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From the Accounting Information System to the Decision: an Integrated Reading of Steering in SMEs of the DIANA Region (Madagascar)

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***Abstract*— This article examines how accounting information systems and management control contribute to decision-making and performance in small and medium-sized enterprises (SMEs) in the DIANA region of northern Madagascar. It argues that the managerial value of accounting information lies not in its mere existence, which accounting law requires, but in its quality, timeliness, understandability and, above all, its translation into decisions and action. Drawing on contingency theory and bounded rationality, the study relies on a multiple-case design covering twenty-four SMEs in the primary (n = 8), secondary (n = 8) and tertiary (n = 8) sectors, from which 133 respondents were surveyed (5.5 per firm on average). Findings reveal widespread accounting compliance, perceived information quality that is satisfactory yet uneven, and management control focused on budgets, dashboards and financial regulation rather than on analytical tools and strategic learning. The use of accounting information varies with the level of decision. The article derives five research propositions and a dynamic steering model — information, control, analysis, decision, action, performance, learning — suited to resource-constrained, owner-managed organisations.**

***Keywords*—: accounting information system; management control; decision-making; organisational performance; SMEs; contingency theory; case study; Madagascar.**

I. INTRODUCTION

Small and medium-sized enterprises occupy a structuring position in developing economies. Their importance is not limited to their number or their contribution to employment: they take part in the circulation of income, the valorisation of local resources and the economic dynamics of territories. Their contribution to value creation nevertheless depends on their capacity to organise their resources, control their activities and make decisions consistent with their environment.

This question is particularly acute in Madagascar, where firms face constraints of infrastructure, financing, skills and formalisation (Rasoanaivo and Andrianirina, 2007), as well as a financial offer that is sometimes poorly suited to the realities of rural enterprises (Nirina et al., 2023).

In such an environment, the quality of internal steering cannot be separated from the material and institutional conditions in which SMEs operate.

Accounting information has a dual nature. On the one hand, it is a legal obligation: keeping accounts in compliance with the 2005 General Chart of Accounts (Plan comptable général) meets legal and tax requirements and is needed for access to credit. On the other hand, it is a potentially strategic organisational resource (Barney, 1991) which, when relevant, reliable, understandable and available at the right time, supports planning, cost control, cash management and the manager's trade-offs. Yet data must still be turned into information, and then into managerial knowledge: a firm may possess a compliant accounting system without exploiting its decision-making potential. Management control, for its part, has moved away from a conception limited to budgetary control towards a logic of steering, coordination and learning (Otley, 1999). In SMEs, the sophistication of tools does not guarantee their effectiveness: resource constraints, the versatility of staff and the centralisation of decisions often lead to simpler arrangements.

The literature recognises that management accounting is less widespread, but also different, in SMEs than in large firms (Lavia López and Hiebl, 2015). It has nevertheless focused mainly on the adoption of tools and their direct link with performance, leaving in the shadow the mechanism by which information becomes a decision. Studies on sub-Saharan Africa, and even more so on Madagascar, remain rare.

This article answers the following question: **how do accounting information and management control arrangements contribute to the decision-making process and organisational performance of SMEs in the DIANA region?** The aim is not to draw up an inventory of tools, but to analyse the chain of transformation linking information, control, decision and performance, based on twenty-four cases evenly distributed across the primary, secondary and tertiary sectors.

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The article presents the theoretical and normative framework (section 2), the methodology (section 3), the results (section 4), their discussion and the resulting propositions (section 5), then the contributions, the limitations and the conclusion (sections 6 to 8).

II. Theoretical And Normative Framework

2.1. Accounting information as a decision-making resource

Accounting information must be distinguished from accounting data. Data are raw elements arising from a transaction; information appears when these data are collected, classified, processed, checked and communicated in such a way as to acquire meaning. Accounting can thus be understood as an information system rather than a simple recording mechanism. The conceptual framework for financial information retains two fundamental characteristics, relevance and faithful representation, and four characteristics that enhance its usefulness: comparability, verifiability, timeliness and understandability (IASB, 2018). In line with information systems success models (DeLone and McLean, 2003), the quality of the system and of the information nevertheless produces a benefit only through the effective use made of it.

Relevance directly links information to the decision: relevant information can influence a choice through its predictive value, its confirmatory value, or both. In an SME, this relevance is necessarily contextual: the data useful for negotiating financing are not those that make it possible to set a stock level or to assess the profitability of a product. Faithful representation is a second condition, since erroneous information on stocks, receivables or costs leads to an incorrect diagnosis. Understandability and timeliness complete the picture: information that is accurate but hard to interpret, or available after the decision, loses most of its value. Finally, the cost of information must be taken into account: with limited resources, the pursuit of ever more detailed information becomes counter-productive when its cost of production exceeds its decision-making benefit. The principle of adequacy thus leads to favouring a system proportionate to the needs of the firm.

2.2. Management control as a steering mechanism

In Anthony's (1965) classic approach, management control aims to ensure that resources are obtained and used effectively to achieve the organisation's objectives.

Later work has extended this conception to performance measurement and management systems (Otley, 1999; Ferreira and Otley, 2009), and then to the ways in which such arrangements are used: Simons (1995) distinguishes a diagnostic use, oriented towards monitoring and correction, from an interactive use, which focuses managers' attention on strategic uncertainties and stimulates learning. Applying this framework to SMEs, Pešalj et al. (2018) show that research has shifted from the design of systems to the study of their use.

A budget, a dashboard or a cost analysis therefore does not automatically produce a managerial effect. A simple tool, regularly consulted and linked to decisions, can be more useful than a sophisticated arrangement that is poorly understood or rarely updated. Management control can then be understood as a dynamic chain — measurement, comparison, interpretation, decision, corrective action, learning — in which variance analysis becomes a feedback mechanism allowing objectives and practices to be revised (Merchant and Van der Stede, 2017). This logic is consistent with the notion of enabling control (Adler and Borys, 1996), whose value for SME performance is shown by Ismail et al. (2019).

2.3. The decision-making process as a transformation mechanism

The path from information to performance is not direct. The theory of bounded rationality (Simon, 1955) leads us to regard the decision not as a mechanical consequence of data availability, but as a process of interpretation, comparison and judgement carried out with imperfect information and limited time. Non-routine decisions themselves follow a sequence of problem identification, solution development and selection (Mintzberg et al., 1976). Information therefore affects performance only when it is understood, interpreted and mobilised in a choice; in this sense, Ditkaew (2018) shows that the quality of cost management is associated with greater decision reliability, itself linked to performance.

In SMEs, this mediation is reinforced by the centrality of the manager, who frequently concentrates ownership, decision-making and part of the control of operations. This proximity promotes speed but increases dependence on the manager's skills: the same accounting system can produce different effects depending on the manager's ability to read indicators, compare alternatives and place information in a temporal perspective.

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The mechanism adopted can be summarised as follows: **information → understanding → interpretation → judgement → decision → action**.

2.4. A contingent reading

Contingency theory is the integrating principle of the analysis. The effectiveness of a management system depends on its fit with the characteristics of the organisation and its environment: uncertainty, structure, technology, size and strategy (Chenhall, 2003). The characteristics of SMEs — size, age, presence of the founder, available skills — strongly influence the adoption of management accounting practices (Zau Barreto and Antunes Brás, 2023; Roffia et al., 2024). Agency theory (Jensen and Meckling, 1976) provides complementary insight: in a firm owned and run by the same person, the conflict between principal and agent is attenuated, but the demand for information then comes from third parties — tax authorities, banks, commercial partners — whose requirements steer the purpose of the system towards compliance rather than steering. This approach is particularly suited to SMEs of the DIANA region, whose activities — primary production, processing, hospitality, services — have neither the same cycles nor the same information needs.

The analytical framework thus combines four blocks: (1) the quality and availability of accounting information; (2) the use of management control arrangements; (3) the quality of the decision-making process; (4) organisational performance, understood in a multidimensional way (Neely et al., 1995). Organisational characteristics — size, sector, formalisation, manager's skills — are likely to modify the intensity of the relationships between these blocks.

2.5. The normative framework: legal compliance and proportionality

In Madagascar, the legal regime of accounting information rests on the 2005 General Chart of Accounts, which defines the principles of recording, classification and presentation of financial statements. At the international level, the IASB conceptual framework (2018) and the IFRS for SMEs standard (IASB, 2009) are reference points for harmonisation, while Directive 2013/34/EU enshrined in European law a principle of proportionality modulating reporting obligations according to the size of the entity, with micro-entities benefiting from significant relief (European Parliament and Council, 2013).

These arrangements share the same idea: the intensity of the constraint must be adapted to the capacity of the entity that bears it. This perspective sheds light on the present research from two angles. First, it distinguishes the compliance function of accounting — producing statements enforceable against third parties — from its steering function, which falls within the manager's freedom of organisation and which the law does not guarantee. Second, it recalls that the size of the entity conditions the applicable regime: Recommendation 2003/361/EC of the European Commission defines categories of enterprises according to headcount, turnover and balance sheet total (European Commission, 2003). The term SME is used here in its regional sense, and section 7 draws the consequences for the international comparability of the results.

III. Methodology

3.1. Choice of a multiple-case study

The research is part of a mixed design of which this article presents the qualitative phase. The choice of a multiple-case study is justified by the nature of the object: the frequency of reporting or the use of the budget can be measured, but the meaning of these practices depends on the actors and the organisational context. The case study is suited to analysing contemporary phenomena in their real context, when the boundaries between phenomenon and context are not clear (Yin, 2018), and the comparison of several cases makes it possible to identify regularities and formulate theoretical propositions (Eisenhardt, 1989; Eisenhardt and Graebner, 2007). The generalisation sought is analytical rather than statistical (Flyvbjerg, 2006).

3.2. Field and case selection

The field consists of SMEs in the DIANA region, a heterogeneous entrepreneurial area including in particular Antsiranana, Nosy Be, Ambilobe and Ambanja. Cases were selected following a theoretical sampling logic aimed at sectoral variety, with eight firms per major sector of activity (primary, secondary, tertiary), i.e. twenty-four cases. The number of people surveyed per firm, presented in Table 1, ranges from four to eight. In accordance with research confidentiality rules, firms are designated by codes (P for primary, S for secondary, T for tertiary); the name correspondence is kept by the researcher.

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Table 1. Number of people surveyed in the twenty-four cases (code — respondents)

Rank	Primary sector	Secondary sector	Tertiary sector
Case 1	P1 --- 7	S1 --- 6	T1 --- 4
Case 2	P2 --- 6	S2 --- 4	T2 --- 4
Case 3	P3 --- 7	S3 --- 5	T3 --- 5
Case 4	P4 --- 5	S4 --- 7	T4 --- 7
Case 5	P5 --- 8	S5 --- 5	T5 --- 6
Case 6	P6 --- 6	S6 --- 4	T6 --- 7
Case 7	P7 --- 6	S7 --- 4	T7 --- 5
Case 8	P8 --- 5	S8 --- 5	T8 --- 5

Source: author's field data. Number of people surveyed per firm.

Table 2 summarises the survey base. In total, 133 people were surveyed in the twenty-four firms, i.e. 5.54 respondents per firm on average (median: 5; standard deviation: 1.18). The primary sector provides 37.6% of respondents, compared with 30.1% for the secondary sector and 32.3% for the tertiary sector. Dispersion is low (coefficient of variation of 21.3%): thirteen firms (54.2%) have five respondents or fewer, and eleven (45.8%) have six to eight. The average number of respondents is slightly higher in the primary sector (6.25) than in the secondary (5.00) and tertiary (5.38) sectors, but this difference is not statistically significant at the 5% level (Kruskal-Wallis test: $H = 4.79$; $df = 2$; $p \approx 0.09$), which the small size of each group invites us to interpret with caution. The information base is therefore balanced across sectors, which limits the risk that the observed differences reflect unequal density of data collection rather than sectoral contingencies. The use of several informants per firm also makes it possible to compare the perceptions of different functions and to strengthen the validity of the cases (Eisenhardt and Graebner, 2007; Yin, 2018).

Table 2. Descriptive statistics of the number of people surveyed by sector

Indicator	Primary	Secondary	Tertiary	Overall
Number of cases	8	8	8	24
Total people surveyed	50	40	43	133
Share of total respondents	37.6%	30.1%	32.3%	100%
Mean per firm	6.25	5.00	5.38	5.54
Median	6	5	5	5
Minimum – maximum	5 -- 8	4 – 7	4 – 7	4 -- 8
Standard deviation	1.04	1.07	1.19	1.18
Coefficient of variation	16.6%	21.4%	22.1%	21.3%

Source: *author's calculations based on Table 1 (sample standard deviation).*

3.3. Data collection and analysis

Data collection combined semi-structured interviews, observations and a questionnaire, between April 2023 and September 2024. In total, 133 people were surveyed, four to eight per firm, among managers, accounting and finance officers, management controllers and staff who use accounting information (accountant, administrative and financial assistant). The interview guide covered the quality of accounting information (relevance, reliability, availability, understandability), its use, the formalisation of management control (budget, dashboards, cost calculation, variance analysis, financial and non-financial indicators), the decision-making process and performance. Internal documents (financial statements, budgets, dashboards) were used to triangulate statements.

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The interviews were fully transcribed and then coded following a thematic analysis approach (Braun and Clarke, 2006), combining codes derived from the theoretical framework with emergent codes. The analysis first addressed each case, then the cross-case and cross-sector comparison, in order to identify recurring configurations (Miles et al., 2014). On the ethical side, participation was based on the informed consent of managers, and the data were anonymised.

IV. Results

4.1. A formalised accounting base, uneven managerial exploitation

The first finding is that accounting compliance is largely achieved. The firms studied keep general accounts in compliance with the 2005 General Chart of Accounts, with levels of computerisation varying according to size and activity: accounting software, business software, hotel management systems and, in the best-equipped processing units, integrated solutions. The existence of an accounting arrangement is therefore no longer, in itself, the main difficulty.

The problem shifts to the managerial use of information. The perceived quality of information is generally satisfactory but uneven: the compliance of the system does not guarantee that the information is available at the right time, understood by the manager or used in decisions. Information may be properly produced to meet tax requirements while remaining under-used for analysing costs, profitability, cash or investments. This gap illustrates the dissociation, set out in section 2.5, between the compliance function and the steering function of accounting.

4.2. A management control that is present but proportionate to resources

Budgetary tools and dashboards occupy a central place in the practices observed. The budget serves as an instrument of forecasting and regulation; dashboards condense the information deemed essential. Variance analysis is used, mainly to monitor achievements and correct deviations. Conversely, elaborate cost accounting and non-financial indicators remain in the background.

This configuration is consistent with the literature on small structures: management accounting there often remains focused on planning, financial accounting and the control activities that follow from them (Ylä-Kujala et al., 2023), and the lack of resources, training and skills hinders the adoption of cost calculation (Roffia et al., 2024).

From a contingency perspective, this result does not necessarily reflect a shortcoming: a simple system can be fully functional if it matches the needs of the firm.

4.3. A use of information that varies with the level of decision

Strategic, tactical and operational decisions do not draw on accounting information in the same way. Strategic decisions — investment, entry into a market, change of activity, partnership — are rare, uncertain and highly dependent on the manager's judgement. Tactical decisions draw more on data relating to costs, purchases and cash. Operational decisions, which are frequent and rapid, are often taken without systematic consultation of an accounting document. Table 3 summarises these observations.

Table 3. Use of accounting information by level of decision

Level	Examples of decisions	Information used	Intensity of use
Strategic	Investment, new market, change of activity, partnership	Historical financial statements, financing capacity	Occasional, filtered by the manager's judgement
Tactical	Resource allocation, suppliers, organisation of production, recruitment	Costs, purchases, cash	Regular
Operational	Orders, stocks, payments, reminders	Cash balances, stocks, sales	Frequent but often informal

Source: synthesis of the cross-case thematic analysis.

The usefulness of information is therefore situational: historical information may be sufficient to assess the financing capacity of an investment, but proves too slow to manage a daily cash shortage. The cases also show a plurality of uses: the same piece of data may serve to alert, compare, justify or control.

4.4. Performance as the outcome of a steering architecture

Respondents do not associate performance with a particular tool, but with the sequence of several practices. High-quality but unused information does not improve results; a relevant dashboard that is rarely consulted creates little value; a relevant decision must still be translated into action.

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The performance indicators used cover profitability, growth and cost control, but also productivity, quality, customer satisfaction and sustainability.

The observed mechanism can be formalised as a loop (Figure 1): the accounting information system provides the raw material; management control structures it; analysis turns it into knowledge; the manager mobilises it in the decision; the decision produces an action whose results generate new information, which enables learning.

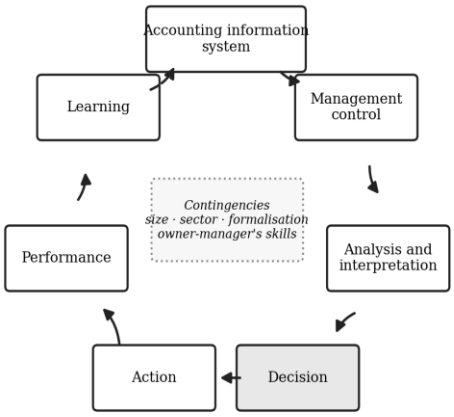


Figure 1. Dynamic steering model for SMEs

V. Discussion and Propositions

5.1. From possessing the tool to appropriating it

The first lesson concerns the distinction between adoption and appropriation. The literature sometimes tends to associate the adoption of a tool with organisational benefits; our results invite us to qualify this relationship. The presence of software, a budget or a dashboard is only a condition of possibility: the benefit depends on the quality of the data, the frequency of use, the understanding of the indicators and their integration into decisions. The challenge is to move from compliance accounting to steering accounting.

Proposition 1. In SMEs, the contribution of accounting information to performance depends more on the degree to which the manager appropriates it than on the formalisation of the system that produces it.

5.2. The manager as an organisational mechanism

The owner-manager often combines the functions of decision-making, supervision and interpretation of information.

This concentration facilitates the circulation of information but increases dependence on individual skills. The information system must therefore be studied as a socio-technical arrangement, in which tools, procedures and skills are interdependent.

Proposition 2. The manager's management skills moderate the relationship between the quality of accounting information and the quality of decisions.

5.3. Management control as a learning device

In the cases studied, the budget and variance analysis first serve to check compliance with objectives. Their potential is nevertheless broader: when variances are analysed as signals rather than as faults, they become a source of learning. This reading is consistent with the interactive use of control systems (Simons, 1995; Pešalj et al., 2018) and the logic of enabling control (Adler and Borys, 1996; Ismail et al., 2019).

Proposition 3. In SMEs, the effect of management control on performance depends less on the sophistication of the tools than on their interactive use, notably the exploitation of variances as a source of learning.

5.4. The decision as a transmission variable

Placing the decision-making process at the centre of the relationship between information and performance avoids a deterministic reading in which quality information would automatically lead to better performance. The manager must still select the relevant information, interpret it, compare alternatives and decide (Simon, 1955; Mintzberg et al., 1976). The cases also show that this transmission depends on the pace of decisions: information must be aligned with the time horizon of the choice, which is itself influenced by the cycles specific to each sector.

Proposition 4. The quality of the decision-making process mediates the relationship between accounting information and organisational performance.

Proposition 5. The perceived usefulness of accounting information is stronger when its frequency of production is aligned with the time horizon of the decision (strategic, tactical or operational), this horizon varying with sectoral activity cycles.

5.5. A contextualised contribution

Management models originating from large firms or other economies cannot be transferred as they are to Malagasy SMEs. Constraints of infrastructure, financing, skills and formalisation change the conditions of use of tools, and the strong sectoral heterogeneity of the DIANA region causes information needs to vary from one activity to another.

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From a theoretical point of view, one can expect that primary activities, dependent on biological and seasonal cycles, mainly call for cash forecasting; that processing activities call more for monitoring of stocks and cost prices; and that tourism and service activities, exposed to seasonal demand, favour monitoring of attendance and collections. These expectations are avenues for testing, not established results. They reinforce the value of an adaptable steering model rather than a single reference framework.

VI. Contributions

Theoretical contribution. The article combines four dimensions often studied separately — accounting information, management control, the decision-making process and performance — by treating them as interdependent components of a single steering system. It extends contingency theory by showing that the effectiveness of a system lies in its fit with the characteristics of the SME rather than in its sophistication, and it clarifies the mechanism of understanding, interpretation and judgement that links information to action. The five propositions formulated provide a basis for subsequent statistical tests.

Empirical contribution. The research provides contextualised knowledge of the practices of twenty-four firms in a little-studied Malagasy region. It highlights a gap between the compliance of the accounting system and its managerial exploitation, as well as between the presence of control tools and their effective appropriation. It thus shifts the research question from "which tools are present?" to "how and why are they used?".

Managerial and institutional contribution. The results invite managers to limit indicators to genuinely useful information, to formalise budgets and dashboards gradually, and to use variance analysis as a learning instrument. Rather than importing the arrangements of large firms, a minimal architecture can be built around six elements:

- A reliable accounting base;
- Regular cash monitoring;
- A few cost and margin indicators;
- A simple budget;
- A periodic dashboard;
- A variance review procedure.

For accounting firms and business support organisations, these results argue for an offer geared towards decision support, and not only towards tax compliance; for the regulator, they suggest that regulation proportionate to the size of entities, along the lines of the principle adopted in European law, would promote real managerial use of information rather than purely formal compliance.

VII. Limitations And Perspectives

This research has several limitations. Based on a small number of cases, it aims at analytical rather than statistical generalisation: the propositions formulated must be tested on a larger sample. The data rely in part on managers' statements, which are exposed to social desirability bias, partially controlled by documentary triangulation. Performance is assessed in a perceptual manner; relating it to objective financial and operational data would strengthen the robustness of the conclusions. The number of respondents per firm (four to eight) remains modest and their distribution by function must be made explicit; since the economic size of the firms (employees, turnover) was not used as a selection criterion, comparison with studies of SMEs defined according to international thresholds, such as those of Recommendation 2003/361/EC, calls for caution. Finally, the model is contextualised to SMEs of the DIANA region: its transferability to other regions or countries remains to be demonstrated.

Three extensions appear to be priorities: the quantitative testing of the propositions, notably through structural equation modelling (PLS-SEM), on a representative sample of SMEs in the region; a longitudinal study making it possible to establish whether improving the information system produces lasting effects on performance; and an inter-regional comparison within Madagascar.

VIII. Conclusion

This research shows that the role of the accounting information system in SMEs cannot be understood from its mere existence, even if legally imposed. Accounting acquires steering value when the information produced is reliable, relevant, available and understandable, and then when it is effectively integrated into control practices and the decision-making process. In this chain, management control plays the role of an interface: it transforms data into indicators, relates objectives to achievements, makes variances visible and can support learning, provided that it is appropriated and adapted to the context.

The main contribution of the article is to propose an integrated and dynamic reading of steering, in which information, control, analysis, decision, action, performance and learning form a loop. For SMEs of the DIANA region, this steering capacity must remain proportionate to the resources, sectors and skills available. The proposed model is not a universal solution, but an analytical and managerial architecture to be adapted and tested.

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