



A Conceptual Framework for Strategic Management Accounting with an Emphasis on Total Quality Management: A Grounded Theory Qualitative Approach

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ABSTRACT

Objective: Despite the theoretical potential of Strategic Management Accounting (SMA), its practical adoption remains constrained by a lack of cohesive, structured frameworks that systematically integrate its diverse tools. Total Quality Management (TQM), characterized by customer-oriented philosophies and continuous improvement, offers an ideal operational platform for SMA capabilities. However, integrated models tailored to the socio-economic and structural realities of developing markets—specifically the sanction-impacted, inflationary, and highly institutionalized environment of Iran—are non-existent. This study designs a contextualized conceptual framework that systematically integrates SMA and TQM within Iranian enterprises.

Methodology: Employing an exploratory qualitative approach, we utilized Strauss and Corbin's (1998) systematic Grounded Theory methodology. In-depth, semi-structured interviews were conducted with 15 purposively selected academic experts, financial directors, and quality management specialists in Iran. Theoretical saturation was determined through constant comparative analysis and code-yield tracking. Methodological rigor was validated using Lincoln and Guba's trustworthiness criteria alongside an inter-coder reliability agreement of 87%.

Findings: Data analysis yielded 72 open concepts, which were synthesized into 25 axial categories and organized into a comprehensive six-component paradigm model: (1) Causal Conditions (macro-competitive pressures, strategic decision-making mandates, corporate governance and disclosure requirements, product/process innovation needs, and environmental volatility); (2) Core Phenomenon (the systematic design and implementation of a contextualized, integrated SMA-TQM framework); (3) Contextual Conditions (technological infrastructure, human capital competency, organizational readiness, senior leadership commitment, and institutional legacy); (4) Intervening Conditions (socio-cultural resistance to transparency, macroeconomic and funding constraints under sanctions, rigid bureaucratic structures, and specialized knowledge deficits); (5) Action/Interaction Strategies (phased pilot deployment, targeted capacity building, structural localization, integrated performance management, ERP/BI-driven information integration, quality culture reinforcement, target-based cost control, internal risk management, and supply chain standardization); and (6) Consequences (operational-cost efficiency, continuous quality improvement, optimization of quality costs, and sustainable competitive advantage).

Conclusion: This study presents the first empirically grounded, indigenous framework integrating SMA and TQM in an emerging economy. It demonstrates how macro-economic constraints and micro-organizational dynamics interact to shape strategic accounting systems, offering a clear guide for executives and accountants operating in highly volatile environments.

Keywords: Strategic Management Accounting, Total Quality Management, Grounded Theory, Paradigm Model, Qualitative Research, Iranian Context.



1. Introduction

Modern business environments—characterized by globalization, hyper-competition, rapid technological disruptions, shifting consumer preferences, and escalating quality standards—have forced organizations to re-evaluate their internal control and decision-support systems (Porter, 1985; Kaplan & Norton, 2001). In this highly volatile and complex context, traditional management accounting systems have drawn substantial criticism. Historically focused on retrospective, short-term financial reporting, standard cost allocations, and inward-looking operational metrics, traditional systems fail to provide the forward-looking, non-financial, and competitor-focused insights necessary for strategic survival (Johnson & Kaplan, 1987; Cooper & Kaplan, 1988; Namazi, 2020).

To address these limitations, Simmonds (1981) introduced "Strategic Management Accounting" (SMA). This paradigm expands management accounting's scope by incorporating competitor activities, market trends, customer behavior, and long-term strategic trajectories (Bromwich, 1990; Shank & Govindarajan, 1992). SMA comprises advanced techniques designed to secure a sustainable competitive advantage, including life-cycle costing, target costing, quality costing, customer profitability analysis, and the balanced scorecard (Cadez & Guilding, 2008).

Despite its theoretical appeal, empirical research indicates that the comprehensive implementation of SMA in actual business practices has been slow and disjointed (Bromwich, 2015; Langfield-Smith, 2008). Organizations rarely adopt SMA as a holistic system; instead, they implement scattered, isolated techniques without a cohesive framework (Otley, 2006). This lack of systematic integration stems from a fundamental problem: SMA tools require a compatible organizational culture, process-oriented workflows, and continuous improvement mechanisms to function effectively, which traditional structures cannot support (Roslender & Hart, 2003).

Parallel to the evolution of SMA, "Total Quality Management" (TQM) has emerged as a dominant management philosophy. TQM emphasizes continuous improvement, comprehensive employee involvement, process optimization, customer-centricity, and data-driven decision-making (Deming, 1986; Oakland, 1991). While TQM delivers proven benefits in product

quality, customer loyalty, and operational efficiency, its deployment is often hindered by structural barriers. These include cultural resistance, lack of middle management alignment, and—critically—the absence of financial measurement systems that translate qualitative quality gains into strategic financial outcomes (Fullerton et al., 2014; Leonards & Villa, 2018).

This background has led researchers to explore the integration of SMA and TQM (Almeida & Cunha, 2017). TQM's process orientation and continuous improvement culture offer an ideal environment for implementing SMA tools, such as quality costing and activity-based costing (Banker et al., 2002; Shank & Govindarajan, 1994). Conversely, SMA provides the financial rigor and strategic alignment needed to sustain TQM initiatives, transforming qualitative quality improvements into measurable, long-term financial performance.

However, existing literature on SMA-TQM integration has two primary limitations. First, most studies are conceptual or theoretical, offering little empirical evidence on how this integration operates inside actual organizations. Second, existing frameworks are predominantly developed within stable, advanced Western economies. They ignore the socio-economic, institutional, and structural challenges of developing, highly volatile, and sanction-impacted economies like Iran.

Iranian enterprises operate in a unique environment characterized by persistent international trade restrictions, severe macroeconomic fluctuations, high inflation, and deep-seated bureaucratic traditions in both state-owned and semi-private sectors. In such an environment, the cost-quality trade-off is highly complex. Standard Western integration models, which assume stable financial conditions and frictionless technology procurement, cannot be directly applied without substantial localization.

To address these gaps, this study uses a systematic Grounded Theory approach to answer the following research question:

What are the core components, structural dimensions, and interactive dynamics of a strategic management accounting framework integrated with a Total Quality Management system within the contextual realities of Iranian organizations?

2. Theoretical Foundations and Literature Review

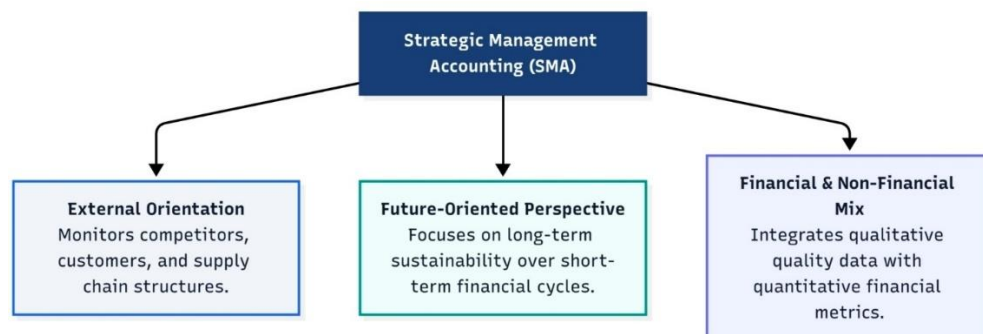
2.1. Strategic Management Accounting (SMA)

Strategic Management Accounting represents a shift from historically focused financial accounting to an externally oriented, forward-looking strategic management tool. Simmonds (1981) first conceptualized SMA as the provision and analysis of management accounting data regarding a business unit and its competitors, designed to develop and monitor business strategy.

Bromwich (1990) expanded this by emphasizing the economic analysis of product markets, competitors' cost structures, and the long-term strategic cost advantages of an organization. Shank and Govindarajan (1992, 1994) re-conceptualized this field as "Strategic Cost Management" (SCM), positioning cost information as an explicit tool for formulating, evaluating, and implementing competitive corporate strategies.

Empirical research classifies SMA tools into five primary domains (Cadez & Guilding, 2008; Guilding et al., 2000; Namazi, 2017):

- **Strategic Costing:** Incorporating strategic positioning into costing models (e.g., life-cycle costing, attribute costing, quality costing, and target costing).
- **Planning, Control, and Performance Measurement:** Blending financial metrics with operational KPIs (e.g., benchmarking, competitor-focused accounting, and the Balanced Scorecard) (Guilding, 2015).
- **Strategic Decision-Making:** Utilizing cost and value data for long-term decisions (e.g., strategic pricing, brand valuation, and outsourcing evaluation).
- **Competitor Accounting:** Structuring data collection around competitor cost structures, pricing behaviors, and market share shifts.
- **Customer Accounting:** Evaluating customers as strategic assets (e.g., customer lifetime profitability analysis and customer valuation) (Guilding & McManus, 2002).



2.2. Total Quality Management (TQM)

Total Quality Management is an organizational management philosophy focused on continuously improving processes, products, and services to maximize customer satisfaction (Deming, 1986; Juran, 1999). It is built on eight core principles: customer focus, leadership commitment, full employee engagement, process orientation, systematic management, continuous improvement, fact-based decision-making, and mutually beneficial supplier relations.

In modern operations, TQM has evolved from a simple factory-floor quality assurance technique into a comprehensive, organization-wide strategic tool. It aims to reduce waste, eliminate non-value-adding activities, and foster a culture of collective responsibility (Oakland, 1991).

2.3. Prior Empirical Studies on SMA-TQM Integration

The theoretical alignment between quality management and management control systems is well-

documented (Ittner & Larcker, 1997). Fullerton et al. (2014) demonstrated that organizations combining lean-TQM operational practices with advanced, supportive management accounting systems achieve significantly higher financial performance than those implementing them in isolation.

Leonards and Villa (2018) analyzed the alignment between SMA and ISO 9001 quality management systems, arguing that standard procedures and rigorous documentation in quality systems provide the highly structured data pipelines required to run sophisticated SMA tools like attribute costing and target costing.

In emerging economies, however, the empirical record is much more fragmented. Bobe and Teklay (2025) conducted a systematic review of the TQM-control systems link, showing that research in developing and less-developed markets remains limited. They argued that the institutional settings of these economies—such as resource scarcity and high economic volatility—frequently disrupt the integration of quality initiatives and strategic accounting systems.

Similarly, Beloan et al. (2025) highlighted that while SMA directly improves decision-making quality, its impact is heavily mediated by the organization's information technology capabilities and the stability of its economic environment. Karki and Bhandari (2025) further showed that strategic alignment and management attitudes are critical determinants of SMA adoption in highly constrained environments. Movahedi et al. (2024) also emphasized that operational alignment of TQM and financial parameters directly determines the sustainability of production systems.

In the Iranian domestic literature, studies have historically investigated these two domains in isolation. Research on SMA (e.g., Ghena'at Gerdalikhani & Hosseini, 2021; Mostafavi & Mokhlesi, 2022) has focused on its general adoption rates or its relationship with sustainable performance. Meanwhile, research on TQM (e.g., Kabirzadeh Naeini, 2025; Rahmani Barouji & Rastegar, 2025) has analyzed its impact on employee productivity, organizational agility, or service quality.

A few recent studies, such as Dayhim et al. (2022), have attempted to model the connection between the two systems, identifying organizational culture as a key mediator. However, these studies rely on quantitative designs that test pre-existing, Western-centric hypotheses. They often miss the qualitative,

highly contextualized institutional realities that local managers navigate daily.

2.4. Critical Synthesis and Research Gaps in SMA-TQM Integration

A critical evaluation of prior research reveals three major theoretical and empirical gaps:

- 1) **The "Silofication" of Operational and Financial Control:** Most existing frameworks treat SMA and TQM as parallel systems. They fail to explain how qualitative quality parameters (such as defect rates or customer satisfaction scores) systematically convert into the quantitative cost structures used in strategic decision-making.
- 2) **Neglect of Macroeconomic and Institutional Pressures in Developing Markets:** Existing models assume a highly stable macroeconomic environment. They do not account for how systemic shocks—such as economic sanctions, hyper-inflation, currency devaluations, and bureaucratic state interventions—affect an organization's capacity to integrate strategic costing with continuous quality improvement. Under severe resource constraints, the long-term horizons of TQM and SMA often clash with short-term survival needs.
- 3) **Lack of Process-Driven Qualitative Models:** Quantitative methodologies dominate current research. While helpful for testing correlations, they fail to capture the complex social processes, political resistance, structural bottlenecks, and cognitive barriers that occur during actual system implementation.

This study addresses these gaps by developing an empirically grounded, context-sensitive conceptual framework. It illustrates the dynamic interactions between external macro-shocks, internal structural realities, and strategic change initiatives within Iranian enterprises.

3. Research Methodology

Given the exploratory nature of this research and the need to capture contextual nuances, we adopted a qualitative approach using Strauss and Corbin's (1998) systematic Grounded Theory methodology. This

design is highly suited for analyzing complex organizational phenomena with limited localized empirical theories.

The study's population consisted of senior financial directors, quality management consultants, corporate executives, and university professors specializing in management accounting and quality control systems in Iran. We used non-probability purposive sampling combined with snowball sampling to recruit participants with deep expertise in both fields.

The sampling process was guided by the criterion of theoretical relevance and continued until we achieved theoretical saturation. Saturation was monitored using a code-yield tracking process, which recorded the generation of new codes per consecutive interview. The rate of new code generation dropped significantly by interview 11. Interviews 13, 14, and 15 yielded no new conceptual codes, indicating that the properties and dimensions of our categories were fully developed. Thus, the final sample was set at 15 participants. Table 1 outlines their demographic profiles.

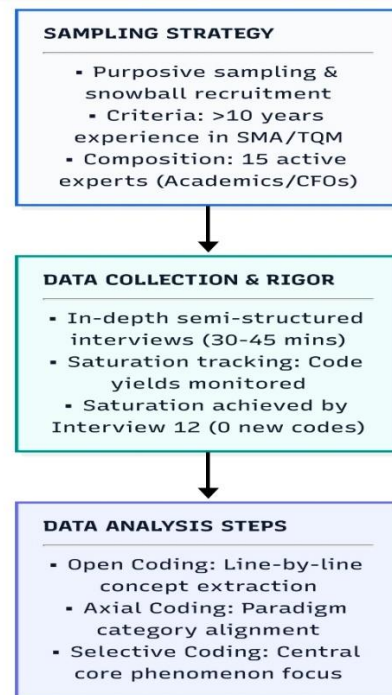


Table 1: Demographic Profile of Study Participants

Participant ID	Gender	Education Level	Professional Role / Title	Industry Sector / Specialization	Years of Experience
P1	Male	Ph.D.	Professor of Management Accounting	Academia & Corporate Consulting	18
P2	Male	Ph.D.	Chief Financial Officer (CFO)	Automotive Manufacturing	15
P3	Female	M.Sc.	Quality Management Director	Pharmaceuticals	12
P4	Male	Ph.D.	Senior Consultant & Auditor	ISO Standards & Quality Systems	20
P5	Male	M.Sc.	Cost Accounting Manager	Heavy Metal & Steel Industry	11
P6	Female	Ph.D.	Assistant Professor of Finance	Academia	10
P7	Male	Ph.D.	Managing Director (CEO)	Industrial Equipment	16
P8	Male	M.Sc.	IT & ERP Implementation Lead	Enterprise Software & Systems	13
P9	Male	Ph.D.	Chief Financial Officer (CFO)	Petrochemical Sector	17
P10	Female	Ph.D.	Operations & Process Excellence Lead	Food & Beverage Industry	14
P11	Male	M.Sc.	Senior Management Accountant	Automotive Supply Chain	12
P12	Male	Ph.D.	Board Member & Strategic Advisor	Diversified Industrial Holding	22
P13	Female	M.Sc.	Quality Costing Specialist	Home Appliance Manufacturing	11
P14	Female	Ph.D.	Academic Researcher	Quality Systems & Cost Control	10
P15	Male	M.Sc.	Internal Audit Director	Publicly Traded Manufacturing	15

3.1. Data Collection Process

Data were collected through in-depth, semi-structured, face-to-face and online video interviews conducted between November 202⁷ and August 202⁸. Each interview lasted between 30 and 45 minutes, was audio-recorded with the explicit consent of the participants, and was transcribed word-for-word immediately after completion.

The interview protocol was designed around several key areas:

- Participants' understanding of the interface between SMA and TQM.
- Primary drivers (causal conditions) necessitating this integration.
- The baseline organizational and technological context (contextual conditions).
- Key cultural, financial, and structural barriers (intervening conditions).
- Specific operational steps and management strategies required for implementation.
- The expected short- and long-term consequences of this integration.

To ensure ethical compliance, all participants signed an informed consent form detailing their rights to anonymity, data confidentiality, and voluntary withdrawal at any point during the research process.

3.2. Methodological Trustworthiness and Reflexivity

To ensure the qualitative validity and rigor of the study, we applied Lincoln and Guba's (1985) four trustworthiness criteria:

- 1) **Credibility:** We achieved credibility through prolonged engagement with the participants and the research setting over a 10-month period. We also used *member checking*, sharing the transcribed interviews and the preliminary paradigm model with five participants to verify that our interpretations aligned with their lived experiences.
- 2) **Transferability:** We provided a thick description of the research context, participants' profiles, and the analytical process, enabling future researchers to assess

the applicability of our findings to other developing economies.

- 3) **Dependability:** We established an *audit trail* by preserving all raw data, interview recordings, transcripts, coding diaries, and evolution matrices. These files were reviewed by two independent external qualitative researchers to verify that the analytical steps followed Grounded Theory protocols.
- 4) **Confirmability:** To address researcher bias, we maintained a detailed *reflexivity journal*. The research team actively examined how their backgrounds as accounting scholars might influence data interpretation, intentionally separating prior theoretical assumptions from the empirical insights shared by the participants.

Furthermore, we assessed inter-coder agreement by having two researchers independently code three randomly selected interview transcripts. We calculated our inter-coder reliability using the following formula:

$$\text{Reliability} = \frac{(2 \times \text{Number of Agreements})}{(\text{Total Number of Codes} + \text{Total Number of Codes})} \times 100$$

This analysis yielded an inter-coder agreement rate of 87%, exceeding the standard qualitative threshold of 80% and confirming the reliability of our coding system.

4. Research Findings

The systematic coding of the raw transcripts yielded 72 distinct open concepts, which were then synthesized into 25 axial categories. Finally, these categories were structured into a cohesive six-component paradigm model based on Strauss and Corbin's (1998) framework.

4.1. Results of Open Coding

In the open coding stage, the transcribed interview texts were analyzed line-by-line and phrase-by-phrase. Through this process, a total of 72 open concepts (initial codes) were extracted from the data, reflecting environmental pressures, quality requirements, governance commitments, infrastructure, human resources, barriers, strategies, and consequences. Table 2 presents a representative sample of 20 critical concepts.

Table 2 Sample of Initial Concepts Extracted During the Open Coding Stage

No.	Extracted Code	Interviewee Source Numbers
1	Global competitive pressure	1, 2, 5
2	Inadequacy of traditional management accounting	1, 3, 6
3	Need for strategic decision-making	2, 4, 7
4	Business environment complexity	2, 5, 8
5	Mandate for financial transparency	3, 6, 15
6	Need for optimal resource allocation	1, 4, 10
7	Emphasis on customer-centricity	3, 7, 11
8	Corporate governance requirements	5, 9, 12
9	Shifting toward a knowledge-based economy	6, 10, 13
10	Increase in operational and financial risks	7, 11, 14
11	Existence of software infrastructures (ERP)	1, 8, 13
12	Managers' inclination to adopt modern systems	1, 4, 7
13	Existence of an educated workforce	1, 6, 10
14	Experience in deploying Quality Management Systems (ISO)	2, 9
15	Culture of continuous improvement within the organization	3, 7, 11
16	Expansion of information technology across the country	4, 8, 13
17	Existence of universities and research centers	5, 10
18	Resistance to change	1, 3, 5, 7
19	Budget deficits	1, 4, 12
20	Short-term orientation toward profitability	2, 6, 15

As shown in Table 2, the frequency of each code indicates its importance from the perspective of the interviewed participants. Concepts such as "resistance to change" (Code 18) were repeated across multiple interviews, indicating high importance. For instance, P7 stated: *"Every time we want to implement a new system, the first obstacle is the resistance of employees and even mid-level managers. They are habituated to old methods and resist more transparency."*

4.2. Results of Axial Coding

In the axial coding stage, the 72 extracted open concepts were categorized into 25 axial categories based on shared dimensions and properties. Table 3 outlines these 25 axial categories along with their respective reference codes and a brief description of each category.

Table 3 : Axial Categories Extracted in the Axial Coding Stage (25 Categories)

No.	Conceptual Code (Core Category)	Reference Codes from Open Coding	Brief Description / Specification
1	Environmental and competitive pressures	1, 2, 4, 12	Factors such as globalization, intense competition, environmental complexity, and technological advancements.
2	Need for strategic decision-making	3, 5, 6	The necessity of utilizing accounting information for macro and long-term decisions.
3	Corporate governance requirements and transparency	5, 8	Legal compliance, accountability, and information transparency.
4	Necessity for innovation and continuous improvement	9, 12, 13	The need for innovation in products, processes, and continuous improvement.
5	Environmental risks and uncertainties	10, 15, 45	Operational, financial, and market risks, alongside external shocks and economic uncertainty.
6	Technical and infrastructural feasibility	17, 22, 26	Availability of software, hardware, information, and communication technology (ICT) infrastructure.
7	Human capital and empowerment	19, 24, 49	Availability of an educated, young, and progressive workforce, combined with empowerment programs.
8	Organizational culture	18, 21, 56	A culture of continuous improvement, organizational trust,

No.	Conceptual Code (Core Category)	Reference Codes from Open Coding	Brief Description / Specification
	supporting change		and readiness to accept change.
9	Senior management support	23, 27, 51	Support and commitment from top management, and the establishment of leadership committees.
10	Past experiences and localized knowledge	20, 28, 62	Experiences from deploying previous systems, indigenous knowledge, and professional associations.
11	Cultural barriers and internal resistance	31, 35, 47	Resistance to change, conflicts of interest, and organizational politics.
12	Financial and economic constraints	32, 36, 43	Budget deficits, economic fluctuations, high inflation, and a focus on short-term profitability.
13	Structural and bureaucratic barriers	37, 40, 41	Rigid hierarchical structures, centralized decision-making, information hoarding, and lack of integrated standards.
14	Lack of specialized knowledge and skills	39, 46	Shortage of successful local case studies and lack of advanced analytical skills.
15	Strategy of phased and experimental execution	48	Implementing pilot projects in a single unit before scaling up organization-wide.
16	Strategy of human resource training and development	49, 59	Continuous training, empowerment, and formulating a precise roadmap.
17	Strategy of model localization and adaptation	50, 61	Localizing international frameworks and investing in applied research.
18	Strategy of designing performance measurement systems	52, 55, 68	Defining KPIs, deploying Balanced Scorecard (BSC), and measuring environmental costs.
19	Strategy of information systems integration	53, 65, 71	Utilizing consultants, developing inter-organizational systems (EDI), and integrating Business Intelligence (BI).
20	Strategy of strengthening quality culture and trust	56, 60	Creating a trust-based organizational culture and obtaining international quality certificates.
21	Strategy of cost and budget management	54, 67, 70, 72	Developing Activity-Based Costing (ABC), target costing, activity-based budgeting, and Activity-Based Management (ABM).
22	Strategy of risk and internal control management	63, 64	Integrating risk management with the overall system and establishing strong internal controls.
23	Strategy of supply chain optimization and outsourcing	66, 69	Standardizing product coding, developing precise outsourcing models.
24	Operational and cost-related outcomes	54, 67, 70	Continuous process improvement, cost reduction, and increased productivity.
25	Strategic and competitive outcomes	52, 55, 60	Sustainable competitive advantage, enhanced strategic positioning, and performance optimization.

4.3. Results of Selective Coding and the Paradigmatic Model

Through repeated examination of the data, the category *"design and deployment of a localized strategic management accounting model integrated with TQM"* was selected as the Core Phenomenon. Using the paradigmatic model proposed by Strauss and Corbin, the 25 axial categories were organized into six

structural groups. Table 4 displays the final paradigmatic model of the research.

Table 4: The Research Paradigm Model Based on Strauss and Corbin's Approach

Paradigm Element	Core Categories (25 Final Categories)	Explanation and Relationship with Other Categories
Causal Conditions	Environmental and competitive pressures (Category 1), need for strategic decision-making (Category 2), corporate governance requirements and transparency (Category 3), necessity for continuous innovation and improvement (Category 4), environmental risks and uncertainties (Category 5).	These conditions represent a set of factors that act as the primary drivers and necessitate the occurrence of the core phenomenon. In fact, they answer the question: <i>"Why should the organization move towards establishing such a model?"</i> . These conditions directly pressure the core phenomenon and heavily influence the selection of strategies. For instance, in an environment characterized by intense competition, aggressive strategies will be required for the design and establishment phases.
Core Phenomenon	Designing and establishing a localized strategic management accounting model integrated with TQM.	This element forms the central hub of the research, around which the entire study revolves. This phenomenon is a direct response to causal conditions and, in essence, serves as the primary solution to address the initial triggers. All other elements of the paradigm—contextual conditions, intervening conditions, strategies, and consequences—are fundamentally linked to this phenomenon and are either influenced by it or actively affect it.
Contextual Conditions	Technical and infrastructural feasibility (Category 6), human capital and empowerment (Category 7), organizational culture supporting change (Category 8), senior management support (Category 9), past experiences and localized knowledge (Category 10).	These conditions describe the baseline context and specific environment in which the core phenomenon occurs. They determine <i>"where"</i> and <i>"under what precise circumstances"</i> the transformation is unfolding. These conditions can act either as facilitators (such as active senior management support or robust technological infrastructure) or as constraints (such as a lack of infrastructure or a rigid culture) that directly affect the smooth implementation of the model.
Intervening Conditions	Cultural barriers and internal resistance (Category 11), financial and economic constraints (Category 12), structural and bureaucratic barriers (Category 13), lack of specialized knowledge and skills (Category 14).	These are general, contextual factors that can positively or negatively affect the strategies applied to the core phenomenon. They can accelerate, slow down, or alter the intensity of the strategies' impacts. Unlike stable contextual conditions, intervening conditions are often unpredictable or emerge dynamically during execution, presenting sudden challenges or opportunities. This explains why implementing the exact same strategy in two different organizations might yield entirely different results.
Strategies	Strategies 15 to 23 (including: phased and experimental execution, human resource development and training, model localization and adaptation, designing performance measurement systems, integrating information systems, strengthening a culture of quality and trust, cost and budget management, risk and internal control management, and supply chain optimization and outsourcing).	Strategies represent purposeful actions or interactions carried out by key organizational actors (here: managers, directors, and accountants) in response to the core phenomenon, while actively navigating contextual and intervening conditions. The goal of these strategies is to manage, direct, control, or guide the core phenomenon toward desired outcomes. They are directly shaped by causal, contextual, and intervening conditions.
Consequences	Operational and cost-related outcomes (Category 24), strategic and competitive outcomes (Category 25).	Consequences are the direct results of executing the strategies and, ultimately, managing the core phenomenon. These outcomes can be positive (desired) or negative (undesired). In this study, the expected outcomes are highly positive, as the strategies are correctly designed and implemented. The causal chain of the paradigm culminates here, demonstrating <i>"what results this entire process led to"</i> . Operational outcomes include continuous process improvement and cost reduction, while strategic outcomes encompass sustainable competitive advantage, superior strategic positioning, and enhanced strategic flexibility.

4.4. Empirical Traceability and Coding Evolution

To demonstrate the empirical grounding of our analysis, Table 5 traces the step-by-step evolution from raw participant quotes, through open codes and

axial sub-categories, to the final core elements of the paradigm.

Table 9: Traceability and Coding Evolution Matrix

Representative Raw Participant Quote	Open Concept (Initial Code)	Axial Sub-Category	Selective Paradigm Element
"In our industry, we cannot survive using historical, backward-looking cost data. With hyper-inflation and changing competitor prices daily, we need real-time, strategic costing that links directly to product specifications." (P2, CFO)	Inadequacy of traditional accounting; Need for real-time strategic pricing	Need for Strategic Decision-Making (Cat 2)	Causal Conditions
"We are heavily constrained by international sanctions. We cannot easily import key software updates, and our budgets are tightly restricted. Every single Rial spent must show a clear, short-term ROI to the board." (P12, Board Advisor)	Sanction-driven resource limits; Short-term ROI focus under financial stress	Financial and Economic Constraints (Cat 12)	Intervening Conditions
"We realized that if we don't have an ERP system that connects quality logs directly to cost centers, any attempt to run a Quality Costing model is just academic paperwork. The IT infrastructure has to be the backbone." (P8, IT Lead)	IT infrastructure requirements; Real-time data integration systems	Technical & Infrastructural Feasibility (Cat 6)	Contextual Conditions
"We must implement this in phases. We first selected the assembly plant as our pilot site. We ran Target Costing and Quality Costing there for six months, proved it saved 14% in waste, and only then rolled it out nationwide." (P11, Accountant)	Phased pilot-project deployment; Controlled risk management	Strategy of Phased Execution (Cat 15)	Action/Interaction Strategies

4.9. Detailed Parametric Analysis of the Paradigm Components

I. Causal Conditions

Causal conditions are the primary drivers and environmental pressures that necessitate the design and implementation of an integrated SMA-TQM model.

- **Environmental and Competitive Pressures (Category 1):** Accelerated by globalization and local market saturation, organizations face intense competition that traditional management accounting cannot navigate. As P5 stated:
"We are caught between soaring raw material prices due to exchange rate shocks and customers who refuse to accept lower quality. This double pressure means we can no longer manage operations blindly."
- **Need for Strategic Decision-Making (Category 2):** Managers require forward-looking, externally oriented information to formulate long-term strategies.
- **Corporate Governance and Transparency Requirements (Category 3):** Escalating regulations from the Tehran Stock Exchange and auditing bodies demand rigorous financial transparency and reliable risk disclosures.
- **Necessity for Continuous Innovation and Improvement (Category 4):** Rapid product life cycles require continuous development of products and processes.

- **Environmental Risks and Macroeconomic Uncertainties (Category 5):** Unpredictable inflation, currency fluctuations, and trade limits make static budgeting obsolete.

II. Core Phenomenon

- **Designing and Establishing a Localized SMA Model Integrated with TQM (Core Category):** The core phenomenon is the systematic development of an integrated framework where SMA tools (such as target costing, life-cycle costing, and quality costing) are embedded directly within TQM workflows (such as continuous process optimization, process approaches, and ISO quality standards). This model is intentionally adapted to the unique structural and cultural parameters of Iranian organizations.

III. Contextual Conditions

Contextual conditions are the specific organizational and institutional factors that facilitate or constrain the implementation of the core phenomenon.

- **Technical and Infrastructural Feasibility (Category 6):** The availability of robust ERP systems, unified database networks, and data capture systems at the operational level.
- **Human Capital and Empowerment (Category 7):** Having a highly skilled, adaptive workforce capable of grasping

advanced cost-management and quality metrics.

- **Organizational Culture Supporting Change (Category 8):** An internal culture built on transparency, inter-departmental trust, and a willingness to break down functional silos.
- **Senior Management Commitment (Category 9):** Strong support from executive leadership to allocate resources and champion the integration. As P12 noted: *"If the Board of Directors only demands short-term financial profits at every meeting, then no manager will focus on long-term quality or strategic costing. Executive commitment is the foundation."*
- **Past Institutional Experiences and Localized Knowledge (Category 10):** Capitalizing on previous experiences with ISO 9001 and other quality systems to ease the transition into integrated cost-quality management.

IV. Intervening Conditions

Intervening conditions are the broader socio-cultural, structural, and macroeconomic forces that can disrupt, slow down, or alter the execution of strategies.

- **Socio-Cultural Resistance and Transparency Fears (Category 11):** Employees and middle managers often resist integrated systems because they fear greater operational transparency will expose inefficiencies or reduce their autonomy.
- **Macroeconomic Sanctions and Funding Constraints (Category 12):** International sanctions limit access to top-tier global software systems (such as SAP or Oracle ERP) and restrict capital for long-term investments. As P2 explained: *"We cannot easily purchase or update international ERP platforms. We have to build customized local software, which often lacks integration across departments. This software fragmentation is a direct result of sanctions."*
- **Centralized State-Level Bureaucratic Footprint (Category 13):** High level of state ownership, rigid hierarchies, and bureaucratic reporting lines in semi-public

Iranian enterprises slow down decision-making.

- **Specialized Knowledge and Skills Deficits (Category 14):** A lack of local, successful case studies and limited training for management accountants in strategic costing techniques.

V. Action/Interaction Strategies

Strategies represent the purposeful, tactical steps implemented by organizations to navigate the context and barriers, moving the core phenomenon toward successful adoption.

- **Strategy of Phased and Experimental Execution (Category 15):** Launching localized pilot projects in specific production lines before rolling out the system organization-wide.
- **Strategy of Human Resource Training and Development (Category 16):** Designing cross-functional training programs where accountants learn quality principles and quality engineers are trained in cost management.
- **Strategy of Model Localization and Adaptation (Category 17):** Adjusting standard SMA and TQM tools to accommodate local tax laws, double-digit inflation, and specific labor dynamics in Iran.
- **Strategy of Designing Integrated Performance Measurement Systems (Category 18):** Deploying a balanced scorecard that links financial KPIs directly with quality, process efficiency, and customer satisfaction metrics.
- **Strategy of Information Systems Integration (Category 19):** Developing localized database interfaces to bridge the gap between financial ledgers and operational quality logs. As P8 highlighted: *"To solve the integration gap under sanctions, we built middle-tier Business Intelligence (BI) systems. These tools pull data from both quality logs and accounting databases, presenting managers with unified cost-quality dashboards in real time."*

- **Strategy of Strengthening Quality Culture and Trust (Category 20):** Transitioning from standard transaction-based control to strategic cost-quality alignment requires establishing a culture of mutual trust and collective quality ownership. This informal control system mitigates employee fears surrounding operational transparency. As P10 explained: "If shop-floor workers suspect that exposing process failures will be used by management accountants purely to penalize their departments, they will engage in information hoarding. We had to build a quality culture where defect disclosure is treated as a continuous improvement input, not a tool for blame."
- **Strategy of Cost and Budget Management (Category 21):** Utilizing Activity-Based Costing (ABC) and Target Costing to track cost drivers and design out quality-related waste.
- **Strategy of Risk and Internal Control Management (Category 22):** Embedding risk mitigation protocols directly into standard operational quality workflows.
- **Strategy of Supply Chain Optimization and Outsourcing (Category 23):** Standardizing supplier quality audits and integrating key vendors into the target costing framework.

VI. Consequences

Consequences are the outcomes of successfully executing the integrated strategies.

- **Operational and Cost-Related Outcomes (Category 24):** Significant reductions in internal and external failure costs (such as scrap, rework, and warranty claims), optimized resource utilization, and improved process efficiency.
- **Strategic and Competitive Outcomes (Category 25):** Achieving a sustainable competitive advantage through high quality and optimized cost structures, stronger strategic market positioning, and greater adaptability to macroeconomic shocks.

4.6. Visual Paradigm Model

Figure 1 presents the streamlined, non-cluttered conceptual framework of the research, clearly illustrating the structural pathways and feedback loops of the Strauss and Corbin paradigm.

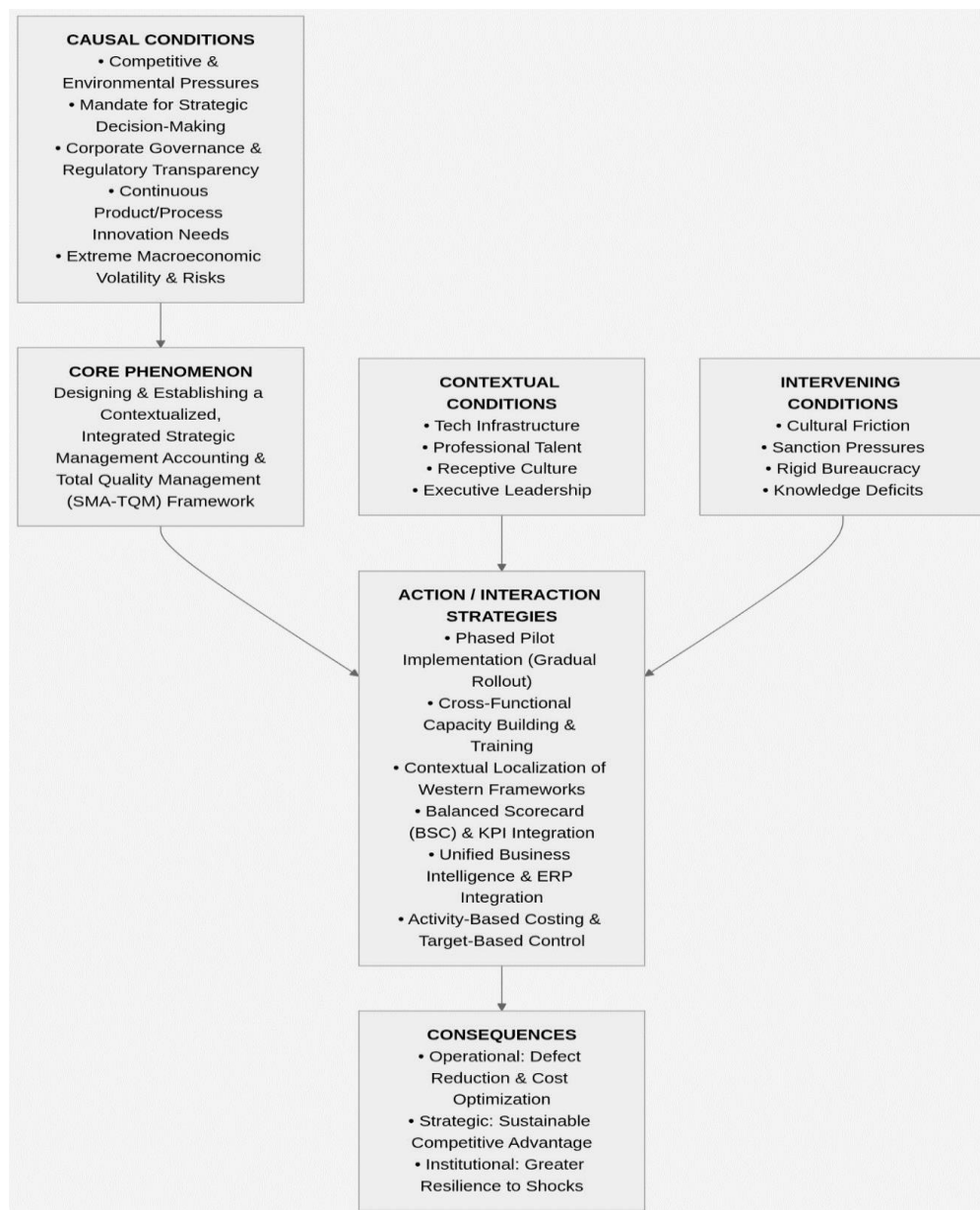


Figure 1: Streamlined Visual Paradigm Model of the Contextualized SMA-TQM Integration

5. Analysis and Discussion

The conceptual framework developed in this study provides valuable insights into how organizations can systematically integrate strategic accounting systems with quality management philosophies within highly volatile, developing economies.

Unlike prior research developed in stable, advanced Western markets, our model illustrates how micro-organizational systems (SMA and TQM) interact with intense macro-environmental pressures.

5.1. Critical Interpretation of the Causal Chain and Contextual Dynamics

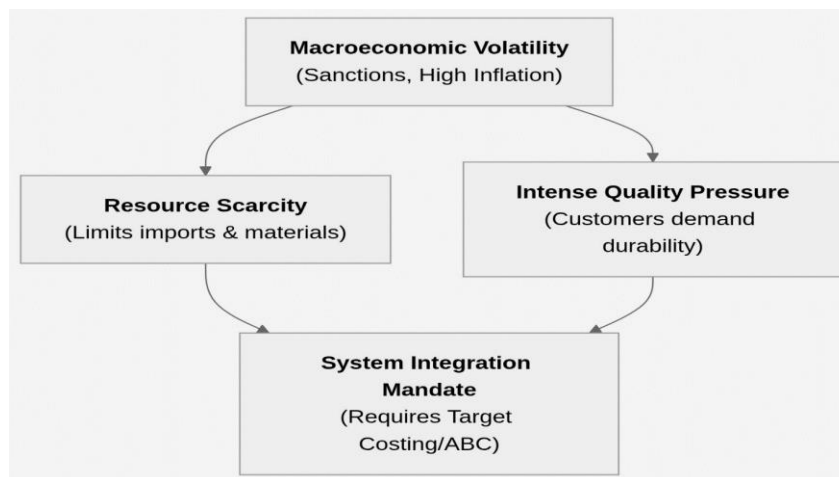
A key finding of this study is the dual role played by macro-economic volatility (inflation, sanction pressures, and trade barriers). In traditional contingency theory, high environmental turbulence is often seen as a barrier that disrupts the adoption of advanced management systems (Chenhall, 2003).

Our qualitative evidence, however, reveals a more complex dynamic: macro-environmental shocks act as a primary causal driver that forces organizations to adopt integrated SMA-TQM systems. Under severe resource constraints, organizations can no longer

afford the waste associated with non-integrated, siloed systems.

When currency devaluations increase raw material costs, managers cannot simply pass these costs on to customers. They must use advanced strategic tools like Target Costing and Quality Costing to actively manage cost structures while maintaining quality standards.

Furthermore, this study highlights that the corporate governance guidelines of the Tehran Stock Exchange are increasingly driving the adoption of SMA tools. This trend, which aligns with the findings of Khalaji and Safdariyan (2021), suggests that regulatory compliance is shifting from a passive box-ticking exercise to an active catalyst for strategic control systems.



5.2. Resolving the Tension Between Contextual and Intervening Forces

Our findings reveal an interesting tension between contextual enablers and intervening barriers. While *technological infrastructure* (such as ERP and BI platforms) is recognized as a vital contextual requirement, *macroeconomic sanctions* act as a powerful intervening variable that disrupts this infrastructure.

Iranian organizations cannot easily license global ERP software like SAP or Oracle. Consequently, they are forced to rely on customized, home-grown ERP systems that often struggle to transfer data seamlessly between financial departments and shop-floor quality operations.

This technical fragmentation leads to the strategic strategy of Middle-Tier Business Intelligence (BI) integration. Instead of attempting to replace entire core software systems—which is cost-prohibitive under sanctions—successful Iranian enterprises build customized BI middleware.

These middle-tier databases extract, translate, and load data from both isolated financial ledgers and operational quality logs, presenting executives with a unified cost-quality dashboard. This localized strategy is a significant departure from standard Western integration methodologies, which typically assume a unified, single-vendor ERP environment (Almeida & Cunha, 2017).

At the socio-cultural level, cultural resistance to transparency was identified as a major challenge,

consistent with the findings of Kazemi and Ranjbar (2013). However, our qualitative analysis reveals that this resistance is not merely a psychological fear of change (as often argued in standard Western management books like Kotter, 1996).

Instead, in the highly bureaucratized and semi-state sectors of Iran, this resistance is deeply rooted in political dynamics and information hoarding. In centralized, hierarchical organizations, information equals power.

Integrating SMA and TQM breaks down functional silos and exposes cost and quality data in real time, which threatens established power structures. Therefore, successful strategies must go beyond simple technical training and include change management initiatives that address these internal power dynamics.

5.3. Theoretical Contributions of the Proposed Integrated Framework

The proposed framework makes three distinct theoretical contributions:

- 1) **Dynamic Integration Pathway:** It moves beyond the static "contingency" view of accounting systems. It illustrates that SMA and TQM are not merely parallel systems; they are mutually reinforcing components of a single organizational control loop.
- 2) **Context-Driven Grounded Theory:** By centering the model on the institutional, inflationary, and sanction-impacted realities of Iran, this study provides a concrete framework for management control systems in highly volatile emerging economies. It shows that under severe resource constraints, strategic cost tools are not optional extras, but essential survival mechanisms.
- 3) **Behavioral and Structural Realism:** The model incorporates both structural factors (hierarchies, state bureaucracy, software limits) and behavioral factors (resistance to transparency, power structures, leadership commitment). This balanced approach offers a more realistic roadmap for system implementation.

6. Conclusions and Practical Recommendations

6.1. Conclusion

By applying a systematic Grounded Theory approach to the experiences of 15 leading experts, this study has designed a comprehensive, contextualized framework integrating Strategic Management Accounting (SMA) and Total Quality Management (TQM) within Iranian enterprises.

Our findings indicate that the successful integration of these two systems is not a simple technical procedure. Rather, it is a complex, adaptive process shaped by:

- Macroeconomic pressures (sanctions, inflation, and currency volatility).
- Contextual capabilities (IT infrastructure, human capital, and leadership commitment).
- Intervening constraints (cultural resistance, structural bureaucracy, and technical fragmentation).

The final paradigm model offers a strategic roadmap for managing these dynamics. It demonstrates how organizations can leverage targeted strategies—such as phased pilot rollouts, customized BI middleware, cross-functional training, and Activity-Based Costing—to overcome structural barriers and translate operational quality improvements into sustainable financial advantages.

6.2. Strategic Recommendations for Managers and Practitioners

Based on our empirical findings, we propose the following practical recommendations for executives, CFOs, and quality directors:

- **Adopt a Dual-Pilot Implementation Strategy:** Avoid attempts at immediate, organization-wide integration. Managers should select a single, strategically important operational unit (e.g., a specific assembly line or a high-volume branch) to act as a pilot site. Run integrated Target Costing and Quality Costing within this unit for six months to demonstrate a clear ROI before rolling the system out across the broader organization.
- **Build Unified BI Dashboards to Overcome Software Limits:** To address software fragmentation caused by sanctions,

do not invest in expensive, high-risk ERP overhauls. Instead, leverage localized Business Intelligence (BI) tools to build middle-tier databases. These dashboards should pull data from both financial databases and operational quality logs, giving decision-makers real-time visibility into the financial impact of operational quality issues.

- **Address Information Hoarding and Resistance to Transparency:** Recognize that resistance to integrated systems is often driven by a fear of increased operational transparency. Executives should restructure incentive systems, moving away from individual departmental targets and toward shared, cross-functional cost-and-quality goals. This shifts the focus from blaming departments for inefficiencies to collaboratively solving process issues.
- **Institutionalize Cross-Functional Knowledge Exchange:** Address the specialized skills deficit by establishing continuous, collaborative training programs. Management accountants should spend time on the shop floor learning quality control workflows and ISO standards. Conversely, quality engineers should be trained in basic strategic cost structures and target costing principles, ensuring both teams speak a common operational-financial language.

6.3. Limitations and Future Research Directions

While this study offers valuable insights, it has certain limitations that present opportunities for future research.

First, as an exploratory qualitative study based on 15 in-depth interviews, the findings are highly contextualized within the Iranian market. While transferable to similar emerging economies facing trade restrictions or high inflation, the model may not directly apply to stable, low-inflation markets.

Second, our qualitative design focused on building a comprehensive framework; it did not test the statistical strength of the relationships between individual variables.

Future researchers can build on this study by:

- Developing quantitative survey instruments to statistically test the pathways proposed in our paradigm model across a larger sample of firms.
- Conducting comparative, multi-case studies to analyze how the integration of SMA and TQM differs between fully private enterprises and state-owned conglomerate holdings.
- Investigating how the rapid development of artificial intelligence (AI) and machine learning can help automate data collection for integrated quality-cost systems in resource-constrained environments.
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