# PERCEIVED ORGANIZATIONAL AND PERCEIVED SUPERVISOR SUPPORT, FAIRNESS, AND REWARDS AS DRIVERS OF EMPLOYEE ENGAGEMENT AND JOB SATISFACTION: EVIDENCE FROM A PILOT STUDY OF MEDIUM-SIZED IT FIRMS IN SINGAPORE

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***ABSTRACT***

*Employee engagement is widely linked to performance and retention, yet the drivers of engagement in medium-sized IT firms remain under-examined in Singapore, where HR structures and supervisory practices may differ from larger organizations. Grounded in Social Exchange Theory, this pilot study explores how perceived organizational support (POS), perceived supervisor support (PSS), perceived fairness, and rewards relate to employee engagement and job satisfaction. Using a cross-sectional online questionnaire distributed via convenience sampling, data were collected from 62 employees in medium-sized IT firms in Singapore. Reliability testing and exploratory factor analysis (principal axis factoring with oblimin rotation) supported a six-factor structure, reducing the instrument from 40 to 31 items (KMO = .846; Bartlett's test p < .001; Cronbach's α = .80–.93). Correlations indicated strong positive associations among POS, PSS, fairness, rewards, and engagement. In multiple regression, PSS emerged as the only significant predictor of engagement (β = .53, p < .001; adjusted R² = .60), while engagement significantly predicted job satisfaction (β = .65, p < .001; adjusted R² = .42). These findings provide preliminary evidence that supervisor support may be particularly salient in medium-sized IT contexts and support further scale refinement. The main study will validate the measurement model using confirmatory techniques (e.g., CFA/SEM) and a larger, more representative sample.*

*Keywords: Perceived Organizational Support, Employee Engagement, Singapore, IT Sector, Pilot Study*

# 1. INTRODUCTION

Employee engagement is one of the central drivers of organizational performance. It is associated with longer effort, better quality of service and reduced turnover. Recent scholarship also considers engagement as a significant product of workplace resources and supportive relationships (Albrecht et al., 2015; Saks, 2019).

In systems that are technology oriented, engagement matters a lot. Work cycles are rapid and skills are transferable. Firms are competing for limited talent and experience constant hiring pressure. According to national statistics in Singapore, there is a very strong focus on technology manpower trends and continued focus on tech talent development (Infocomm Media Development Authority, 2025). Labour market reporting also shows that the market environment is tight, as there are job vacancy indicators and employer expectations on headcount and wages (Manpower Research and Statistics Department, Ministry of Manpower, 2025). These conditions make it important to understand factors that can strengthen the engagement and satisfaction of employees.

Perceived Organizational Support (POS) refers to the general sense that the organization values the employee's contributions and is concerned about his or her well-being (Eisenberger et al., 1986). Social Exchange Theory discusses the relevance of POS. Employees are likely to seem to return the good treatment to their superiors with positive attitudes and behaviors (Blau, 1964). In practice, support perception is also formed by employees through direct contacts with the supervisors. Supervisors modify the experiences of employees on a day-to-day basis and often are the representation of the organization in the eyes of employees. This makes Perceived Supervisor Support (PSS) a potentially salient predictor of engagement, specifically in firms in which structures are less formal and managerial contact is frequent.

This study starts by examining the relationship between POS, PSS, perceived fairness, and rewards with employee engagement and job satisfaction among the employees in medium-sized IT firms in Singapore. It is developed as a pilot study. The first is measurement refinement of reliability testing and exploratory factor analysis. The second purpose is to give preliminary evidence regarding the proposed relationships based on correlational and regression analyses. The findings are meant to inform a larger study, a main study, which will validate the measurement model with confirmatory methods and with larger sampling.

# 2. LITERATURE REVIEW
## 2.1 Perceived Organizational Support

Perceived Organizational Support (POS) is defined as the general belief of employees that they are valued by the organization and that their organization cares about their well being (Eisenberger et al., 1986). POS is a key to Organizational Support Theory. It captures the interpretation of organizational actions, policies and treatment by employees. These interpretations result in attitudes and behavior through reciprocity processes consistent with Social Exchange Theory (Blau, 1964).

Recent meta-analytic evidence supports the relevance of POS to work-related outcomes. POS demonstrates positive correlations with positive results for employees and organizations. These include enhanced commitment/well-being, enhanced performance and reduced withdrawal-related outcomes (Kurtessis et al., 2017). This evidence is important for engagement research because POS is indicative if the organization can be trusted to satisfy socio-emotional needs. When employees feel greatly supported, they are more likely to invest their efforts and be psychologically connected to their work roles.

Meta-analytic results also explain important drivers of POS. Justice perceptions, supportive supervisor behavior, and rewards and favorable job conditions are just some of the strongest predictors of POS (Kurtessis et al., 2017). These drivers outline the development of support beliefs in practice. They also explain why engagement models often contain a variety of workplace factors in addition to POS. In addition, recent evidence has indicated that POS can be influenced by the social environment in the workplace. The perceptions of coworkers who support and employee voice condition can affect the way the focal employee forms POS (Stinglhamber et al., 2020). This expands the conceptualization of POS as a shared and social perception.

Overall, POS offers a good theoretical foundation for studying employee engagement and subsequent outcomes such as job satisfaction. The next section is a review of employee engagement as a construct and the reasons that engagement is a meaningful result of signals in the workplace.

## 2.2 Employee Engagement (EE)

Employee engagement has been conceptualized in a number of ways. In terms of recent syntheses, the prevailing methodology in management research is "work engagement," which is assumed to be a positive and fulfilling state of work in which one is full of vigor, dedication and absorption (Bailey et al., 2017). This conceptualization has been merged with the Job Demands-Resources (JD-R) model, which conceptualizes engagement as a motivational state supported by job and personal resources.

Evidence syntheses also show that engagement is also strongly correlated with attitudinal outcomes such as job satisfaction. In a JD-R-based meta-analysis, job resources and personal resources were found to be significantly linked with engagement while engagement was found to be significantly linked with job satisfaction (Mazzetti et al., 2021). Conceptual work has also focused on how engagement relates these aspects of HR practices and work design to individual and organizational outcomes through psychological conditions that support meaningfulness, safety, and availability (Albrecht et al., 2015). In addition to this, recent reviews remind us that engagement functions as a central explanatory mechanism in the relationship between factors at work and their impact, for example, on satisfaction, intention to stay, etc. (Saks, 2019).

In this study, engagement is taken as a proximal outcome of support-related and exchange-relevant workplace perceptions. This positioning is consistent with evidence syntheses which position resources and supportive conditions upstream of engagement and link engagement with downstream attitudes such as job satisfaction.

## 2.3 POS and related workplace drivers as predictors of engagement

Support-based explanations of engagement focus on the fact that employees react to favorable treatment with greater investment in their work roles. POS is one such signal. Recent empirical work has associated POS with work engagement via positive psychological processes, such as thriving and flourishing (Imran et al., 2020). These findings are consistent with Organizational Support Theory and suggest that POS can contribute to engagement both directly and through positive functioning of employees at work.

However, the experience of "the organization" is not limited to employees as one generalized organization for all. And they also experience it through supervisors. Evidence suggests that perceived supervisor support may be a strong proximal predictor of engagement. In a controlled comparison that looked at POS and PSS combined with one another, variation in organizational and supervisor support was linked to meaningful variations in work engagement (Shi & Gordon, 2020). This is relevant for medium-sized firm situations, where day-to-day management practices can hold more importance, as the formal systems may be less visible to employees.

Fairness and rewards are also compatible with support and exchange logic. Justice perceptions can be used to strengthen engagement through employee judgment about equitable treatment. Recent empirical evidence has revealed positive relationships between organizational justice perceptions and employee engagement in applied environments (Aggarwal & Mittal, 2021). Rewards can be economic as well as socio-emotional. Recent evidence on "total rewards perceptions" indicates that the perception of reward packages by employees can be positively related to work engagement (Ji & Cui, 2021). Taken together, this literature provides support for examining POS, PSS, fairness and rewards as theoretically aligned antecedents of engagement. It also supports the positioning of engagement as a pathway to job satisfaction, which is consistent with engagement outcome syntheses (Mazzetti et al., 2021; Saks, 2019).

## 3. RESEARCH GAP AND CONTRIBUTION
### 3.1 Research Gap

Research on employee engagement has been growing in both disciplines and outcomes, but systematic reviews have continued to show the need for improved coverage of contexts and clearer specification of mechanisms by setting. In particular, more work is required in knowledge-intensive environments where scarcity of talent and fast work cycles can contribute to the way employees respond to workplace resources and support signals (Kossyva et al., 2023). Singapore's technology labour market is an appropriate context for such work as there has been ongoing national reporting of the need for tech-talent pipelines and ongoing pressures on the supply side of the labour market (Infocomm Media Development Authority, 2025; Manpower Research and Statistics Department, Ministry of Manpower, 2025). However, evidence from Singapore is still limited for medium-sized IT firms, which differ from large organisations in the way in which they are structured and the salience of the day-to-day supervisory interactions.

A second gap is between construct specification in support-based engagement models. Studies have tended to conflate organisational support and supervisory support, even though employees can distinguish between organisational support and support from immediate supervisors. Work that compares perceived organisational support and perceived supervisor support implies that the two may have different practical implications for engagement-related outcomes (Shi & Gordon, 2019). This distinction is likely to matter in medium-sized IT firms, where the supervisors are often the best-known organising representatives. Related workplace signals also require better integration. Fairness and rewards are discussed in connection with support a lot, but they are not always integrated into the one model that links these perceptions relevant in exchanges with engagement and job satisfaction.

A third gap is a methodological one. Engagement and support research often use established scales, but context-specific refinement is not reported in the many studies that assume the validity of measurement. For applied organisational research, pilot studies can be critical in initial scale evaluation as well as identifying items that function poorly in a target population (Johanson & Brooks, 2010). More rigorous validation methods usually involve confirmatory testing post-exploratory refinement such as exploratory factor analysis followed by confirmatory factor analysis in an independent sample (Willmer et al, 2019). This is particularly true in the case of the adaptation of instruments for a particular sector and country context.

### 3.2 Research Contribution

This pilot study is a contribution in three ways. First, it contributes to the context by analyzing support-related predictors of engagement and job satisfaction in Singapore's context, in medium-sized IT firms of practical importance due to current pressures for tech talents (Infocomm Media Development Authority, 2025; Manpower Research and Statistics Department, Ministry of Manpower, 2025). Second, it makes a conceptual contribution in modelling organisational support, supervisor support, fairness, and rewards together as distinct but related antecedents of employee engagement and job satisfaction. This structure is consistent with the framework of employees forming exchange-based judgments based on multiple signals from their workplace and that organizational-level and supervisor-level support can vary in salience (Shi & Gordon, 2019). Third, it makes one methodological contribution in that it uses the pilot to refine the measurement instrument and also produce preliminary evidence for the proposed relationships. The results of the pilot study inform the design of a main study, which will use confirmatory techniques to more

rigorously test the measurement model and structural relationships after exploratory refinement (Johanson & Brooks, 2010; Willmer et al., 2019).

This section leads into the development of the hypothesis by clarifying the reasons for including multiple support-related antecedents in the model, and reasons for formulating engagement as proximal outcome linked to job satisfaction.

## 4. Hypothesis Development

Social Exchange Theory proposes that employees react positively to favorable treatment with positive attitudes and behavior (Blau, 1964). In Organizational Support Theory, perceived organizational support is expected to lead to reciprocity processes that lead to stronger work attitudes, such as engagement and satisfaction (Eisenberger et al., 1986; Kurtessis et al., 2017). In this study, POS, perceived supervisor support (PSS), perceived fairness and rewards are considered as different workplace signals. Each signal can affect the willingness of employees to invest energy in his or her work role. Employee engagement is then expected to relate positively between engagement and job satisfaction.

H1: There is a positive relationship between the perceived Organizational Support (POS) and Employee Engagement (EE).

POS provides a signal that the organization has a positive attitude towards the employees and supports their well-being. Such signals are expected to increase the engagement through reciprocity and socio-emotional need fulfilment (Kurtessis et al., 2017).

H2: There is a positive relationship between Perceived Supervisor Support (PSS) and Employee Engagement (EE).

Supervisors affect daily work experience and are often perceived as organizational representatives. Evidence comparing organizational and supervisor support indicates that supervisor support can be a potent proximal cause of engagement (Shi & Gordon, 2020).

H3: Perceived Fairness is positively related to the Employee Engagement (EE).

Fair procedures and respectful treatment build trust in the organization and eliminate uncertainty. Justice perceptions have been associated with greater engagement of employees in applied models (Aggarwal & Mittal, 2021; Kang & Sung, 2019).

H4: The relationship between rewards and Employee Engagement (EE) is positive.

Rewards can work as exchange signals that communicate recognition and value. Recent evidence indicates that positive perceptions of reward packages by employees are related to increased work engagement (Ji & Cui, 2021).

H5: Employee Engagement (EE) has a positive relationship with Job Satisfaction (JS).

Engagement is a sign of an active and positive state of work. Meta-analytic evidence shows that there is a strong link between work engagement and job satisfaction (Mazzetti et al., 2023). Findings from engagement-focused models also identify engagement as an important pathway to positive work attitudes (Saks, 2019).

H6: POS antecedents (POS, PSS, perceived fairness and rewards) have a positive relationship with Job Satisfaction (JS).

Support, fairness and rewards can affect levels of satisfaction directly by influencing the way employees evaluate how the organisation treats them. Organizational support research shows that POS is positively related to job satisfaction (Kurtessis et al., 2017). Related work has also suggested that support and justice perceptions can shape satisfaction through higher employee-organization relationships and engagement (Kang and Sung, 2019; Saks, 2019).

## 5. Theoretical Framework

This study is based on the Social Exchange Theory. The theory suggests that social relationships are formed through the process of reciprocal exchange of resources and socio-emotional benefits (Blau, 1964). In the organization, the employees judge how they are treated and form their expectations about the quality of the exchange relationship. When employees feel that they are treated well, they are more likely to react with a positive attitude and behavior.

Organizational Support Theory uses this logic in a workplace setting. It argues that employees form a generalised perception of support which reflects whether the organisation values their contributions and care about their well-being (Eisenberger et al., 1986). Meta-analytic evidence have shown that perceived organizational support is associated with beneficial outcomes, such as greater work attitudes and less withdrawal outcomes (Kurtessis et al., 2017). These relationships are consistent with an exchange based mechanism. Support signals an obligation to reciprocate and build a sense of belonging and value among the employees.

Support perception is influenced at a number of levels. Employees make judgements about the organization as a whole, and they also respond to the behavior of immediate supervisors. Supervisors assign work, give feedback and control day-to-day interactions. They are often organisational agents. For this reason, perceived supervisor support can act as a more proximal signal than organizational support in the formation of engagement-related responses. Research that focuses on organizational and supervisor support in combination indicates that supervisor support could exert unique effects on work engagement (Shi & Gordon, 2020).

Fairness and rewards are also consistent with the logic of exchange. Fairness is an indicator of whether decision processes and the treatment of individuals is just. Rewards are a sign of whether contributions have been acknowledged or not. These signals are formative of trust and perceived value in the exchange relationship. When people experience fairness and reward as positive, the employees will more likely maintain effort and involvement. Previous studies have linked justice perceptions with engagement-related attitudes and found that reward perceptions can be related to higher levels of work engagement (Ji & Cui, 2021; Kang & Sung, 2019). Together, these signals complement organizational and supervisor support in explaining employees' investment of energy in their work roles.

Employee engagement is here placed on a proximal result of exchange-relevant workplace perceptions. Engagement denotes an active and positive condition which can be translated into more favorable job attitudes. Contemporary engagement scholarship also considers engagement to be an important mechanism between resources in the workplace and attitudes and performance outcomes (Bakker & Albrecht, 2018; Saks, 2019). In this study, job Satisfaction is considered as a downstream attitudinal outcome which is expected to be increased when the employees are engaged with their work. This theoretical framing is supportive of the model proposed in which POS, PSS, fairness, rewards are related to engagement and engagement is related to job satisfaction.

## 6. Method

### 6.1 Research design

This study was done with a quantitative, cross-sectional survey design. The work was organized as a pilot study having two goals. The first was to determine the reliability of the measures and examine the factor structure in the target context. The second goal was to create preliminary evidence about the proposed relationships between perceived organizational support, perceived supervisor support, perceived fairness, rewards, employee engagement, and job satisfaction. Data were analysed using IBM statistics (SPSS) Version 26. Because the study is based on single source self-report data, procedural steps were taken to reduce common method bias. The questionnaire stressed free participation and anonymity. It also refrained from collecting direct identifiers. These steps are consistent with suggested procedural remedies for common method bias in survey research (Podsakoff et al., 2003). In the main study, some other statistical diagnostics for common method bias will be applied in conjunction with the procedural remedies (Podsakoff et al., 2003)..

### 6.2 Participants and sampling

Participants were employees who worked in medium-size IT firms in Singapore. A total of 62 usable responses were retained as complete for analysis purposes following screening for completeness. The sampling approach was non-probability or convenience sampling. It was based on distributing an on-line questionnaire to potential respondents. In the revised manuscript, the definition applied to "medium-sized" should be given explicitly and supported by a suitable industry or government standard. The description of firm characteristics should be expanded also. This consists of major representational of IT segments and functional role of respondents. It will better transparency and replicability if these details are reported.

### 6.3 Procedure and ethical considerations

Data were gathered using an online questionnaire conducted via the online method Google Forms. Potential respondents were invited to participate and told that participation was voluntary. They were also told that the responses would remain anonymous and would only be used for academic purposes. No identifying information was collected. Screening of responses took place prior to analysis. Incomplete submissions were removed from the final data used.

To reinforce ethical reporting and to meet the expectations in a given journal, if relevant, the revised manuscript should include the following information: the consent statement presented to participants, the approximate amount of time required to complete the survey, data storage and access arrangements, and whether any institutional ethics review has been obtained or found to be unnecessary.

## 7. Instrumentation

This section describes the pilot instrument and summarises the analytic steps used to evaluate the preliminary quality of the measurement and test the proposed relationships. The questionnaire included 40 items that were measured on a five-point Likert scale and which measured six constructs: perceived organizational support (POS), perceived supervisor support (PSS), perceived fairness, rewards, employee engagement (EE), and job satisfaction (JS). Items were adapted from existing scales and reviewed for clarity and its contextual fit within the context of Singapore's medium-sized IT firms.

### 7.1. Exploratory Factor Analysis

Exploratory factor analysis (EFA) was conducted to examine the preliminary structure of factors of the instrument. Sampling adequacy was good (KMO=.89). Bartlett's test of sphericity was significant ($\chi^2(528) = 2921.34$, $p < .001$), supporting factorability of the correlation matrix. Principal axis factoring using oblimin rotation was used as the constructs were expected to correlate. A six factor solution emerged, in accordance with the conceptual model. Items generally had high loadings ($>= .54$) and little cross-loading. Based on loading strength and redundancy criteria, the instrument was reduced from 40 items to 31 items for the main study.Given the pilot sample size, the results of the EFA should be considered exploratory and in terms of instrument refining. The revised manuscript should include the item retention criteria for primary loadings, cross-loadings, and communalities. This will build on transparency and harmonise the reporting with guidance on good practices to EFA decisions (Goretzko et al., 2021; Watkins, 2018).

### 7.2 Descriptive Statistics and Reliability

Descriptive statistics as well as internal consistency reliability were calculated for each construct following item refinement. The construct means, the standard deviations and the Cronbach's alpha values are presented in table 1. The table is preserved from the original manuscript and is presented here to aid in clarity and replicability.

| Construct | M | SD | α |
|---|---|---|---|
| POS | 4.16 | 0.58 | .91 |
| PSS | 4.21 | 0.49 | .87 |
| Fairness | 3.96 | 0.69 | .93 |
| Rewards | 3.80 | 0.77 | .88 |
| Employee Engagement | 4.22 | 0.53 | .82 |
| Job Satisfaction | 4.10 | 0.54 | .84 |

**Table 1.** Descriptive Statistics and Reliability

As shown in Table 1, mean scores were above the midpoint for all constructs. Reliability values exceeded .80 for all measures, which supports their use for preliminary hypothesis testing in this pilot.


**7.3 Correlation Analysis**
Bivariate correlations were used to analyze the preliminary relationship between the study variables. All of the correlations between the six constructs were positive and significant at $p < .01$. Perceived organizational support was found to be significantly related to perceived fairness ($r = .82$) and rewards ($r = .75$). Employee engagement was found to have the most significant association with perceived supervisor support ($r = .63$). Job satisfaction was highly correlated with employee engagement ($r = .68$) and with the perception of organization support ($r = .69$).

These patterns of correlation are in agreement with the proposed exchange-based logic. They also suggest considerable overlapping between some of the predictors, particularly among POS, fairness and rewards. This overlapping is important to consider when considering the multiple regression findings because the high intercorrelations may lead to reduced size and statistical significance for individual unique predictor effects in the multivariable models.

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**7.4 Regression Analysis**
**7.4.1 Predicting Employee Engagement**
Multiple regression analysis was utilized to analyze whether perceived organizational support, perceived supervisor support, perceived fairness, and rewards were predictors of employee engagement. The overall model was statistically significant, $F(4,57) = 11.23$, $p < .001$, and explained a meaningful proportion of variance in engagement (adjusted $R^2$ = .40). Perceived supervisor support was the only statistically significant predictor of engagement in the multivariable model ($v33p=.034$). Perceived organizational support, perceived fairness and rewards had positive coefficients but did not reach the level of statistical significance when simultaneously entered.

This pattern is pilot evidence of supervisor support that may be especially salient for engagement for this sample. The non-significant effects for POS, fairness, and rewards should be taken with a pinch of salt as there can be large correlations among predictors, inflating standard errors and making apparent unique effects less apparent.


**7.4.2 Predicting Job Satisfaction**
A second regression was carried out to examine the relationship between perceived organizational support, perceived supervisor support, perceived fairness, rewards, and employee engagement and job satisfaction. The overall model was statistically significant, $F(5,56) = 25.06$, $p < .001$, with substantial explained variance (adjusted $R^2$ = .66). The only statistically significant predictor of job satisfaction was employee engagement (beta (.51, $p < .001$)). The other predictors were positive but were not statistically significant in the multivariable model.

Overall, the results of the regression support the positioning of engagement as proximal predictor of job satisfaction in the pilot model. The results also suggest that supervisor support may be an important practical lever in increasing engagement in medium-sized IT firms. These findings are interpreted as preliminary as the sample is modest and analyses are exploratory in purpose. They help inform presentation of the conceptual model in the next section, and help to guide priorities in confirmatory testing in the main study.


**8. Conceptual Model Figure**
This study proposes that the use of workplace exchange signals to engage employees and determine their satisfaction with the job. The conceptual model clarifies perceived organisational support, perceived supervisor support, perceived fairness and rewards as antecedents of employee engagement. Engagement is located as proximal predictor of job satisfaction. This structure is in line with the Social Exchange Theory and Organizational Support Theory.

The conceptual model that served as the basis for conducting the pilot analyses is presented in Figure 1. The figure is preserved from the original manuscript. It is given here with an improved captioning and construct labeling.
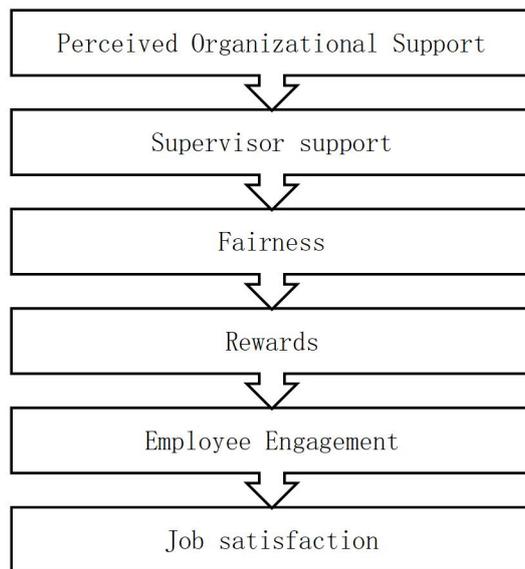
**Figure 1.** Conceptual model linking support-related antecedents to employee engagement and job satisfaction (pilot study)

As shown in Figure 1 the model highlights engagement as an important mechanism relating workplace perceptions to job satisfaction. The following section reports on the findings of the pilot that are in accordance to this model.

## 9. Findings

The results of the pilot are summarized in this section in three parts. First, it reports on measurement evidence in the form of exploratory factor analysis and reliability measurement. Second, it distills associations between the constructs. Third, it presents the results of regression that conform to the conceptual model.

### 9.1 Measurement evidence from EFA and reliability

Exploratory factor analysis supported a six factor structure that was consistent with the proposed model. Sampling adequacy was acceptable (KMO = .89), and Bartlett's test of sphericity was significant ($\chi^2(528) = 2921.34$, $p < .001$). Principal axes factoring using oblimin rotation was used and the item pool was refined from 40 items to 31 items for the main study.

Internal consistency reliability for the retained constructs was good. The results of an analysis of the construct means, the standard deviations and the alpha-values for the pilot sample are presented in Table 1. The table is preserved from the original manuscript and is introduced here for reasons of clarity and transparency.

**Table 1.** Descriptive statistics and reliability estimates for study constructs (N = 62)

| Construct | M | SD | α |
|---|---|---|---|
| POS | 4.16 | 0.58 | .91 |
| PSS | 4.21 | 0.49 | .87 |
| Fairness | 3.96 | 0.69 | .93 |
| Rewards | 3.80 | 0.77 | .88 |
| Employee Engagement | 4.22 | 0.53 | .82 |
| Job Satisfaction | 4.10 | 0.54 | .84 |

As Table 1 shows, respondents had relatively positive perceptions across constructs. Reliability values were all greater than .80 and support their use for preliminary hypothesis testing in the pilot.

### 9.2 Correlation patterns

Correlation analysis revealed positive and statistically significant correlations between the six constructs ($p< .01$). POS had high correlations with fairness ($r = .82$) and rewards ($r = .75$). The strongest correlation was between employee engagement and PSS ($r=.63$). There was a strong correlation between job satisfaction and employee engagement ($r=.68$) and POS ($r=.69$).

These patterns are consistent with the proposed model. They also suggest significant overlap between some antecedents. This overlapping is in play when interpreting the results of the regression.

### 9.3 Regression results aligned with the conceptual model

When predicting employee engagement from POS, PSS, fairness, and rewards, the overall model was significant ($F(4,57) = 11.23$, $p < .001$; adjusted $R^2 = .40$). PSS was the only statistically significant predictor of engagement (beta=.33, p=.034). POS, fairness and rewards were positive but not statistically significant in the multivariable model.

When predicting job satisfaction from POS, PSS, fairness, rewards, and employee engagement, the overall model was significant ($F(5,56) = 25.06$, $p < .001$; adjusted $R^2 = .66$). The only statistically significant predictor of job satisfaction was employee engagement (beta ($.51$, $p < .001$)).

Overall, the results of the pilot findings indicate that supervisor support may be a particularly salient predictor of engagement of this sample. They also propose that engagement is highly related to job satisfaction. The next section discusses these results in relation to theory and practice, while keeping due caution because of the size of the pilot sample.

## 10. DISCUSSION

This pilot study investigated the relationship between perceived organizational support, perceived supervisor support, perceived fairness, and rewards with their employees engagement and job satisfaction in medium-sized IT firms in Singapore. The conceptual structure is shown in Figure 1 which places employee engagement as the proximal outcome of these workplace signals and as a predictor of job satisfaction. Table 1 presents descriptive statistics and internal consistency estimates that provide support for the use of the refined measures in the preliminary model testing of this pilot sample.

The first and most important finding is that perceived supervisor support was the only statistically significant predictor in the multivariable regression model of employee engagement. This result is plausible from a theoretical standpoint. Supervisors influence work day experience by the way in which they allocate jobs, provide feedback, and treat subordinates. Employees may therefore think of supervisors as the most prominent agents of the organization. In such cases, supervisor support can act as a more proximal exchange signal than does generalized organizational support. Evidence that Models supervisor support and organizational support can also indicate that supervisor support may demonstrate superior engagement-related effects under some conditions (Shi & Gordon, 2020).

A second interpretation is statistical and is related to the overlap of predictors. The results of the pilot correlations suggest that there are strong intercorrelations between organizational support, fairness, and rewards. When there is high correlation between predictors, unique effects in multiple regression may be eliminated because the standard error increases. This can serve to suppress statistical significance even when bivariate associations are of meaning. In this pilot, this pattern helps to explain why organizational support, fairness, and rewards are associated with engagement at the correlational level, but do not show unique effects when entered in conjunction with supervisor support.

The second regression shows that the only significant predictors of the job satisfaction in the multiple regression model was employee engagement. This result is consistent with the evidence that has been found in the Job Demands-Resources tradition, in which it has been found that work engagement is strongly associated with job satisfaction across a variety of samples (Mazzetti et al., 2023). The results of this pilot therefore support the positioning of engagement as a proximal attitudinal mechanism in the model that was proposed.

These conclusions should be taken with some caution as this is a pilot study with a small sample size and is exploratory in nature. The results are most useful for improving the instrument and prioritizing relationships for confirmatory testing. In the main study, confirmatory factor analysis can be used to validate the measurement model and a structural equation modeling can be used to test whether the antecedents still have separate effects on engagement and whether engagement has indirect effects to job satisfaction under stronger measurement conditions.

## 11. Practical Implications

This section converts the pilot evidence into practical action for medium sized IT firms. The recommendations are presented in the same way as the conceptual model (Figure 1). They are based on the fact that in the multiple-variable model, supervisor support is the unique predictor of engagement, and engagement is the unique predictor of job satisfaction. They are also consistent with previous empirical evidence on the salience of supervisor support for engagement outcomes (Shi & Gordon, 2020).

First, firms should consider supervisor support as one of the major levers to reinforce engagement. The results from the pilot show that supervisor support has the highest unique relationship to engagement when other antecedents are taken into account at the same time. This suggests that enhancements in people management capability at the supervisor level can deliver significant gains in engagement people-related outcomes. A practical way of doing this is to implement short behaviour-focussed supervisor training that focuses on supportive actions that include encouragement, reassurance, recognition of effort and timely help with barriers. Field-experimental evidence reveals that short-term training focused on supportive leadership behaviors can enhance engagement and satisfaction of employees during subsequent work interactions (Haeckl & Rege, 2024).

Second, HR teams need to bolster fairness and rewards as part of an integrated "treatment climate," even if their distinctive regression effects are not detectable in this pilot. Strong associations among organizational support, fairness, and rewards suggest these perceptions may be experienced by employees as an integrated set of workplace signals as opposed to as separate factors. In practice, however, firms can enhance the perception of fairness by having transparent criteria for assessing performance, by applying rules consistently and by communicating around decisions. They can enhance the perceptions of rewards by making the recognition of rewards timely and specific and by making it clear what actions and outcomes are rewarded. These steps support more credible exchange relationship, which is likely to strengthen engagement over time.

Third, firms need to make engagement a realistic leading indicator of satisfaction-related outcomes. The results from the pilot indicate that engagement is the best predictor of job satisfaction in the multivariable model. This argues in favour

of using engagement as a monitoring measure and a target outcome of interventions. Meta-analytic evidence has also shown an intense relationship between work engagement and job satisfaction, which serves as evidence for this focus in practice (Mazzetti et al., 2023). Managers can operationalize this by utilizing short pulse surveys, structured check-ins, and workload planning practices that help protect time for focused work and minimize unnecessary friction.

These implications should be viewed as pilot-informed priorities and not as causal claims. The main study should test them with a larger sample and methods of confirmation. This will enable greater inference regarding robust effects of the levers in medium-sized IT firms.

## 12. Ethical Considerations

This study was conducted following established principles for conducting research involving human participants. Participation was on a voluntary basis. Participants were informed about the study before responding and were able to drop out of the study at any time without penalty (World Medical Association [WMA], 2024). Responses were gathered anonymously. No personally identifying information was requested. This alleviated privacy and employment sensitivity related risks in organizational research (WMA, 2024).

Data were used solely for academic purposes and data were handled to protect confidentiality. Access to the dataset should be limited to the research team. Data should be stored in a secure manner (password protected files) and under controlled sharing permissions. These protections are consistent with core expectations that are emphasized in the current (October 2024) version of the Declaration of Helsinki including respect for participants, risk minimization and responsible data handling (WMA, 2024). Of recent note on the 2024 revision is also the renewed importance of respect for participants and modern research contexts, facilitating clear reporting of consent and privacy safeguards in survey research (Resneck, 2025).To meet expectations of EPH reporters, it is best to have a short statement regarding the ethics review status in the manuscript. If institutional ethics approval was received, report on the ethics approving body and reference number. If not as part of the existing policy of the relevant institution you will need approval for an anonymous, minimal risk survey, state that fact and provide the basis for the determination (WMA, 2024).

## 13. Limitations & Future Research Directions

This pilot study produces preliminary information on relationships between perceived organizational support, perceived supervisor support, fairness, rewards, employee engagement, and job satisfaction. The results should be evaluated within the framework of the design and sample.

The first limitation is sampling. The sample used for the pilot was small (N = 62) and the sampling strategy was non-probability convenience sampling. This has implications for statistical power and generalisability to the general population of the medium-sized IT firms in Singapore. The second limitation is the design of the research. The study is cross-sectional and is based on single source self-report measures obtained from the same survey session. This limits causal inference, and tends to heighten the risk of common method bias, even where anonymity and other procedural safeguards are employed (Podsakoff et al., 2003). The third limitation is related to the measurement validation. The exploratory factor analysis is consistent with an interpretable structure, but EFA results are sensitive to sample size, communalities and decisions regarding the analysis. This is especially relevant when the size of the initial item pool is large in relation to the size of the group of respondents (Goretzko et al., 2021). The fourth limitation is model estimation. Strong correlations among predictors can make the regression coefficients less stable and suppress unique effects. This may be partially explained by the significance of some antecedents being present in correlations but not in multivariable regression.Future research should overcome these limitations in the main research. The next stage should scale-up sample size and enhance the sampling coverage in medium-sized IT firms. The study should validate the measurement model with the help of confirming factor analysis and then test the structural model with the help of structural equation modeling. This method has the potential to estimate direct and indirect effects with greater control over measurement and is in line with recommended SEM practice (Kline, 2015). The main study should also include more powerful remedies for common method bias. This may consist of time separation, multi source measurement where possible, and statistical diagnostics with procedural controls (Podsakoff et al., 2003). Finally, the model can be extended by examining whether the structural relationships vary according to employee role, tenure, or firm segment, and measurement invariance across subgroups prior to comparing structural paths (Kline, 2015). These steps will make the study more rigorous and enhance the contribution of the study to the HRM and organizational behavior literature.

## 14. Conclusions

This pilot study investigated the relationships among perceived organizational support, perceived supervisor support, fairness, and rewards and employee engagement and job satisfaction in medium sized IT firms in Singapore. The results offer preliminary evidence that the perceived support from the supervisor is the most salient unique predictor of employee engagement at once taking into account the antecedents. This finding has important implications for the practical importance of daily supervisory interactions on the motivational and involvement levels of employees at work. The results also suggest that employee engagement is a positive predictor of job satisfaction in the multivariable model, which supports the construct of engagement as a proximal attitudinal mechanism between workplace perceptions and satisfaction-related outcomes.

The pilot is also supportive of the measurement development objectives of the study. The refined instrument showed acceptable internal consistency between constructs and interpretable factor structure, which can be used as a defensible basis to proceed to the main study. At the same time, the conclusions should still be cautious because the pilot sample is

small and analyses are exploratory in nature. The results are best interpreted as directional evidence which informs the refinement of measures and prioritisation of relationships for confirmatory testing.

The primary study needs to build on this foundation by employing a larger and more representative sample of medium-sized IT firms and confirming the measurement model and the proposed structural relationships using more rigorous methods. These steps will enhance the generalizability and provide more clarity in the conclusions related to the distinct roles of organizational and supervisory support, and the pathways between workplace signals, engagement, and job satisfaction.

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