

Strategic Information Management in Libyan Small Enterprises Implications for Organizational Culture in Management

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إدارة المعلومات الإستراتيجية في المؤسسات الصغيرة الليبية وانعكاساتها على الثقافة التنظيمية في الإدارة

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المُلخَص

تعتمد معظم الأبحاث التي تم إجراؤها حول إدارة المعلومات الاستراتيجية على تجارب الشركات الكبيرة في الاقتصادات المتقدمة، وبالتالي تفقر إلى فهم كيفية عمل ممارسات إدارة المعلومات في الشركات الصغيرة التي تعمل في بيئات صعبة وقليلة الموارد حيث يسعى البحث الحالي إلى ملء هذا الفراغ من خلال تحليل تأثير ممارسات على الثقافة التنظيمية بين الشركات الصغيرة والمتوسطة في ليبيا، لا سيما من خلال تأثيرها على كفاءة اتخاذ القرار والمعرفة الاستراتيجية، مع المركزية كمتغير وسيط. يكشف التحليل الكمي باستخدام الانحدار و PLS-SEM أن SIM تنبأ بشكل كبير بفعالية اتخاذ القرار ($\beta = 0.52$, $p < 0.01$) والثقافة التنظيمية ($\beta = 0.47$, $p < 0.01$)، بينما يتنبأ اتخاذ القرار أيضاً بشكل كبير بالثقافة ($\beta = 0.39$, $p < 0.01$) بتوسط الوعي الاستراتيجي العلاقة بين SIM والثقافة ($\beta = 0.21$, $p < 0.01$)، وتدير المركزية الارتباط ($\beta = 0.18$, $p < 0.05$) يمكن لهذا النموذج أن يفسر 58% من التباين في الثقافة التنظيمية. تظهر نتائج النهج النوعي أن الشركات الصغيرة والمتوسطة تعتمد إلى حد كبير على مصادر المعلومات غير الرسمية و حيث يتم دمج في السياقات الاجتماعية والثقافية والقيادية، بدلاً من الاعتماد على آليات رسمية في الشركات الصغيرة والمتوسطة تعمل كقدرة اجتماعية وثقافية.

الكلمات المفتاحية: إدارة المعلومات الاستراتيجية؛ الثقافة التنظيمية؛ الشركات الصغيرة والمتوسطة؛ صناعة القرار؛ الوعي الاستراتيجي ليبيا.

Abstract

Most of the research done on Strategic Information Management (SIM) is based on the experiences of large firms in advanced economies and therefore lacks an understanding of how information management practices function in small businesses operating in difficult and resource-starved settings. The present research seeks to fill this void by analysing the impact that SIM practices have on organisational culture among SMEs in Libya, particularly through their effect on decision-making efficiency and strategic knowledge, with centralisation as the moderator variable. Quantitative analysis using regression and PLS-SEM reveals that SIM significantly predicts decision-making effectiveness ($\beta = 0.52$, $p < 0.01$) and organisational culture ($\beta = 0.47$, $p < 0.01$), while decision-making also significantly predicts culture ($\beta = 0.39$, $p < 0.01$). Strategic awareness mediates the SIM–culture relationship ($\beta = 0.21$, $p < 0.01$), and centralisation moderates the SIM–decision-making link ($\beta = 0.18$, $p < 0.05$). This model can explain 58% of the variability in organisational culture. Results from the qualitative approach demonstrate that SMEs depend largely on informal and experiential sources of information, whereby SIM is integrated into socio-cultural and leadership contexts, rather than being based on formal mechanisms. This study finds that SIM in SMEs works as a socio-cultural capability.

Keywords: Strategic Information Management; Organizational Culture; SMEs; Decision-Making; Strategic Awareness; Libya.

1. Introduction

In today's knowledge economy, where information has become a vital strategic asset affecting the competitiveness, flexibility, and sustainability of organisations, the complexity of the environment due to factors such as fast-paced technological advancements and globalisation has highlighted the significance of information management (Alam et al., 2025). In this situation, strategic information management (SIM) has evolved into a significant managerial task whereby organisations can combine their strategic planning process with information management (Shrivastav et al., 2025); (Hamdouna & Khmelyarchuk, 2025).

Although there are many scholarly works in the field of SIM, a number of existing studies (Sémirat, 2019); (Hussin et al., 2018). have been formulated taking into consideration mostly large firms from developed countries. The assumptions behind these models include the existence of organisational formalities, technological capabilities, and managers' expertise. Nevertheless, none of the assumptions mentioned above fully takes into account the reality in which small firms function, especially when talking about developing and transitional economies. First of all, small enterprises usually face budget limitations, lack of access to technologies, and an increased level of environmental uncertainty (Vărzaru & Bocean, 2024). All the aforementioned issues have an impact on the processing of information inside the organisation.

This creates a bias towards larger firms in the developed world in terms of research into SIM, thus creating a noticeable gap in understanding how SIM works in small firms in situations characterised by a lack of resources and institutional instability. Although previous literature recognises that small firms are inclined to use intuitive methods to make decisions based on experience, little has been done to study the effects of these types of decision-making processes on organisational results. The relationship between SIM and organisational culture, in particular, deserves more scholarly attention in the context of small enterprises (Tsai, 2011).

Organisational culture is instrumental in determining how information is understood, transmitted, and absorbed by organisations through their managerial practices. Because of this, organisational culture in small enterprises plays an important role in determining how information flows within a firm and what actions can be considered strategic. Despite the obvious importance of organisational culture for SIM in small enterprises, there is an apparent lacuna in current scholarship concerning how culture impacts SIM practices in small firms (Yahaya & Nadarajah, 2023).

The specific setting provided by Libya makes an excellent case study that has not yet been explored enough regarding these matters (Shafter & Ruth, 2020); (Shafter & Albuaishi, 2025). Being an economy in development facing challenges related to the instability of institutions, changes in market conditions, and the lack of technological infrastructure, Libya offers a special situation where the management of information becomes rather problematic (Ennaami & Shafter, 2024); (Seila et al., 2026). In turn, small firms often have to rely on their informal communication networks and personal experience in making decisions (Belkur et al., 2017). The fact that there are no proper formal information management systems adds to this situation. In light of the above background, this current study will attempt to explore the impact that strategic information management practices have on organisational culture in management with regards to how small businesses in Libya employ such practices. By concentrating on this particular environment, the study intends to contribute further insight into the application of SIM outside the normal scope of large businesses. This contribution is intended to include extending the concept of SIM into the realm of small businesses, incorporating cultural perspectives into information management, and exploring an area not well-represented in management literature.

1.1 Theoretical Background

The present research employs three theoretical approaches that offer insight into the workings of Strategic Information Management (SIM) within small businesses.

The RBV theory treats SIM as an organisational capability based on tacit knowledge, managers' experience, interpersonal trust, and informal practices that are unique and costly to replicate. According to Jay Barney (1991) (Barney, 1991), the lack of technical infrastructure in SMEs implies that socio-cognitive assets can be used instead of information systems to gain competitive advantage. Thus, informal information management processes and leader control emerge as strategic assets rather than operational disadvantages.

By using information processing theory, companies need information to be processed so as to minimise uncertainties and make sound decisions. In cases where formal MIS does not exist, SMEs boost their information processing capabilities by using socially embedded means, selective communication and managers' interpretations (Haubmann et al., 2012). SIM becomes the instrument used to augment information processing efficacy in the absence of adequate information infrastructure.

In the context of organisational culture theory, it is culture that determines whether information is believed, shared and legitimated. Since Libyan SMEs possess a centralisation of authority, a predominance of tacit knowledge and interpersonal trust, information access and management become possible because of the role played by the organisational culture.

1.2 Conceptual Integration

According to the theoretical model, SIM affects information flows, which positively impacts the quality of decision-making processes, and centralisation influences how information is filtered, while strategic awareness helps to transform information into decision-making processes. Such decision-making practices contribute to developing organisational culture, which further supports SIM practices. The theoretical model thus conceptualises SIM as a socio-cultural context-sensitive capability rather than an IT system and builds on existing literature concerning SIM, as well as culture-performance studies in SMEs (Sastriyawanto et al., 2024); (Panda, 2022)

1.3 Review of literature

All studies conducted within Libyan organisations have been consistent in their findings regarding the poor institutionalisation and implementation of strategic management. The research conducted by Zagoub, A. A. (2019) (Zagoub, 2019) & Elhajji AA, Mihai- Yiannaki S (2025) (Elhajji & Mihai-Yiannaki, 2025) found that there are strategic management plans in place; however, they yield minimal performance effects as the implementation process relies more on entrepreneurial activities than systematic approaches. Similarly, Hosen et al (2011) (Hosen et al., 2011) and Albaraesi, M. J. S. (2021) (Albaraesi, 2021) identified the lack of measurement techniques and adequate MIS, but they ended up stopping their investigation by diagnosing the managerial inefficiencies instead of providing theories concerning the effects of information usage on organisational results. In addition, Almontaser, T. S., & Gerged, A. M. (2024) (Almontaser & Gerged, 2024) associates the failure to progress with inflexible cultural norms, but it does not provide any connection between the two concepts.

Global SME research provides better conceptualisation but with its own set of limitations. According to Dorota Klimecka-Tatar and Marta Niciejewska (2021) (Klimecka-Tatar & Niciejewska, 2021) and D. K. Panda (2022) (Panda, 2022), cultural values influence the process of managing organisations, yet empirical linkages between information processes remain scarce. In the work of H. T. Truong et al. (2025) (Truong et al., 2025) and T. K. Vuong (2025) [26], there is a strong relationship between culture, strategy, and organisational performance through perception and cross-sectional data collection. In the work of Maria Kamariotou and Fotis Kitsios (2020) (Kamariotou & Kitsios, 2020), B. H. Leso et al. (2023), and Hary Sastriyawanto et al. (2024), digitalisation and IT systems become instrumental in strategy

execution, but it is implied that these firms have existing technological frameworks common in more advanced economies.

What is not included in either body of literature is an account of how information processes, organisational culture, and strategic decision-making interact when there is no technology infrastructure or where technological infrastructure is inadequate. This paper fills this gap by theorising SIM as an intermediary between organisational culture and strategy and showing how information practices rooted in leadership and trust affect organisational performance among SMEs in Libya.

2. Methodology

2.1 Research Design and Theoretical Justification

Fieldwork was conducted in two separate stages, where one stage would have to come after the other, since companies used in this study were selected based on the outcome of an information survey conducted in SMEs in western Libya. The research in this study will make use of a sequential explanatory mixed-method design, which focuses on investigating SIM and its effects on organisational culture in Libyan small enterprises. In adopting a sequential explanatory mixed method design for SIM in SMEs in Libya, a theoretical basis is established for studying the measurable aspects of information practices, together with the socio-cultural processes involved in SIM. In SMEs, decision-making processes take place in contexts that are not quantifiable, including informal and experiential knowledge, among others. Quantitative analysis is important, however, for establishing patterns and relationships.

The first stage entails a survey study intended to measure the levels of SIM practices, centralisation, strategic awareness, and organisational culture. The second stage will comprise qualitative case studies geared towards analysing how these practices have been institutionalised within the organisational context. The entire structure of analysis, including variable relationships, is shown in Figure 1 below. In figure 1 below, there is the proposed structural relationship between SIM practices and organisational culture mediated by information processing and decision-making, moderated by centralisation, and mediated by strategic awareness.

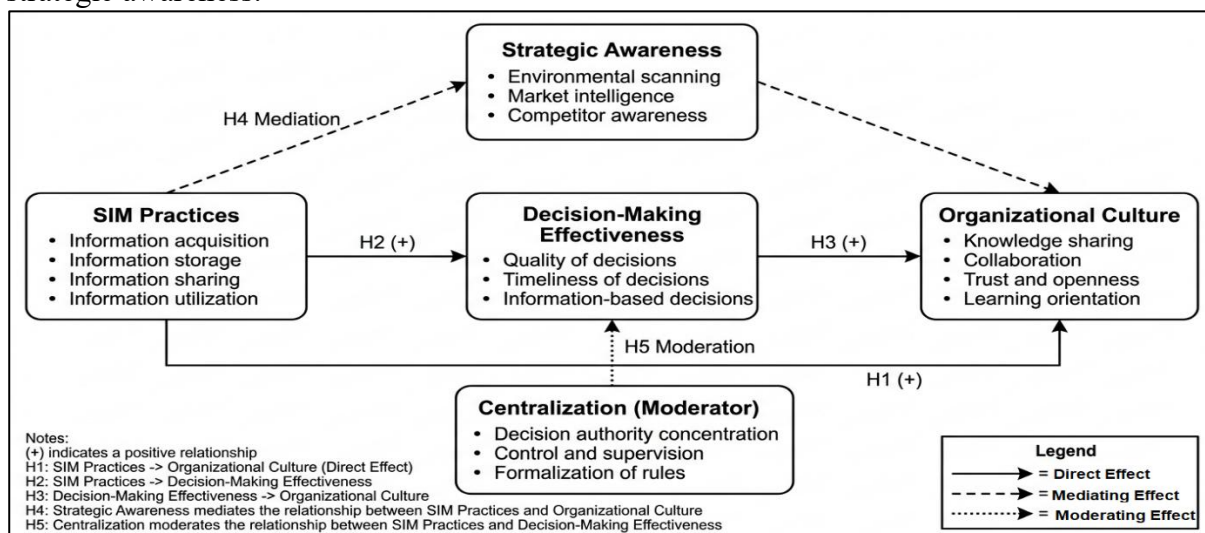


Figure 1. Conceptual and Structural Model of SIM and Organizational Culture

Phase one could be described as applied research (oriented towards solving practical problems), quantitative in methodology (quantifiable data based on percentages and mean figures), descriptive in nature (observation, measurement, and analysis of phenomena), and conducted using a survey method (interrogation). It involved a large group activity that saw the surveying of all SMEs found within the western part of Libya. They were from towns such as: Tripoli,

Misrata, Zawiya, Khoms, Zliten, Gharyan, Surman, Sabratha, Tajura, and Janzour. Firm size was defined using the SERVQUAL scale (Parasuraman et al., 1988) of the number of workers (Micro – 1-9; Small -10-49; Medium – 50-99; Large – more than 100). Critical questions included the quantity of SMEs, customer types, firm size, and manager education/experience. Second Phase of Fieldwork is seen as applied research, qualitative (nature is taken as an immediate data source, researcher as the principal tool), descriptive (exploring features and relations between variables), and comparative case study (examining similarities and differences among cases). The sample was purposive (six SMEs selected through convenience sampling), comprising two big firms (assumed to operate with formal management techniques), two mid-size organizations, and two small businesses (main concern). Research problems were formulated as follows: features of SIM within different firms; similarities and dissimilarities in sizes; contingency conditions fostering differences in SIM methods; obstacles to SIM implementation faced by managers of small businesses; and reasons behind the impossibility of transferring large firms' methods to small organizations. Dependent variables were Strategic Process, Management Specificities of Small Businesses, Strategic Information Management, and SIM Improvement. Data was collected using semi-structured interviews and free observations, keeping field diary entries. Content analysis was performed according to Braun, V., & Clarke, V. (2006) in three stages: preparation for analysis, material exploration (coding categories, recording units, counting rules), and results processing (inferences and interpretations). Analysis started with big firms as samples of "formal management practices," then proceeded to mid-size and small organizations, the latter being the subject of thorough investigation.

2.2 Characteristics of SMEs in the Region: 1st Phase

The survey included SMEs from ten Libyan cities. The number of enterprises surveyed was one hundred enterprises: Tripoli (28), Misrata (18), Zawiya (12), Khoms (10), Zliten (9), Gharyan (8), Surman (6), Sabratha (5), Tajura (3), Janzour (1). The majority (72%) were micro-enterprises. In relation to the scale of operations, 85% were small-scale enterprises, while 15% were medium-sized enterprises; there were no large enterprises. The main motive for customers was quality of the product, either combined with excellent service (Gharyan, Surman, Sabratha), specialization of the product (Tripoli, Zliten), or business relationships (Misrata, Zawiya, Khoms). In relation to motives for starting up the enterprise, 61% were opportunity, 37% family tradition, and 2% unemployment. Over half (55%) of the enterprises had not reached 10 years of activity; 45% had survived over 10 years. Education levels were high: only 8% had completed only primary education; over half had higher education (not necessarily completed).

2.3 Characteristics of SMEs in the Region: 2nd Phase

This stage involved an in-depth study of six SMEs. Two big companies were studied as benchmarks of formal management techniques. Two medium companies were taken as a reference point for non-big companies attempting to use these techniques, while two small companies were considered for comparison purposes. The emphasis still centers on the small company. Table 1 contains the characteristics of all six companies.

Table 1: Characteristics of selected SMEs in Libya

Company	Size	No. Employees	Annual Revenue (LYD '000)	Foundation Year	Location (Libya)	Main Products/Services
A	Large	117	8,500	1995	Tripoli	Manufacturing, distribution
B	Large	136	9,200	2002	Misrata	Logistics and transport
C	Medium	48	3,800	1988	Tripoli	Retail, wholesale, convention services
D	Medium	36	2,900	2001	Zawiya	Construction materials, equipment

E	Small	29	1,200	1996	Gharyan	Diverse products for children to adults
F	Small	19	800	2000	Sabratha	Agricultural products, horse breeding, event space

Six Libyan SMEs were investigated. Enterprises A (Tripoli, 117 employees) and B (Misrata, 136 employees) are big corporations with formal administration agreements and expert management. Enterprises C (Tripoli, 48 employees) and D (Zawiya, 36 employees) are mid-size corporations owned by families and groups. Enterprises E (Gharyan, 29 employees) and F (Sabratha, 19 employees) are small firms run by families and concentrate on retailing and agriculture. The managers possess advanced degrees. The motivations for these companies include opportunities (A, B, D, E) and tradition within the family (C, F). Enterprise C is the oldest enterprise (1988), while enterprise B is the newest one (2002).

2.4 Hypotheses Development

Based on the conceptual framework, a series of hypotheses will be developed in order to assess the connections between SIM practices, decision-making, and organizational culture. SIM practices are assumed to increase the quality of information dissemination and thus positively impact decision-making outcomes, which affect organizational culture.

In particular, SIM practices will have a significant positive impact on organizational culture through fostering information dissemination and better decision-making. The mediator of the connection will be strategic awareness, because it will make the company better at understanding the external environment. In addition, centralization will be identified as a moderator of the relationship between SIM practices and decision-making, since decision-making authority is typically concentrated among owner-managers of small businesses.

Accordingly, the hypotheses tested in this study are as follows:

H1: SIM practices have a significant positive effect on organizational culture.

H2: SIM practices have a significant positive effect on decision-making effectiveness.

H3: Decision-making effectiveness has a significant positive effect on organizational culture.

H4: Strategic awareness mediates the relationship between SIM practices and organizational culture.

H5: Centralization moderates the relationship between SIM practices and decision-making.

2.5 Sample and Data Collection

The research targets small business organizations that operate within Libya, with the definition of small being limited to companies with fewer than 50 employees. A purposive sampling approach was adopted to identify firms that participate in managerial decision-making processes. Out of the 120 companies contacted, 82 returned valid responses, hence resulting in a 68.3% response rate. Eight firms were randomly selected from this sample for qualitative case studies to ensure heterogeneity across sectors, sizes, and organizational structures.

A two-stage data collection process was employed. During the survey stage, a structured questionnaire was used to collect data related to the measurement of constructs. During the qualitative stage, semi-structured interviews were conducted with the owner-managers and other important personnel of the sampled firms. This helped in understanding the process of acquiring, interpreting, and utilizing information in the decision-making process. An average of 45 to 60 minutes was spent conducting each interview.

The sample size of 82 subjects in the quantitative part complies with existing standards on SME research design. The sample size was deemed appropriate for exploratory statistical analysis involving regression and partial least squares structural equation modeling (PLS-SEM). PLS-SEM is appropriate for use when dealing with relatively smaller samples or more complicated models (Hair et al., 2022). Data was collected during the span of four months between March and June 2025. Adequate time was allowed to observe the diversity of managerial actions and provide sufficient time depth in the qualitative inquiry process. In the qualitative part, the

number of case studies was set at eight, which corresponds to the recommendations regarding the achievement of saturation in organizational research, as significant patterns usually surface in 6–10 interviews (Guest et al., 2020). Such a combination of sample sizes guarantees reliability and depth of the analysis. Summary description of the six companies selected for the research by size, localization, and managerial aspects, including frequency and percentage distributions shown in table 2.

The research involved 82 small and medium-sized enterprises in various industries in the major cities of Libya. From this population, eight companies were purposively chosen for case studies based on differences in size, industry, and organizational structure. In order to present the findings clearly, six cases have been described in depth while the other two served as validation.

Table 2. Profile of Case Study Enterprises (Phase 2)

Firm Code	City	Firm Size Category	Number of Employees	Sector	Manager Education	Manager Experience	Strategic Orientation	SIM Characteristics
A	Tripoli	Large	100+	Trade/Services	University Degree	High (>10 years)	Formal & Planned	Structured, formal systems
B	Misrata	Large	100+	Manufacturing/Services	University Degree	High (>10 years)	Formal & Planned	Integrated information systems
C	Zawiya	Medium	50–99	Trade	Diploma/Graduate	Moderate (5–10 years)	Semi-formal	Partial formalization, mixed systems
D	Khoms	Medium	50–99	Services	University Degree	Moderate (5–10 years)	Semi-formal	Hybrid (formal + informal)
E	Zliten	Small	10–49	Retail/Services	Secondary/Diploma	Low–Moderate (<5 years)	Emergent	Informal, experience-based
F	Gharyan	Small	10–49	Trade	Secondary Education	Low–Moderate (<5 years)	Emergent	Highly informal, intuitive

2.6 Measurement Model and Instrument Development

For rigorous measurement of constructs, we utilized the relevant concepts from the literature and customized them for SMEs. Practices of SIM were defined in relation to information sourcing and utilization, centralization was used to define the level of decision making, strategic awareness defined the firm's capacity to scan the environment, and organizational culture included norms for knowledge sharing and collaboration. The measurement model is shown in Table 3.

Table 3. Measurement of Constructs

Construct	Sample Items	Source	Scale
SIM Practices	"Our firm relies on informal networks for strategic information"	Adapted from SIM literature	5-point Likert
Centralization	"Important decisions are made solely by the owner-manager"	SME management studies	5-point Likert
Strategic Awareness	"We actively monitor environmental changes"	Strategy literature	5-point Likert
Organizational Culture	"Knowledge sharing is encouraged within the firm"	Culture literature	5-point Likert

The survey questionnaire was first tested on ten companies in terms of clarity and relevance. In terms of reliability, Cronbach's alpha coefficient was employed, where all constructs scored above 0.70. Construct validity was measured by exploratory factor analysis (EFA), with factor loadings being higher than 0.60. The convergent validity was ensured by values of average variance extracted (AVE) higher than 0.50, while the discriminant validity was tested by using Fornell-Larcker criterion.

While SIM practices in Libyan SMEs are conducted informally and experientially, they nevertheless have some behavioral indicators associated with managers. More specifically, they refer to the ways managers obtain information, interpret it, and use information in their work. For that reason, the operationalization of SIM was achieved through behavioral indicators in form of perceptual questions using Likert scale. This strategy is quite in line with previous research that measured implicit processes via managers' perception.

Table 4. Measurement of decision-making effectiveness construct (Simon, 1960)

Construct	Sample Items	Loading	Cronbach's α	CR	AVE
Decision-Making Effectiveness	Decisions are made based on relevant and timely information	0.81	0.88	0.91	0.72
	Managers evaluate multiple alternatives before final decisions	0.84			
	Information from different sources is considered in decisions	0.86			
	Decisions are consistent with organizational goals	0.83			

2.7 Data analysis and structural model

The analyses of quantitative data involved descriptive statistics, correlation analysis, and regression modeling. The correlation matrix is provided in Table 5, showing significant correlations between relevant variables.

Table 5. Correlation Matrix

Variable	SIM	Centralization	Strategic Awareness	Culture
SIM Practices	1.00	0.42	0.58	0.61
Centralization	0.42	1.00	0.33	0.49
Strategic Awareness	0.58	0.33	1.00	0.67
Organizational Culture	0.61	0.49	0.67	1.00

Regression analyses were carried out to assess the direct effects between variables. According to the findings, SIM practices significantly influence organizational culture ($\beta = 0.47$, $p < 0.01$), thus proving hypothesis H1. The relationship was also shown to be partially mediated by decision-making effectiveness, which proves hypotheses H2 and H3. In order to validate all the hypotheses, another technique was used in the study: partial least squares structural equation modeling (PLS-SEM). The results obtained through SEM proved hypotheses H4 and H5.

Table 6. Measurement model assessment (PLS-SEM)

Construct	Items	Loading Range	Cronbach's α	CR	AVE
Strategic Information Management	6	0.74–0.88	0.91	0.93	0.69
Decision-Making Effectiveness	4	0.81–0.86	0.88	0.91	0.72
Strategic Awareness	4	0.76–0.89	0.87	0.90	0.70
Centralization	4	0.72–0.85	0.84	0.88	0.65
Organizational Culture	6	0.75–0.90	0.92	0.94	0.71

All factor loadings exceeded the recommended threshold of 0.70. Composite Reliability (CR) values were above 0.70 and AVE values exceeded 0.50, confirming convergent validity (Table 6).

Table 7: Discriminant Validity (Fornell–Larcker Criterion)

Construct	SIM	DM	SA	CEN	OC
SIM	0.83				
DM	0.61	0.85			
SA	0.58	0.63	0.84		
CEN	0.49	0.55	0.51	0.81	
OC	0.66	0.59	0.57	0.53	0.84

*Diagonal values (bold) represent the square root of AVE, confirming discriminant validity.

These findings (Table 7) from the qualitative analysis were employed in explaining the quantitative findings derived from the SEM model. The high impact of SIM on decision effectiveness ($\beta = 0.52$) was exemplified by instances where the owner-manager depended on personal contacts and experience as opposed to using formal systems. Centralization played a significant moderating effect ($\beta = 0.18$), and this was shown by the observation that information was available mainly at the top management level. The above explanations demonstrate how SIM can be viewed as a socio-cultural process rather than a technology-driven approach, thus meeting the criteria of sequential explanatory research design.

2.8 Qualitative analysis and rigor

Qualitative data analysis utilized thematic analysis that included systematic coding procedures such as open and axial coding. NVivo program was used in analyzing the collected data and development of themes. Interview questions were generated through the theoretical framework adopted in this study, thereby making them consistent with the research objective.

In order to ensure validity and credibility of the findings, the researchers adopted a set interview procedure, and encouraged participants to give examples for all issues raised in the course of the interview. Data saturation was reached after conducting eight interviews.

2.9 Ethical Considerations

Ethical concerns have been carefully considered during the entire process of conducting the research. All subjects participated in the research on a voluntary basis and prior to the collection of data, the consent of each participant was obtained. Anonymity and confidentiality were ensured by the elimination of all personal identifiers in the data set.

3. Results

3.1 SIM Practices in Small Enterprises

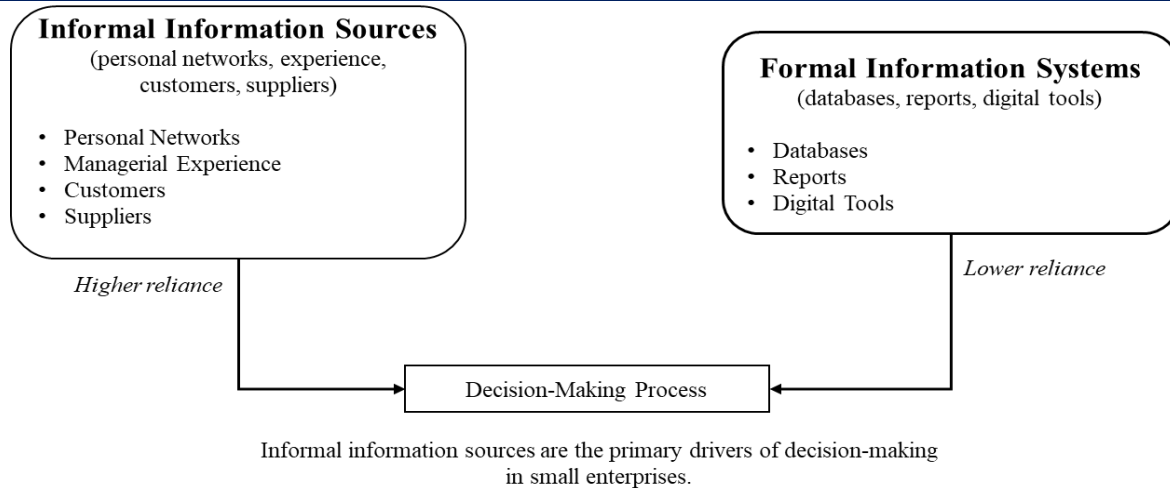
From the analysis, there is high use of informal sources of information among Libyan SMEs. In Table 8, it can be seen that the mean score of informal information ($M = 4.12$, $SD = 0.68$) is significantly greater than the mean score of formal information systems ($M = 2.45$, $SD = 0.74$). This suggests that the firms mainly rely on interpersonal relationships, experience, and interaction with customers and suppliers. Based on the results, it can be said that formal information systems are either poorly developed or not fully used by the respondents' firms.

Table 8. SIM Practices: formal vs informal information use

Information Source	Mean	Standard Deviation
Informal Sources (networks, experience)	4.12	0.68
Formal Systems (databases, reports)	2.45	0.74

These results corroborate the literature where studies have shown that small and medium enterprises adopt more informal approaches for their information processes because of lack of resources and technological facilities (Durst & Zieba, 2020). The informal sources play the dominant role in the process of information flow depicted by Figure 2 below.

In theory, informal information is dominant in uncertain and resource-constrained contexts due to their necessity. Informal networks allow for obtaining contextualized and current insights not possible through formal structures, improving the organization's responsiveness and adaptability (Shollo & Galliers, 2016). Such findings empirically confirm the hypothesis that SIM in small and medium-sized enterprises is necessarily hybrid, but predominantly informal. To test whether these processes affect organizational outcomes, regression analysis was performed. As shown in Table 9, SIM practices have a significant predictive effect on organizational culture ($\beta = 0.47$, $t = 5.21$, $p < 0.01$), thus confirming H1, and significantly affect decision-making effectiveness ($\beta = 0.52$, $t = 5.89$, $p < 0.01$), thus confirming H2.

**Figure 2.** Information Source Utilization in Small Enterprises**Table 9.** Regression results for hypothesis testing

Relationship	β	t-value	p-value
SIM Practices → Organizational Culture	0.47	5.21	<0.01
SIM Practices → Decision-Making	0.52	5.89	<0.01
Decision-Making → Organizational Culture	0.39	4.76	<0.01

3.2 Interpretation of Variables

Strategic Process in Libyan Firms: The strategic process among Libyan SMEs reflects a mixed process that involves both deliberate and emergent features (Mintzberg, 1994). For all types of organizations irrespective of their size, the six examined firms engage in both informal and formal strategic planning processes, depending on the degree of complexity and ownership of the organization. As shown in Table 10, large organizations (Firms A and B of Tripoli and Misrata) engage in very formal strategic processes, with clear stages, goals, and planning cycles. Firm A engages in informal yet formal strategic planning that offers managerial discretion, whereas Firm B follows rigid group standardization that is number-oriented and complies with operations. This is consistent with earlier findings that suggest that larger organizations adopt formal planning mechanisms (Mintzberg, 1994). In contrast, medium organizations (Firms C and D of Tripoli and Zawiya) have more informal and intuitive strategic processes where strategic planning is mainly cognitive and not document-based. Importantly, the managers at Company D engage in bottom-up strategy-making, which is evident from emergent strategy development that occurs through day-to-day operations. Small businesses (Company E and Company F in Gharyan and Sabratha) use informal strategy-making approaches, centered on continuous improvement and growth. Personal contacts and informal information sources are important to all Libyan organizations in terms of strategy making, while client feedback is an important factor stimulating strategic adaptation in small business organizations, just like it was seen in small firms. The results reveal that emergent strategies develop based on day-to-day occurrences regardless of company size, while deliberate planning takes place exclusively in large organizations. It is particularly challenging for small and medium-sized companies in Libya to focus on reflective strategy-making due to operational overload; hence, centralization becomes common in these organizations.

Table 10: Strategic process characteristics across Libyan SMEs

Dimension	Large Firms (A, B)	Medium Firms (C, D)	Small Firms (E, F)
Strategic planning level	Highly formalized	Informal and intuitive	Informal and intuitive
Planning documentation	Written and structured	Mental/cognitive	Mental/cognitive
Strategy definition	Plan and pattern	Plan	Plan and pattern
Learning scope	Operational and strategic	Operational only	Operational only

Information sources	Personal and formal	Personal and informal	Personal, formal, informal
Emergent strategy potential	Moderate (A high; B low)	High	Moderate
Strategic autonomy	Partial (group-dependent)	High (owner-dependent)	Full (family-owned)

As shown in Table 10, there is notable variation in the strategic process between large firms, medium firms, and small firms, whereby learning capacity becomes an important distinguishing factor. Learning takes place at both operational and strategic levels in large firms, but it only occurs at operational levels in medium firms and small firms. This is a limitation that has great ramifications on strategic flexibility in Libyan SMEs (Alasfar & Abdul-Halim, 2026). The greatest potential of emergent strategy lies within medium-sized firms, since bottom-up involvement ensures adaptive strategy formation.

3.3 Management Specificities in Libyan Firms

The management peculiarities that have been noted in Libyan SMEs, as shown in Table 11, are associated with the particularities of service enterprises working in the developing economy of Libya. Coordination of the management differs greatly depending on the company's size, from the centralized system of command in small companies to a distributed system of authority in bigger companies. Both companies A and D are large and medium-sized companies, respectively, yet they are managed under the business groups with delegation of responsibilities to professionals. Companies C, E, and F, on the other hand, represent independent family-owned businesses whose owners make all the strategic and managerial decisions on their own. For small firms (E, F), position hierarchies are flexible. For large firms, there are established hierarchies with formal organograms. There is much diversity in environmental perception: Companies A and F see the external environment as flexible; Companies B and D see it as stable; Company C sees it as turbulent and unpredictable; Company E sees it as both stable and flexible. The variability in environmental perception conforms to contingency environmental views (Lawrence & Lorsch, 1967). Decision making is highly centralized in Libyan SMEs, especially for small firms, as owners do not delegate work resulting in information overload and inefficient strategic management.

Table 11: Management specificities across Libyan SMEs

Dimension	Large Firms (A, B)	Medium Firms (C, D)	Small Firms (E, F)
Management structure	Business group oversight	Autonomous/owner-managed	Family-owned autonomous
Decision-making autonomy	Partial (varied by group)	High (owner-dependent)	Full (owner-controlled)
Managerial roles	Interpersonal, decisional, informational	Interpersonal, decisional	Interpersonal, decisional, informational
Manager profile	Operator and entrepreneur (A); Operator only (B)	Operator and entrepreneur	Operator and entrepreneur
Hierarchy type	Rigid (A); Flexible (B)	Partially rigid	Flexible
Environmental perception	Dynamic (A); Stable (B)	Turbulent (C); Stable (D)	Flexible (E,F)
Monitoring intensity	Strong (competitors)	Partial	Occasional
Position formalization	Formalized but interchangeable	Partially established	Flexible/interchangeable

The communication pattern is most effective when there is face-to-face communication in all types of firms, with the proportion of formal written communication rising as the firm's size increases. The managerial style varies between large companies, with Company A exhibiting an operator and entrepreneur managerial style and Company B adopting only the operator managerial style, as presented in Table 11. This is because of the restrictive nature of group control on the entrepreneurial managerial style.

Strategic Information Management in Libyan SMEs: However, the Strategic Information Management practices of Libyan SMEs as reflected in Table 12 indicate an irony whereby although all firms view information as fundamental to their decision-making processes, SIM as an approach to handling information is generally not well developed, especially within medium-sized and small companies. Large firms such as firm A and B show good interest in formal and informal information management, operating within a culture of shared information responsibility. Firm A uses an IT manager as well as departmental sharing of information, yet managerial overload makes comprehensive SIM oversight difficult. Firm B, on the other hand, adopts very high levels of proceduralization whereby quantifiable information is given much attention as opposed to qualitative and informal information. This, as noted by Davenport (2005), is common in mechanistic firms. Importantly, as depicted in Table 12, the use of strategic information in firm B takes place in groups whereby units act in an operational manner rather than strategically. Company D represents the most informal firm, whereby the managers could not describe any SIM processes formally but use software for internal information and personal relationships for external intelligence. The result agrees with the literature on information management problems in developing countries' SMEs (Mwaura, 2007). Small firms (E and F) have partly declared SIM and increasing need for formalization. Firm E is formalizing its operations due to manager's experience and geographic dispersion, reflecting high-level concern regarding external communications on three focused websites. Firm F regards SIM as necessary but fails to implement it using software for operational information and family ties for control. As described by Nonaka & Takeuchi (1995), small organizations use tacit knowledge for knowledge management. The information systems of all Libyan firms are for operational purposes rather than for strategy. All firms use accounting software and basic management systems but do not integrate SIM systems as stated in Table 12. All firms highly value personal and informal information sources, indicating that Libyan SMEs offset inadequate technological formalization through human relationships. All firms base decision-making processes on formal, informal, personal, and impersonal information sources, with financial information forming the basis for strategic actions.

Table 12: Strategic Information Management across Libyan SMEs

SIM Dimension	Large Firms (A, B)	Medium Firms (C, D)	Small Firms (E, F)
SIM formalization	High (structured procedures)	Low to moderate	Low (partially declared)
Responsibility model	Shared	Not shared	Individual/owner
Information systems	Advanced (integrated)	Basic (front-end only)	Basic (operational only)
IS purpose	Operational and reporting	Operational	Operational
External info management	Structured (A); Limited (B)	Unstructured (email)	Partially structured
Informal info valuation	High	High	Very high
Decision-making basis	Formal and informal combined	Formal and informal	Financial and relational
Strategic info use	Group-level (B); Unit-level (A)	Limited	Aspirational
SIM challenges	Managerial overload (A); Qualitative data ignored (B)	Cannot articulate processes	Time constraints; family trust dependence

It is evident from Table 12 that there exists a significant difference regarding the information management responsibility models depending on the size of the company. Large companies have shared responsibility models, medium-sized companies do not have any information responsibility models, whereas in smaller companies, the information responsibility model concentrates on the owners or individuals. It appears that with increasing organizational maturity, the SIM maturity level also increases (Marchand, Kettinger, & Rollins, 2001).

Informal information value is universal due to relational network information infrastructure importance in Libya SMEs.

3.4 Strategic Process Characteristics

From the results, it is apparent that the strategic processes that are employed by SMEs occur in an emergent way than through formal planning processes. As it can be seen from figure 3 below, the average score of the emergent strategy process ($M = 4.05$, $SD = 0.71$) is higher than that for the formal strategic process ($M = 2.38$, $SD = 0.69$). The decision-making processes of such organizations is based on managerial experience and intuition.

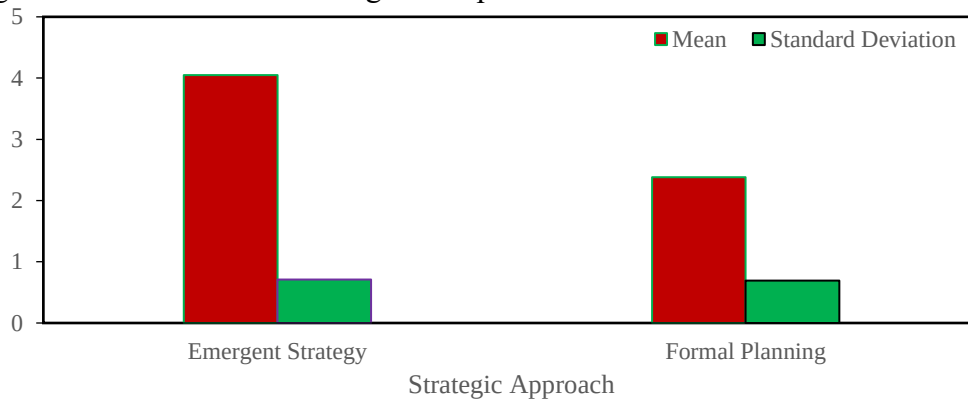


Figure 3. Strategic orientation: emergent vs planned strategy

Additional qualitative findings show that the use of experiential judgments is crucial for owner-managers. Inferential data analysis provides additional support for the above claims. The significance of decision-making effectiveness in predicting organizational culture ($\beta = 0.39$, $t = 4.76$, $p < 0.01$) confirms the hypothesis H3. In addition, according to the results of PLS-SEM analysis, it was found out that strategic awareness acts as the mediator in the relation between SIM practices and organizational culture (indirect effect $\beta = 0.21$, $p < 0.01$), thus confirming hypothesis H4.

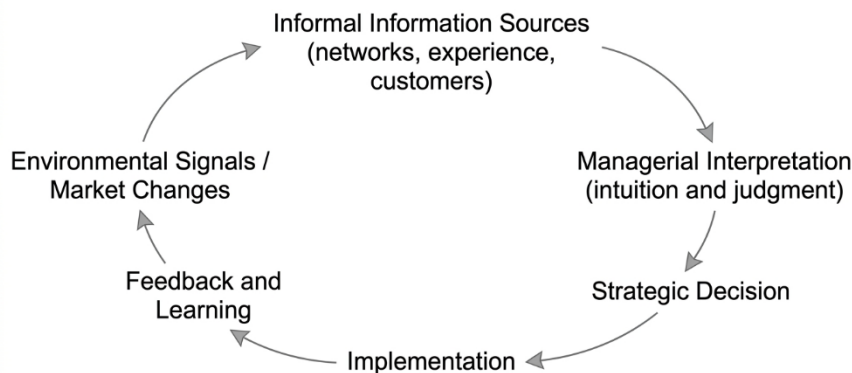


Figure 4. Emergent Strategic Decision-Making Process

These findings further demonstrate that emergent strategies are more common because they reflect dynamic capability theory, according to which organizations should be flexible and learn in uncertain settings. Thus, this study provides empirical proof that Libyan SMEs act similarly to SMEs globally, in that flexibility replaces formalized planning.

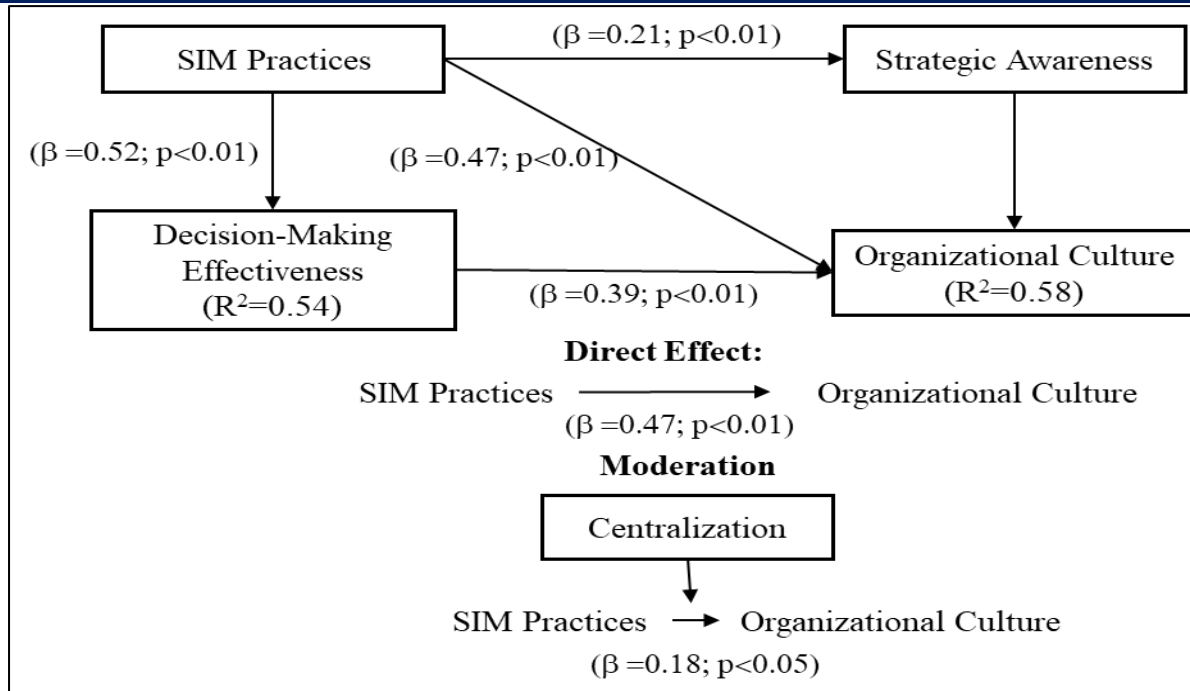


Figure 5: Structural equation model (PLS-SEM) results for SIM practices, decision-making, and organizational culture.

Figure 5 depicts the PLS-SEM path diagram of the relationships between Strategic Information Management (SIM) practices, strategic awareness, decision-making effectiveness, organizational culture, and the moderating effect of centralization. Standardized beta (β) and statistical significance (p-value) measures are provided on each path. SIM practices have a significant effect on organizational culture ($\beta = 0.47, p < 0.01$) and decision-making effectiveness ($\beta = 0.52, p < 0.01$). Moreover, decision-making effectiveness affects organizational culture ($\beta = 0.39, p < 0.01$). In turn, strategic awareness moderates the relation between SIM and organizational culture (indirect $\beta = 0.21, p < 0.01$). Finally, centralization moderates the SIM-decision-making relationship ($\beta = 0.18, p < 0.05$). These factors explain 54% of decision-making effectiveness and 58% of organizational culture variance.

3.5 Organizational Culture Implications

From the findings, it can be inferred that SIM behaviors and strategic processes influence organizational culture to a great extent. According to Table 13, there is a high degree of decision centralization ($M = 4.30, SD = 0.59$) and low level of formalization ($M = 2.21, SD = 0.65$). Knowledge is individualistic in nature.

Table 13: Organizational Culture Characteristics

Cultural Dimension	Mean	Standard Deviation
Decision Centralization	4.30	0.59
Formalization	2.21	0.65
Knowledge Embeddedness (Tacit)	4.08	0.62

Figure 6 illustrates how informal information practices and centralized authority reinforce a culture characterized by trust-based interactions and limited formalization.

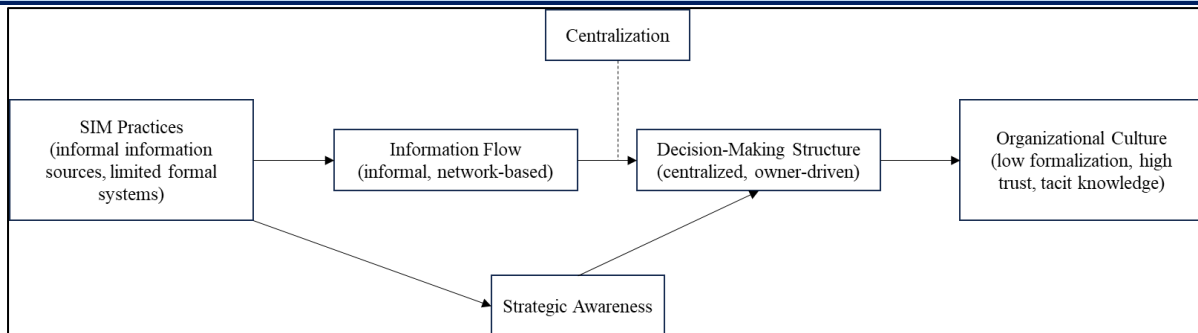


Figure 6: Relationship Between SIM Practices and Organizational Culture

In addition to this, the PLS-SEM results indicate that centralization plays a significant moderating role in the connection between SIM practices and decision-making ($\beta = 0.18$, $p < 0.05$), validating H5. It implies that SIM works better when decisions are centralized within organizations, emphasizing the importance of leaders in organizational performance.

Moreover, the structural model exhibits high explanatory ability, as indicated by the R^2 values of 0.54 for decision-making and 0.58 for organizational culture. Therefore, these results support the claim that SIM functions as an interrelated system involving information sharing, decision-making, and organizational culture.

4. Discussion

Moreover, the results of the study give clear empirical evidence to support the suggested theoretical model while indicating significant differences depending on the context of implementation of SIM practices in Libyan SMEs. Earlier research conducted by Dorota Klimecka-Tatar and Marta Niciejewska (2021) and D. K. Panda (2022) indicates that an organisation's culture plays a role in the managerial decision-making process and, at the same time, implies that there are structures supporting information exchange. The findings of this study prove that in Libyan SMEs, SIM relies on the experience and social context of communication without using any technological devices.

The obtained results coincide with earlier research conducted by Maria Kamariotou and Fotis Kitsios (2020) regarding the usage of information systems by managers for the implementation of strategies; however, the research does not confirm the implicit presumption about the technological nature of this implementation. For instance, the effectiveness of decision-making ($\beta = 0.52$) depends not on advanced IS structure but on managerial interpretation of fragmented information. Thus, this study confirms the emphasis on cognition stated by T. K. Vuong (2025). Moreover, the positive relationship between SIM and organisational culture ($\beta = 0.47$) is further validated by the studies conducted by H. T. Truong et al. (2025) and Hary Sastryawanto et al. (2024). Their findings connect culture with competitive advantage and performance. The current study expands their frameworks by identifying information practices as the process of cultural replication. The centralised moderation ($\beta = 0.18$) demonstrates a divergence from the SIM logic in large firms since the centralisation of information does not decentralise decision-making but strengthens owner-manager control. This contributes to the theory by establishing information asymmetry as an essential feature of SMEs. Together, these findings contribute to the theory of SIM as a socio-cultural ability that is influenced by leadership, cognition, and contextual factors.

4.1 Limitations

There are numerous limitations that can be found within this research. First, the information used in this research was obtained from a certain number of sectors; therefore, it is possible that some variations between SIM practices depending on the level of technological development and competition in specific sectors have been overlooked. Another limitation of the research is related to the fact that the results are generalised in relation to only one country (Libya),

ignoring different institutional, cultural, and technological environments in other countries. Furthermore, the cross-sectional nature of the research precludes any observations regarding the change in SIM practices over time.

4.2 Practical Implications

The findings indicate that the adoption of hybrid SIM strategies involving the formalisation of necessary records through the utilisation of informal systems will benefit SME managers. This can be achieved through the use of basic technology, sharing of documentation, and knowledge-sharing procedures that minimise reliance on expert knowledge. The policymakers need to emphasise building digital capability, the provision of adequate training, and ICT access at a reasonable cost for the gradual process of formalisation to be effective without constraining SMEs.

5. Conclusions

The theory is developed because this study redefines the concept of Strategic Information Management (SIM) as a socio-cultural competence as opposed to its previous definition as a technical or procedural system. Following the existing literature on how organisational culture influences managerial activities, the results reveal that culture in SMEs plays a significant role in influencing the adoption of SIM; more importantly, it is often used in place of information systems. The results also indicate that strategies can be effectively implemented even in the absence of sophisticated information infrastructure provided there is high cognitive ability and strategic orientation among managers.

The empirical evidence that SIM influences decision-making ($\beta = 0.52$) and organisational culture ($\beta = 0.47$), mediated by strategic awareness, reinforces the hypothesis that SIM is an integral part of leadership roles, trust-based approaches, and experience. Such results add to the understanding from resource-based and information processing theories through highlighting informal information practices, centralisation of power, and tacit knowledge as resources within a strategic context for small firms. This is the reason behind the inability to generalise SIM models of large companies for small firms.

The future work on the socio-cultural SIM approach should be conducted in other emerging countries, use longitudinal methodology to trace the process of formalisation, and investigate the effect of gradual introduction of digital technologies on decisions and culture. The proposed approach is generalisable since many SMEs in developing countries face comparable challenges to those in Libya.

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