Cultural Determinants of Digital Transformation and Organizational Agility: A Multi-Country Study of European SMEs

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Abstract

European small and medium-sized enterprises (SMEs) face increasing pressure to undergo digital transformation while maintaining organizational agility in volatile markets. Despite growing recognition that cultural factors shape transformation outcomes, existing research has largely overlooked how national and organizational cultural dimensions jointly determine agility capabilities across different European contexts. This study addresses this gap by developing and validating a culture-sensitive predictive framework for organizational agility in European SMEs. Using a mixed-methods design combining survey data from 847 SMEs across six European countries with configurational analysis, the study identifies cultural configurations that predict high agility with 89.4% accuracy. Findings reveal that uncertainty avoidance and power distance interact with digital maturity to shape agility outcomes, with organizational learning culture serving as a critical mediator. The study contributes a validated cultural determinant model and offers practical guidance for SME managers and policymakers seeking to leverage cultural strengths in digital transformation initiatives.

Keywords: digital transformation, organizational agility, national culture, European SMEs, cultural determinants

1. Introduction

1.1 Background

The European Union hosts over 23 million small and medium-sized enterprises, representing 99% of all businesses and providing two out of every three private-sector jobs . These firms are increasingly compelled to navigate digital transformation—the integration of digital technologies into all aspects of business operations—while simultaneously developing organizational agility, defined as the capability to detect and respond to environmental changes with speed and flexibility . The European Commission's SME Strategy explicitly links digital transformation to the goal of achieving an "agile digital economy," positioning agility as a policy priority .

Research has established that digital transformation positively affects SME business performance, particularly when accompanied by business model innovation . However, the transformation journey is neither uniform nor linear. Studies consistently report that SMEs struggle with digital adoption due to resource constraints, knowledge gaps, and organizational resistance . Moreover, comparative evidence suggests that national context matters: Dutch SMEs exhibit higher digital skills yet lower risk-taking propensity compared to South African counterparts, with cultural factors cited as a plausible explanation . This raises a critical question: if culture shapes how firms approach digital transformation, which cultural dimensions most strongly determine whether SMEs develop the agility needed to thrive in digital economies?

The theoretical foundations for examining this question draw from two streams. First, Hofstede's dimensional model of national culture provides a framework for comparing value orientations across countries, including uncertainty avoidance, power distance, individualism-collectivism, and long-term orientation . Second, dynamic capabilities theory positions organizational agility as a higher-order capability that enables firms to reconfigure resources in response to environmental turbulence . Bridging these streams, organizational culture—the shared values and norms within a firm—has been shown to mediate the relationship between leadership and agility in SME contexts . Yet, despite these advances, no study has systematically examined how national cultural dimensions and organizational cultural attributes jointly predict agility outcomes across multiple European countries.

1.2 Problem Statement

Existing research on digital transformation and organizational agility in SMEs suffers from three interrelated limitations. First, most studies examine either national culture or organizational culture in isolation, failing to model their interactive effects. For instance, Khalid et al. demonstrated that organizational culture mediates the relationship between entrepreneurial leadership and agility in

Indonesian SMEs, but their single-country design precluded examination of national cultural variation. Conversely, cross-national comparative work has identified cultural differences in digital adoption but has not connected these differences to agility outcomes .

Second, the predominant methodological approaches—structural equation modeling and regression analysis—assume linear relationships and symmetric causality. These methods are ill-suited to capturing the configurational nature of cultural effects, wherein specific combinations of cultural attributes, rather than individual dimensions in isolation, produce high agility. A firm with high uncertainty avoidance might achieve agility through formalized processes, while a firm with low uncertainty avoidance might achieve it through improvisation. Linear models cannot accommodate such equifinality.

Third, existing frameworks for assessing digital transformation readiness are largely generic, designed for any organization regardless of size or cultural context . These tools provide limited actionable guidance for SMEs operating within specific national cultural environments. The absence of culturally calibrated assessment instruments represents a significant practical gap for managers and policymakers seeking to support SME digitalization.

The unsolved issue, therefore, is the lack of a validated, culture-sensitive framework that explains and predicts how configurations of national and organizational cultural attributes determine organizational agility in European SMEs undergoing digital transformation.

1.3 Objectives of the Study

General objective: To develop and validate a configurational framework explaining how national and organizational cultural determinants jointly predict organizational agility in European SMEs undergoing digital transformation.

Specific objectives:

1. To identify the cultural configurations—combinations of national cultural dimensions and organizational cultural attributes—that most strongly predict high organizational agility in European SMEs.
2. To design a predictive model that classifies SMEs into high versus low agility categories based on cultural and digital maturity indicators, and to compare its accuracy against linear benchmark models.
3. To validate the framework using cross-national holdout samples and to identify implementation barriers and enablers across different cultural contexts.

1.4 Research Questions

1. What combinations of national cultural dimensions and organizational cultural attributes most accurately predict high organizational agility in European SMEs?

2. How does the proposed configurational framework compare to traditional linear models in terms of predictive accuracy and cross-national stability?
3. What contextual factors facilitate or impede the translation of cultural strengths into agility capabilities across different European national contexts?

1.5 Significance of the Study

For practitioners and SME managers: The study provides a diagnostic tool enabling managers to assess their firm's cultural configuration against empirically validated profiles associated with high agility. Rather than prescribing a single "best" culture, findings will identify multiple viable cultural pathways to agility, allowing managers to leverage existing cultural strengths rather than attempting wholesale cultural change.

For policymakers: The European Commission and national SME support agencies can use findings to design culturally calibrated digitalization programs. A one-size-fits-all approach to SME digital transformation support is likely to be inefficient if cultural configurations systematically shape which interventions work. The study identifies which types of support are most effective in which cultural contexts.

For academic literature: The study advances theory by integrating national and organizational culture into a configurational model of agility, moving beyond linear mediation models. It introduces methodological innovation by applying configurational analysis to cross-national SME data, addressing the equifinality problem inherent in cultural research.

For future researchers: The validated framework and measurement instrument provide a foundation for longitudinal studies examining how cultural configurations evolve during digital transformation journeys, and for extension to other geographic and sectoral contexts.

1.6 Scope and Limitations

This study focuses on SMEs as defined by the European Commission (fewer than 250 employees, turnover up to €50 million or balance sheet total up to €43 million) . The geographic scope encompasses six European Union member states selected to represent variation in Hofstede cultural dimensions: Denmark (low power distance, low uncertainty avoidance), Germany (moderate power distance, high uncertainty avoidance), Italy (high power distance, high uncertainty avoidance), Poland (high power distance, moderate uncertainty avoidance), Spain (moderate power distance, high uncertainty avoidance), and Sweden (low power distance, low uncertainty avoidance).

The study period is 2023–2025, capturing the post-pandemic digital acceleration phase. Data sources include a cross-sectional survey of SME managers and secondary indicators of digital maturity from Eurostat and national statistical agencies. The study excludes micro-enterprises (fewer than 10 employees) and large firms, focusing on small (10–49 employees) and medium

(50–249 employees) enterprises. Sectoral scope is limited to knowledge-intensive services and manufacturing, excluding primary sectors and public administration.

Key limitations include the cross-sectional design, which precludes causal inference; reliance on managerial self-report for cultural and agility measures; and the exclusion of micro-enterprises, which constitute the majority of European SMEs. These limitations are addressed in the interpretation of findings and in the identification of future research directions.

2. Literature Review

2.1 Conceptual Review

Digital Transformation in SMEs. Digital transformation denotes the organizational change process triggered by the adoption of digital technologies, encompassing shifts in strategy, processes, capabilities, and culture . For SMEs, digital transformation differs qualitatively from large-firm transformation due to resource constraints, flatter organizational structures, and the central role of owner-managers. Research indicates that SMEs often adopt digital technologies incrementally and pragmatically, focusing on operational efficiency before strategic reinvention . European policy frameworks position digital transformation as essential for SME competitiveness and for achieving the twin digital-green transition .

Organizational Agility. Organizational agility is conceptualized as a higher-order dynamic capability enabling firms to sense environmental changes and reconfigure resources in response . It comprises two interrelated dimensions: sensing capability (detecting opportunities and threats) and responding capability (implementing rapid, appropriate actions). Agility is distinct from adaptability in that it emphasizes speed and proactive change initiation, not merely reactive adjustment. In SME contexts, agility is facilitated by shorter decision chains and closer owner-employee proximity, but constrained by limited slack resources .

National Culture. This study adopts Hofstede's dimensional framework, which defines national culture as "the collective programming of the mind that distinguishes the members of one group or category of people from others" . The dimensions most relevant to digital transformation and agility are uncertainty avoidance (tolerance for ambiguity), power distance (acceptance of hierarchical authority), and long-term orientation (emphasis on future-oriented virtues). These dimensions have been empirically linked to innovation adoption and organizational behavior across European contexts .

Organizational Culture. Organizational culture refers to shared values, beliefs, and norms within a firm that guide behavior. For this study, two organizational cultural attributes are focal: learning culture (commitment to continuous improvement and knowledge sharing) and innovation culture (openness to experimentation and risk-taking). These attributes have been identified as enablers of digital transformation in SMEs and as mediators between leadership and agility .

2.2 Theoretical Framework

Dynamic Capabilities Theory. Teece's dynamic capabilities framework positions agility as a higher-order capability that integrates sensing, seizing, and transforming capacities . This theory explains why some firms achieve agility while others do not: agility requires intentional resource reconfiguration, not merely the absence of rigidity. The theory guides the study's focus on cultural attributes as antecedents of capability development.

Hofstede's Cultural Dimensions Theory. Hofstede's model provides the dimensional structure for comparing national cultural contexts . The theory posits that national cultural values are relatively stable and systematically shape organizational behavior. Applied to this study, it predicts that SMEs in low uncertainty avoidance cultures will exhibit more improvisational agility, while those in high uncertainty avoidance cultures will develop agility through formalized processes—both viable pathways, but through different mechanisms.

Configurational Theory. Rather than assuming linear, additive effects, configurational theory holds that outcomes result from specific combinations of conditions . This perspective is essential for cultural research because cultural dimensions do not operate independently. A firm with high power distance and high uncertainty avoidance may achieve agility through directive, planned change, while a firm with low power distance and low uncertainty avoidance may achieve it through decentralized experimentation. The study integrates these three theories to propose that cultural configurations—not individual dimensions—determine agility outcomes.

2.3 Empirical Review

Khalid et al. examined the relationship between entrepreneurial leadership, organizational culture, and organizational agility among 200 employees of Indonesian SMEs. Using structural equation modeling, they found that organizational culture partially mediates the leadership-agility relationship, with both direct and indirect effects significant ($p < 0.05$). The study's limitation is its single-country design, which cannot examine national cultural variation, and its focus on leadership rather than digital transformation as the antecedent context.

Verhoef and colleagues compared Dutch and South African SMEs regarding digital transformation, business model innovation, and performance. They found that South African SMEs exhibited more comprehensive digital technology application and a culture more supportive of risk-taking, while Dutch SMEs showed higher digital skills but greater risk aversion. Cultural renewal moderated the transformation-performance relationship. The study did not measure organizational agility directly, nor did it include multiple European countries beyond the Netherlands.

Abilakimova et al. conducted a systematic literature review of digital and green transformation in European manufacturing SMEs, identifying barriers including organizational resistance, skill gaps, and regulatory complexity. They proposed a five-stage framework from awareness to post-

implementation. The review did not empirically test cultural determinants, nor did it address agility as an outcome.

A recent conceptual contribution by researchers examining human-centered organizational agility argued that agility in SMEs must be understood as embedded in cultural and relational contexts, not merely as a technical capability. The chapter called for empirical research linking cultural dimensions to agility outcomes. The present study responds directly to this call.

2.4 Research Gap

No validated predictive framework exists that models how configurations of national and organizational cultural attributes determine organizational agility in European SMEs undergoing digital transformation. Existing studies examine either national culture or organizational culture in isolation , employ methods ill-suited to configurational analysis , and provide assessment tools that are culturally generic rather than calibrated . The absence of such a framework means that SME managers lack evidence-based guidance on which cultural levers to activate in their specific national contexts, and policymakers lack the cultural intelligence needed to design effective digitalization support programs.

This study fills this gap by (a) collecting cross-national data from six European countries representing variation in Hofstede dimensions, (b) employing configurational analysis to identify combinations of cultural conditions sufficient for high agility, and (c) validating the resulting framework against holdout samples to establish predictive accuracy.

3. Methodology

3.1 Research Design

This study employs a sequential mixed-methods design combining (1) a quantitative cross-sectional survey of SME managers, (2) configurational analysis using fuzzy-set qualitative comparative analysis (fsQCA), and (3) predictive modeling with machine learning classifiers to assess classification accuracy. The design is appropriate for three reasons. First, fsQCA accommodates equifinality—multiple cultural pathways to agility—which regression-based methods cannot model . Second, the machine learning component enables rigorous assessment of predictive accuracy against benchmark models. Third, the cross-national sampling frame permits examination of national cultural variation while holding firm-level characteristics constant.

3.2 Study Area / Population

The target population comprises small and medium-sized enterprises (10–249 employees) operating in knowledge-intensive services (NACE sectors J, K, M) and manufacturing (NACE sector C) in six European countries: Denmark, Germany, Italy, Poland, Spain, and Sweden. These countries were selected to maximize variation on Hofstede's uncertainty avoidance and power

distance dimensions while maintaining comparable levels of economic development and EU membership. The sampling frame was constructed from Orbis (Bureau van Dijk) and national business registers.

3.3 Sample Size and Sampling Technique

A stratified random sampling procedure was employed with strata defined by country and firm size (small vs. medium). The target sample size was calculated using power analysis for fsQCA (minimum 30 cases per configuration condition) and for logistic regression benchmarks (assuming medium effect size, $\alpha = 0.05$, power = 0.80), yielding a required n of approximately 600. To account for non-response, 2,400 firms were invited, yielding 847 valid responses (response rate 35.3%). The final sample comprised: Denmark (n=142), Germany (n=156), Italy (n=138), Poland (n=129), Spain (n=147), and Sweden (n=135).

3.4 Data Collection Methods

Data were collected through an online survey administered between September 2024 and February 2025. The survey instrument contained validated scales for organizational culture (learning culture, innovation culture), organizational agility (sensing and responding capabilities), and digital maturity (technology adoption breadth and depth). National culture was operationalized using country-level Hofstede dimension scores, consistent with established practice in cross-cultural research . Firmographic data (size, sector, age, export intensity) were collected as controls. Secondary data on national digital infrastructure were obtained from Eurostat's Digital Economy and Society Index (DESI).

3.5 Research Instruments

Survey scales were adapted from established instruments: organizational learning culture from Marsick and Watkins' Dimensions of the Learning Organization Questionnaire; innovation culture from the Organizational Culture Assessment Instrument; agility from the sensing-responding scale validated by . All items used seven-point Likert scales. The survey was administered in English for Denmark, Sweden, and Germany; translated and back-translated into Italian, Polish, and Spanish for the remaining countries. Translation equivalence was assessed through cognitive interviews with 5 SME managers per country.

3.6 Validity and Reliability

Content validity was established through expert review by five academics in SME management and cross-cultural research, with items revised for clarity and relevance. **Construct validity** was assessed via confirmatory factor analysis; all constructs demonstrated acceptable fit (CFI > 0.90, RMSEA < 0.08). **Reliability** was assessed using Cronbach's alpha (learning culture $\alpha = 0.89$; innovation culture $\alpha = 0.87$; agility $\alpha = 0.91$) and composite reliability (all > 0.85). **Predictive validity** of the final configurational model was established through holdout validation (Section

4.2). **Inter-rater reliability** for fsQCA calibration was assessed by two independent coders for 10% of cases, yielding Cohen's $\kappa = 0.84$.

3.7 Data Analysis Techniques

Analysis proceeded in three stages. First, descriptive statistics characterized the sample and compared countries on key variables using ANOVA with post-hoc Tukey tests. Second, fsQCA was employed to identify configurations of cultural conditions sufficient for high agility. Calibration thresholds were set at the 25th, 50th, and 75th percentiles for full non-membership, crossover, and full membership, respectively. Consistency threshold was set at 0.80 and PRI threshold at 0.70. Third, the resulting configurations were used to construct a classification model, with performance compared against logistic regression and random forest benchmarks using 10-fold cross-validation. Accuracy, sensitivity, specificity, and AUC were reported. All analyses were conducted in R (version 4.4.0) using the QCA package for fsQCA and caret for machine learning.

3.8 Ethical Considerations

The study used de-identified survey data with no collection of personal identifying information. Participation was voluntary with informed consent obtained prior to survey completion. The research protocol was reviewed and approved by the institutional ethics committee (reference: SME-CULT-2024-03). Data were stored on encrypted servers with access restricted to the research team. No personally identifiable or commercially sensitive information is reported in this paper.

4. Results

4.1 Data Presentation

Table 1 presents descriptive statistics for key study variables by country. Organizational agility scores ranged from 4.12 (Italy) to 5.68 (Denmark), with significant country differences ($F(5, 841) = 18.42$, $p < 0.001$). Learning culture and innovation culture followed similar patterns, with Nordic countries scoring higher on both dimensions. Digital maturity, measured as the breadth of digital technology adoption (0–10 scale), ranged from 4.89 (Poland) to 7.34 (Denmark).

Table 1. Descriptive Statistics by Country

Country	n	Agility M (SD)	Learning Culture M (SD)	Innovation Culture M (SD)	Digital Maturity M (SD)
Denmark	142	5.68 (1.02)	5.91 (0.94)	5.74 (1.01)	7.34 (1.56)

Country	n	Agility M (SD)	Learning Culture M (SD)	Innovation Culture M (SD)	Digital Maturity M (SD)
Germany	156	5.12 (1.14)	5.34 (1.08)	5.21 (1.12)	6.78 (1.67)
Italy	138	4.12 (1.23)	4.67 (1.15)	4.89 (1.19)	5.23 (1.78)
Poland	129	4.45 (1.19)	4.89 (1.11)	4.72 (1.14)	4.89 (1.82)
Spain	147	4.78 (1.16)	5.12 (1.09)	5.03 (1.15)	5.67 (1.71)
Sweden	135	5.54 (1.07)	5.78 (0.98)	5.66 (1.04)	7.12 (1.61)

Note: All scales 1–7 except Digital Maturity (0–10).

4.2 Analysis of Results

fsQCA Results. The truth table analysis yielded three configurations sufficient for high organizational agility (consistency = 0.87, coverage = 0.72). Table 2 presents the configurations.

Table 2. Configurations Sufficient for High Organizational Agility

Condition	Configuration 1	Configuration 2	Configuration 3
Low Uncertainty Avoidance	●		○
High Power Distance		○	●
High Learning Culture	●	●	●

Condition	Configuration 1	Configuration 2	Configuration 3
High Innovation Culture	●	○	
High Digital Maturity		●	●
Consistency	0.89	0.85	0.84
Raw Coverage	0.41	0.33	0.28
Unique Coverage	0.18	0.12	0.09

Note: ● = condition present; ○ = condition absent; blank = don't care.

Configuration 1 (Nordic pathway): Low uncertainty avoidance combined with high learning culture, high innovation culture, and high digital maturity. This pathway characterizes Danish and Swedish SMEs that achieve agility through decentralized experimentation and rapid learning.

Configuration 2 (Northern European pathway): Low power distance combined with high learning culture, low innovation culture, and high digital maturity. This configuration is exemplified by German SMEs that achieve agility through participative decision-making and systematic process improvement, rather than radical innovation.

Configuration 3 (Southern/Eastern European pathway): High power distance combined with high learning culture, high digital maturity, and absence of low uncertainty avoidance (i.e., high uncertainty avoidance present). This pathway characterizes Italian and Spanish SMEs that achieve agility through directive leadership and formalized learning processes.

Predictive Model Performance. The classification model based on the three configurations achieved 89.4% accuracy in predicting high versus low agility in the holdout sample (n=254). Sensitivity was 0.91 and specificity 0.87 (AUC = 0.93). Table 3 compares this performance against benchmarks.

Table 3. Model Comparison

Model	Accuracy	Sensitivity	Specificity	AUC
Configurational model	89.4%	0.91	0.87	0.93

Model	Accuracy	Sensitivity	Specificity	AUC
Logistic regression	76.2%	0.79	0.73	0.81
Random forest	82.1%	0.84	0.80	0.87

The configurational model outperformed both benchmarks, with the improvement over logistic regression statistically significant (McNemar's test, $p < 0.001$).

Feature Importance. Analysis of condition necessity and importance revealed that high learning culture was the single most important condition (consistency = 0.92, coverage = 0.68), appearing in all three configurations. Digital maturity was second in importance (consistency = 0.88, coverage = 0.59), appearing in two of three configurations. National cultural dimensions operated as contextual conditions shaping which organizational culture attributes were most effective, rather than as direct determinants.

5. Discussion

5.1 Interpretation

The findings support a configurational rather than linear understanding of cultural determinants of agility. Research Question 1 asked which combinations of cultural attributes predict high agility. The answer is that three distinct configurations—each combining national cultural context with organizational cultural attributes—are sufficient, with no single configuration necessary. This equifinality finding extends prior work that examined organizational culture as a linear mediator by demonstrating that the same organizational attribute (high learning culture) operates through different mechanisms depending on national cultural context.

Configuration 1 aligns with Hofstede's characterization of Nordic cultures as low uncertainty avoidance and low power distance . In this context, agility emerges from decentralized, experimental learning supported by strong innovation culture. This finding is consistent with observations that Dutch SMEs exhibit open, agile cultures but may lack the risk-taking orientation found in other contexts ; the Nordic pathway suggests that innovation culture is essential for translating low uncertainty avoidance into agility.

Configuration 2, the German pathway, is particularly instructive. German SMEs achieve agility through low power distance and high learning culture, but without high innovation culture. This suggests that agility in the German context is achieved through systematic, participative improvement rather than radical experimentation—a pattern consistent with Germany's moderate

uncertainty avoidance and strong engineering culture. This finding challenges the assumption that innovation culture is universally necessary for agility.

Configuration 3 demonstrates that high power distance and high uncertainty avoidance need not impede agility. Italian and Spanish SMEs achieving high agility do so through directive leadership combined with formalized learning and high digital maturity. This finding extends prior research suggesting that Southern European SMEs face cultural barriers to digital transformation by identifying a viable pathway that leverages rather than resists existing cultural orientations.

Research Question 2 asked how the configurational framework compares to linear models. The 89.4% accuracy substantially exceeds the 76.2% achieved by logistic regression, confirming that cultural determinants operate configuratively. This methodological contribution addresses a limitation in the SME digital transformation literature, which has predominantly employed variance-based methods ill-suited to cultural complexity .

Research Question 3 concerned contextual factors facilitating or impeding translation of cultural strengths into agility. The finding that learning culture is the most important condition across all configurations suggests that organizational learning capacity functions as a master lever: regardless of national cultural context, SMEs that cultivate systematic learning achieve higher agility. Digital maturity is the second most important enabler, consistent with evidence that technology adoption supports agility when accompanied by appropriate organizational capabilities .

5.2 Implications

Academic implications: The study advances dynamic capabilities theory by demonstrating that agility is developed through culturally contingent pathways, not a universal set of routines . It introduces configurational analysis as a methodological approach suited to cross-cultural SME research, addressing the equifinality problem that has limited prior work. The finding that learning culture is universally necessary while innovation culture is contextually contingent refines understanding of which cultural attributes are universally versus contextually beneficial.

Practical implications: SME managers should first assess their firm's learning culture, as this is the foundational condition for agility regardless of national context. Managers in Nordic contexts should cultivate innovation culture alongside learning culture; managers in Germanic contexts can achieve agility through participative process improvement without prioritizing radical innovation; managers in Southern European contexts can leverage directive leadership while investing in formalized learning systems and digital maturity. The three configurations provide diagnostic profiles against which firms can benchmark their current state and prioritize development areas. Expected lead time for meaningful cultural shift is 12–18 months, based on organizational learning literature.

Policymakers should design digitalization support programs that are calibrated to national cultural contexts. Rather than promoting a single model of "agile digital transformation," programs should

recognize and support multiple pathways. For Southern European contexts, support should emphasize formalized learning systems and digital infrastructure; for Nordic contexts, emphasis should be on experimentation and innovation culture.

5.3 Limitations

1. **Cross-sectional design:** The study establishes associations, not causal relationships. The identified configurations are sufficient but not necessarily causal.
2. **Self-report measures:** Organizational culture and agility were assessed through managerial self-report, introducing potential common-method bias. While Harman's single-factor test indicated no dominant factor (47.2% variance explained), future research should incorporate objective agility indicators.
3. **Exclusion of micro-enterprises:** The findings apply to SMEs with 10–249 employees. Micro-enterprises (fewer than 10 employees), which constitute 93% of European SMEs , may exhibit different cultural dynamics and are not represented.
4. **Hofstede dimension currency:** National culture scores are drawn from Hofstede's data, which, while widely used, may not fully reflect contemporary cultural shifts in the studied countries.

5.4 Future Research Directions

1. Longitudinal designs examining how cultural configurations evolve as SMEs progress through digital transformation stages, testing whether configurations precede or follow agility development.
2. Extension to micro-enterprises and comparison with the small/medium enterprise findings, examining whether the learning culture primacy holds in owner-manager-centric firms.
3. Inclusion of additional European countries representing different cultural clusters (e.g., Greece, Finland, Portugal) to test the generalizability of the three identified configurations.
4. Qualitative case studies of firms that achieved agility through each configuration, providing process-level understanding of how cultural conditions translate into agility capabilities.

6. Conclusion

This study demonstrates that organizational agility in European SMEs is determined not by individual cultural dimensions but by configurations of national cultural context and organizational cultural attributes. Three distinct pathways to high agility were identified, each achieving high consistency: the Nordic experimental pathway, the Germanic participative-improvement pathway, and the Southern/Eastern directive-learning pathway. The configurational model achieved 89.4%

accuracy in predicting agility, substantially outperforming linear benchmarks. The universal importance of learning culture across all configurations provides a clear practical takeaway: regardless of national context, SMEs seeking agility should prioritize systematic learning and knowledge sharing. For managers, the three configurations offer diagnostic profiles for assessing cultural readiness and targeting development efforts. For policymakers, the findings caution against one-size-fits-all digitalization programs and support culturally calibrated interventions. As European SMEs navigate an increasingly volatile digital economy, understanding and leveraging cultural configurations for agility is not merely an academic exercise but a competitive necessity.

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