satisfaction itself has a very significant relationship with job performance.

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