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SUPPLIER GOVERNANCE AND OPERATIONS PERFORMANCE IN AN INDONESIAN FOOD AND BEVERAGE (F&B) SUPPLY CHAIN

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Abstract

Food and beverage (F&B) supply chains depend on suppliers that can meet production requirements consistently. This study examines how supplier selection, involvement, development, and monitoring relate to perceived operations performance in one Indonesian firm. A cross-sectional survey used convenience sampling and a five-point response format. Of 200 questionnaires distributed to managers, procurement personnel, and supplier representatives, 185 were usable, giving a usable return rate of 92.5%. The analysis draws on available aggregate descriptive statistics, internal consistency estimates, and Pearson correlations. Using a 1-to-5 Likert scale survey, monitoring received the highest practice score (mean = 4.25, standard deviation = 0.71), followed by selection (4.12, 0.85), development (4.05, 0.78), and involvement (3.89, 0.92). The respective correlations with perceived operations performance were 0.745, 0.510, 0.680, and 0.625. Monitoring was therefore prominent in both the practice profile and the association profile. However, the coefficients do not establish its independent contribution or show that additional monitoring improves performance. The study offers an exploratory comparison of supplier governance practices within a single supply chain setting. Its managerial implication is to connect performance checks with supplier problem solving and targeted capability development, while evaluating changes through quality, delivery, and cost records. Broader conclusions require stronger measurement documentation, matched buyer and supplier evidence, and observations over time.

Keywords: Food and beverage (F&B), operations performance, supplier development, supplier governance, supply chain

1 INTRODUCTION

Supplier governance connects purchasing decisions with the ability to keep production running. In food and beverage operations, a supplier's failure to meet specification or delivery requirement can interrupt the flow of materials. The resulting problem extends beyond procurement because production schedules, quality control, and inventory decisions must respond together. Research on food supply chains identifies coordination and information gaps as important barriers to reliable and sustainable food systems. These concerns make supplier governance relevant to operations managers, even when the immediate objective is dependable production rather than a wider sustainability outcome (Jia, Shahzadi, Bourlakis, & John, 2024).

Governance includes several activities with different purposes. Supplier selection establishes entry requirements. Involvement brings supplier knowledge into planning and problem solving. Development addresses capability gaps, while monitoring checks whether agreed requirements continue to be met. These activities are related, but they are not interchangeable. Research on supplier development programs shows that communication, cooperation, and commitment help explain how formal programs relate to supplier performance. Counting governance activities alone therefore provides an incomplete account of their operational value (Benton, Prahinski, & Fan, 2020).

Monitoring raises a particular managerial question. More checks can provide greater visibility, yet visibility does not ensure an effective response. Research links the value of monitoring to a buyer's understanding of suppliers' operations culture and routines. A separate study of procurement and demand–supply imbalances finds that monitoring can be associated with poorer cost efficiency in resolving imbalances. Together, these findings suggest that the use of information matters alongside its availability. They do not support a general rule that more monitoring always produces better performance (Laari, Lorentz, Jonsson, & Lindau, 2023; Shafiq, Johnson, & Klassen, 2022). The corresponding role of capability development also requires care. Buyers may help suppliers through technical assistance, training, or joint improvement work, but the appropriate support depends on the supplier and the problem.

Evidence on development programs identifies supply-side conditions that shape their effectiveness. This makes it useful to examine monitoring alongside development and involvement, rather than treat the highest-rated practice as the single best investment. The important distinction is between identifying a deviation and enabling the supplier to correct it (Saghiri & Wilding, 2021).

This study examines supplier selection, involvement, development, and monitoring in one Indonesian food and beverage firm. It asks which practices receive the highest scores and how their bivariate associations with perceived operations performance differ. The contribution is an exploratory comparison within a bounded supply chain setting. It separates practice intensity from performance association and interprets both through the distinction between performance information and its managerial use. This focus follows research showing that successful buyer–supplier performance management requires more than information exchange (Jääskeläinen, Korhonen, & Amiri, 2023).

1.1 Supplier governance and analytical expectations

Selection provides a starting point for the relationship by identifying whether a supplier can meet the buyer's requirements. It can also reveal where improvement support is needed after qualification. Research linking sustainable supplier selection with supplier development supports examining these activities together. However, that research concerns sustainability performance, whereas the present outcome concerns perceived operations performance. It informs the relationship logic without establishing that the same outcome or mechanism has been measured here (Fan & Kang, 2023).

Involvement gives suppliers an opportunity to explain technical constraints before decisions become costly to reverse. The timing and quality of this exchange matter. In new product development, supplier representatives' information and process coordination behaviors can change the relationship between early involvement and supplier performance. For the present study, this provides a reason to examine involvement as a distinct practice. It does not justify assuming that additional meetings or communication will produce a uniform operational benefit (Oh & In, 2023).

Development concerns what the buyer does to strengthen supplier capability. A review of sustainable supplier development highlights the need for clear boundaries between development and other supplier management practices. Monitoring, by comparison, concerns the assessment and follow-up of performance (Syamil et al., 2023). Figure 1 organizes the four practices around these distinct roles and a common perceived outcome. The links identify associations examined in the survey; they do not represent a tested sequence, an interaction model, or mediation (Bai & Satir, 2022).

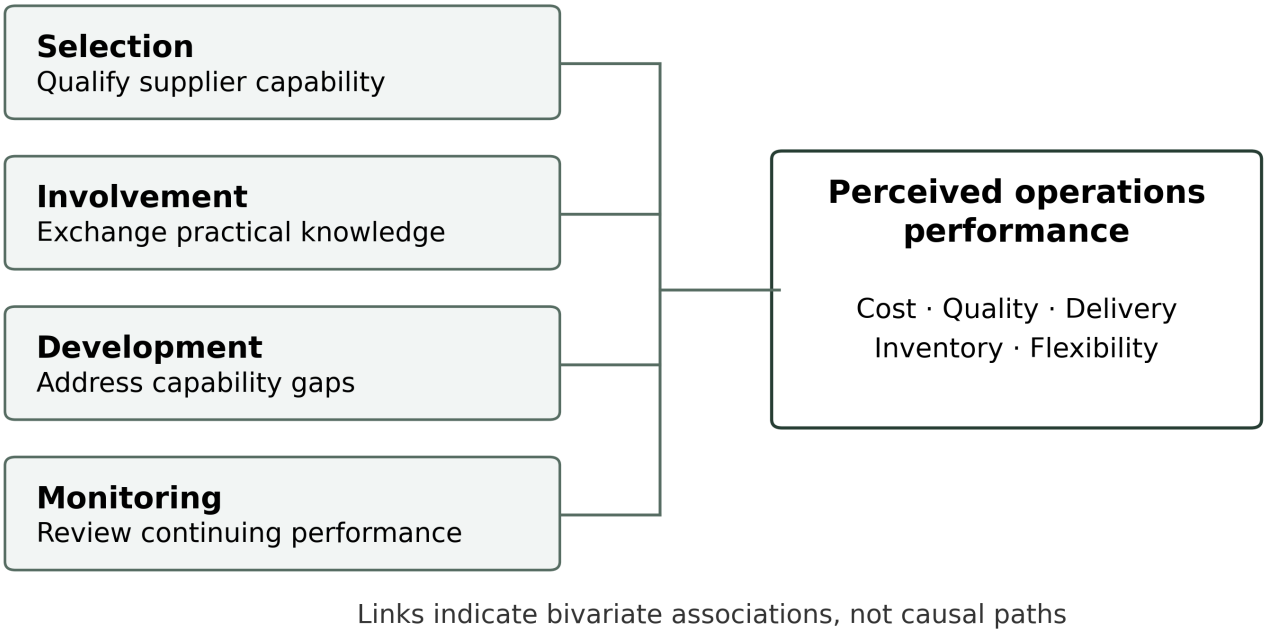


Figure 1. Analytical scope of the supplier governance assessment

Note. Analytical organization of the survey constructs. The outcome is a perceived operations performnace. Role distinctions are informed by supplier development and performance management research.

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2 METHOD

The study uses a cross-sectional survey within one Indonesian food and beverage firm. The study documentation describes convenience sampling, with senior managers, procurement officers, and vendor representatives included. Of 200 questionnaires distributed, 185 were usable. The usable return rate is calculated as 185 divided by 200, multiplied by 100. This describes questionnaire yield rather than coverage of the supplier population. Convenience recruitment and a single organizational setting restrict generalization (Lakens, 2022).

The questionnaire used a five-point Likert response format. Four constructs concerned supplier selection, involvement, development, and monitoring. The operations performance construct covered perceived cost, quality, delivery, inventory, and flexibility outcomes. The available evidence comprises construct means, standard deviations, Cronbach's alpha coefficients, and four Pearson correlations with performance. (Rönkkö & Cho, 2022).

This study used SPSS as the software used for descriptive statistics and Pearson correlations. This article compares the available summaries (Jääskeläinen et al., 2023). The analysis is descriptive and exploratory (Podsakoff, Podsakoff, Williams, Huang, & Yang, 2024).

3 RESULTS AND DISCUSSION

3.1 Practice scores and measurement boundaries

Table 1 presents the available construct summaries for 185 usable questionnaires. Monitoring has the highest practice mean at 4.25, followed by selection at 4.12, development at 4.05, and involvement at 3.89. Perceived operations performance has a mean of 4.18. These scores describe respondents' assessments within the study setting. They do not indicate objective defect rates, delivery reliability, or realized cost savings (Podsakoff et al., 2024).

Table 1. Construct scores and reported internal consistency

Construct	Mean	SD	Cronbach's α
Supplier selection	4.12	0.85	.812
Supplier involvement	3.89	0.92	.795
Supplier development	4.05	0.78	.840
Supplier monitoring	4.25	0.71	.805
Operations performance	4.18	0.80	.892

Note. n = 185 usable questionnaires. Scores use a five-point response format. SD = standard deviation; α = Cronbach's alpha.

The reported alpha coefficients range from 0.795 for involvement to 0.892 for operations performance. Involvement has the largest reported standard deviation among the practices at 0.92, while monitoring has the smallest at 0.71.

3.2 Associations with perceived operations performance

Figure 2 presents the reported Pearson correlations. Monitoring has the largest coefficient (0.745), followed by development (0.680), involvement (0.625), and selection (0.510). All four reported associations are positive. This ordering describes the coefficients in this sample; it does not establish that the correlations differ statistically or that monitoring makes the largest independent contribution. In particular, a common survey source and shared evaluations of the firm may influence several coefficients at once (Podsakoff et al., 2024).

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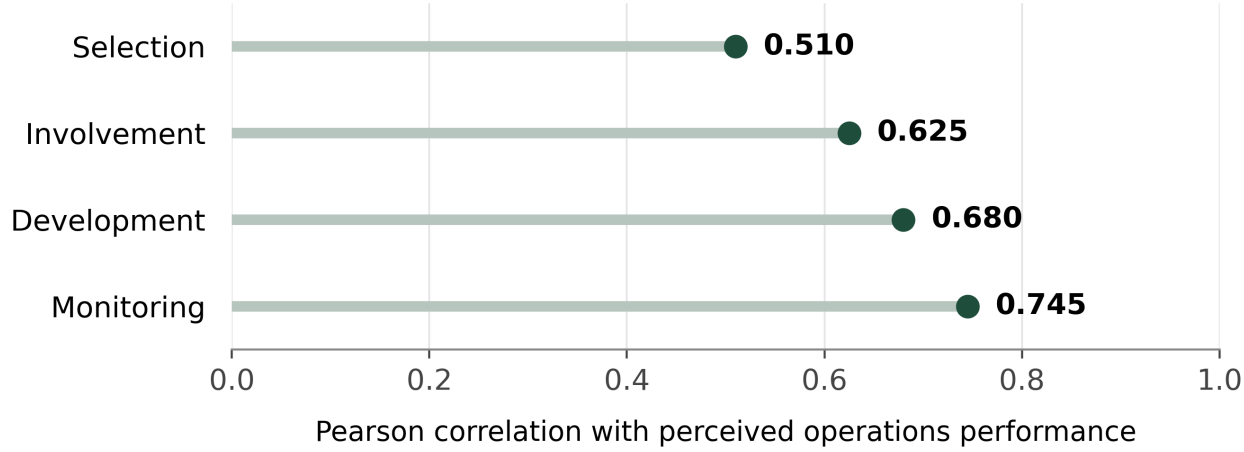


Figure 2. Reported associations with perceived operations performance

Note. Reported Pearson coefficients from the survey summaries; n = 185 usable questionnaires.

The practice ranking differs from the association ranking. Selection has the second-highest mean but the smallest correlation with performance. Involvement has the lowest mean but a larger correlation than selection. Thus, the prominence of a practice in respondents' assessments is not the same as its association with the performance score. This distinction is relevant to performance management because information becomes useful through interpretation and action within the relationship. Neither ranking, by itself, identifies an appropriate allocation of supplier management expenditure (Jääskeläinen et al., 2023).

3.3 Monitoring and the capacity to respond

Monitoring's prominence permits closer attention to what happens after a deviation is identified. A performance review can clarify a quality problem, but the supplier still needs the ability and authority to respond. The findings are consistent with examining monitoring alongside knowledge of supplier routines. They do not test that mechanism directly. Research on operations culture and monitoring provides a more specific explanation to investigate. Buyers may obtain better value from oversight when they understand how suppliers actually organize production and corrective work (Shafiq et al., 2022).

The cost of oversight also matters. An additional check may be justified for a critical material, but repeated requests for the same information can consume time without resolving a shortage. Research on demand–supply imbalances distinguishes delivery continuity from the cost efficiency of resolving disruptions and reports different associations for collaboration and monitoring (Laari et al., 2023).

Development has the second-largest reported correlation with performance. This finding makes capability support a relevant companion to performance review, but it does not identify which development activity would work best. Research on supplier training provides evidence that clearly focused learning and active participation can support sustainability improvement. That outcome differs from the present operations composite. The useful implication is to define the supplier's learning need and the intended operating change before choosing a training or assistance program (Encinas Bartos, Schwarzkopf, & Mueller, 2024).

Development also requires safeguards for the relationship. Evidence from a Vietnamese fruit and vegetable supply chain shows that buyer investment can be associated with both better performance and greater supplier opportunism, with shared goals and long-term orientation shaping the outcomes. This is relevant to food-sector governance because support entails commitments on both sides. The present survey does not measure opportunism or shared goals, so it cannot evaluate these conditions. Managers should nevertheless make responsibilities and expected improvements explicit when designing support (Tran, Gorton, & Lemke, 2022).

Involvement's relatively low mean identifies a topic for investigation rather than proof of a capability defici (Syamil, 2000). Procurement personnel and supplier representatives may assess the same interaction differently, and the available data do not separate their views. A useful follow-up is to examine when suppliers contribute information and whether that information reaches the relevant production or quality decision. Evidence on coordination in supplier involvement supports examining the content and routing of the exchange, rather than simply increasing its frequency (Oh & In, 2023).

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Selection should remain part of the governance system despite its smaller bivariate correlation. Qualification may protect operations by screening out unsuitable suppliers before problems occur. Its contribution may also be connected with subsequent development rather than captured fully in a single contemporaneous association. Research on selection and development supports this possibility, but the present data do not test it. A decision to relax selection requirements would therefore go beyond what the reported correlation can support (Fan & Kang, 2023).

3.4 Managerial implications for supply chain operations

Table 2 translates the discussion into proposed routines and records for verification. The routines are recommendations, not programs evaluated by this survey. Their starting point is a diagnosed supplier problem. A buyer should first identify the affected requirement, select an appropriate response, and examine whether the problem recurs. Decision research on supplier development similarly emphasizes matching programs with requirements and implementation difficulty. This approach gives managers a clearer basis for action than ranking practices solely by their correlations (Finger & Lima-Junior, 2022).

Table 2. Proposed supplier routines and records for operations follow-up

Practice	Proposed routine	Record for verification
Selection	Check capability against input requirements before qualification.	Inspection acceptance and rejection records
Involvement	Review supplier constraints before changing specifications or schedules.	Change delays and documented issue closure
Development	Match technical support to an agreed capability gap.	Gap closure and repeat problems after support
Monitoring	Assign corrective action after deviations and review recurrence.	Repeat defects and on-time delivery records

Note. Proposed routines and verification records, not interventions tested by the survey.

The verification measures in Table 2 need consistent denominators and review periods. For example, an on-time delivery measure should specify the agreed delivery date and whether it counts orders or shipments. A defect measure should identify the inspection basis and distinguish rejected material from material accepted after rework. These definitions are proposed for future implementation; they are not additional findings from the survey. Clear and shared use of performance information is central to making supplier measurement useful to both parties (Jääskeläinen et al., 2023).

Development resources should be assigned selectively. Supplier size, supply dependence, product complexity, integration, and management systems can shape the effectiveness of support. The present survey does not contain these conditions, so it cannot identify which suppliers should receive priority. A practical next step is to combine performance records with a review of supplier capability and the consequences of failure. That review should determine the form and intensity of support rather than assume that the same program suits every supplier (Saghiri & Wilding, 2021).

Managers should also distinguish technical uncertainty from insufficient effort. A supplier may participate fully in an improvement project and still face a process constraint that prevents the expected result. Analytical research shows that technical uncertainty can change development investment choices. The corresponding managerial implication is to define review points and evidence of progress before committing resources. The current correlations cannot determine an investment amount, an expected financial return, or an optimal balance between monitoring and development (Zhang, Zhou, Xia, Zhou, & Hong, 2024).

3.5 Limitations and priorities for further research

The single-firm setting and convenience sample limit external validity. The usable return rate does not remove selection bias, and the 185 questionnaires should not be described as 185 independent supply chains. Employee and supplier responses may share relationships or organizational conditions. A follow-up should identify the relationship as a sampling unit where appropriate and distinguish the buyer's assessment from the supplier's assessment. This would allow a clearer examination of differences in performance information and its use across the two sides (Jääskeläinen et al., 2023).

Measurement uncertainty is equally important. The available summaries do not allow tests of item quality, construct separation, common method effects, or the consistency of scoring across respondent groups. The item-level dataset and complete instrument are needed before a multivariable model can be evaluated responsibly (Simanihuruk et al., 2023). Stronger internal consistency alone would not resolve whether monitoring, involvement, and development capture different practices. Future work should first document the measurement model and then examine structural relationships that the design can support (Rönkkö & Cho, 2022).

A stronger evaluation would link survey responses with repeated quality, delivery, and cost records, while documenting which supplier actions occurred and when. Separating data sources and measurement occasions would help assess alternative explanations for the current associations. It would also clarify whether changes in governance precede changes in operations performance. Common method bias has multiple causes and cannot be dismissed by a single convenient diagnostic, so both data collection procedures and analysis need explicit planning (Podsakoff et al., 2024). Future sample planning should follow the intended unit and claim. Comparing buyer and supplier views, estimating within-relationship change, and testing an interaction require different information from a simple descriptive profile. The number of relationships, observations per relationship, smallest relevant association, and expected dependence should therefore guide recruitment. The current sample provides a bounded exploratory account; it does not establish adequacy for those more demanding analyses. A design-specific sample size justification should precede the next survey rather than be inferred from its eventual return rate (Lakens, 2022).

4 CONCLUSION

Supplier monitoring is the most prominent practice in this Indonesian food and beverage survey, with a mean of 4.25 and a correlation of 0.745 with perceived operations performance. Development, involvement, and selection also have positive reported correlations. The findings provide an exploratory comparison of perceptions within one supply chain setting, while causal effects and independent contributions remain untested. For managers, the practical priority is to examine whether monitoring information leads to appropriate supplier action and capability support, consistent with research on operations routines and oversight (Shafiq et al., 2022).

Supplier governance should be evaluated through both the quality of the relationship and the operating records it helps improve. Selection, involvement, development, and monitoring each address a different part of that task. The proposed routines provide a basis for follow-up, while matched buyer–supplier evidence and repeated observations are needed to assess their effectiveness. The contribution of this study is therefore a focused diagnosis and a set of testable managerial questions, grounded in the distinction between sharing performance information and using it well (Jääskeläinen et al., 2023).

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