Analysis of small and medium enterprises (SMEs) strategy using miles and snow typology: A literature review

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Abstract. The initial survey showed that most of the small industries that were observed did not have a business strategy and were not yet clear about business development patterns that were not well planned and unorganized, thus it was still difficult to identify their business strategy patterns and even tended not to think about business strategies. The aim of this research was to review the existing literature regarding the application of Miles and Snow typology in manufacturing or services companies and provide the findings of the comprehensive review. From 2011 to 2018, 24 peer-reviewed publications have appeared. This paper presents an overview of Miles and Snow typology applied as a tool for business strategy development. It has been divided into three main sections; the introduction of the business environment and Small and Medium-Sized Enterprises (SMEs) challenge in the face of a complex environment, the business strategy orientation and Miles and Snow typology consort, and a general description of SMEs. Several case studies from previous researches are considered in order to provide an analysis, and then discussed.

1. Introduction

Today, being competitive is vital for all companies, and to a greater extent for Small and Medium-Sized Enterprises (SMEs) who, regardless of their size & must face the technological challenges and the globalization of markets, for which they need to adapt their resources, its technology, its behavior, and its products in the face of a changing and complex environment. These situations forcing the company to implement best business practices that allow it to achieve sustainable competitive advantages [1].

Y. Ahmad argued that over the past four decades, several studies have attempted to measure the impact of competitive advantage systems on organizational performance. One of the approaches is to assess the technological deployment implemented by organizations. Technological deployment corresponds to actions carried out at the level of the implementation and use of information technologies to help the organization achieve its objectives [2].

The ways of designing and measuring business strategies have evolved over the years. The approach used for this research is that of the typology of business strategy. Each type of business strategy is considered to have a specific set of characteristics, with a common strategic orientation. The typology approach is recognized for bringing a greater understanding of the strategic reality of the organization [3]. Miles and Snow developed four strategies in 1978 based on the dynamism of the environment and the entrepreneurial spirit of the organization. They have developed a model that
consists of four typologies allowing the organization to establish the characteristics of its business strategy.

This typology is based on the perception that companies have of their environment. It is from this perception that they choose one type of business strategy or another. This typology is made up of four ideal types of business strategy, defined at the level of the achievement of skills (business level): prospector, analyst, defender, and reactive [4]. Furthermore, stated that the typological approach is recognized for bringing a greater understanding of the strategic reality of organizations [5].

Therefore, from the analysis carried out, a business strategy can be formulated based on the company's strengths and weaknesses as well as the opportunities and threats it faces, and can also use existing concepts based on the use of business strategy concepts of Miles and Snow's typology.

In the next section, this paper presents several works of literature on business strategy and its method to develop. The third section presents selected references of previous researches on miles & snow applied which is summarized in a table format, includes a depth analysis. Finally, the last section includes a conclusion of this paper.

2. Literature Review

2.1. Business Strategy Orientation

Oyedijo et al [6] argued that what determines the success of a business is not ultimately a particular strategic direction, but simply to establish and maintain a systematic strategy that takes into account the environment, technology, and structure of the company. [5] in their research, formulated two types of business strategy orientation:

- Market Orientation in Strategy
- Product Orientation in Strategy

According to [7], business strategy orientation can also be interpreted as strategy behavior, which is the strategic behavior of the innovative company that can be defined by the way in which the company chooses to organize the development of its innovation. A series of behaviors towards her environment and the management of her resources are available to her. It can acquire the resources it needs from outside, internalize activities, cooperate with other companies, etc. Finally, the strategic behavior of the innovative company is the choice of resource development in an innovation network. The objective here is to characterize these different strategic behaviors.

Furthermore, [8] stressed that the market orientation strategy which aims to sell the current products on new markets for the company: extend the geographical presence of the company, in particular abroad; reach out to new customer segments in search of innovation. While, the product orientation strategy which aims to sell new products on existing markets: acquisition of a new range of products; range extensions; adding new features to existing products.

Another study by presented four business strategies in four subsections: strategy types and shares, structural differences, performance differences, and measurement issues. These strategies. They reported that these four business strategies must meet market expectations while fulfilling the general objectives of the organization, such as long-term profitability or growth in market share. While business strategy involves choices that engage the whole organization, these decisions are relevant at the level of a strategic area of activity.

Anwar et al [9] pointed out that any company will implement a strategy that must allow it to develop in the market, to build and improve its competitive advantage in order to remain competitive. Defining work is extremely important, this is what will differentiate you from others and create added value in your copy.
2.2. *Miles and Snow Typology.*

In 1978, Professors Raymond E. Miles and Charles Curtis Snow concluded that four business strategies had to be established, in relation to the dynamism of the competitive environment, the entrepreneurial spirit, and the emphasis on the development of markets and company products [6]. These strategic approaches were published in the book "The structure, strategy, and process of the organization". Miles and Snow developed four types of "coping strategies. i.e. defenders, prospectors, analyzers, reactors type [10].

Defende according to is a type of company that struggles to acquire a certain market share and then strive to maintain it, for such companies efficiency is a very important factor [11]. Not surprisingly, in the operations of such companies tend to restrict product variation, restrict the segment served, provide attractive prices and ' excellent ' services to consumers. “Prospectors” according to is an aggressive type of company. The company continuously refines its market and adopting new systems and technologies while needed. Such companies generally have a decentralized organizational system, and focus on the company's attention is how to find and capitalize on new opportunities in the market [12].

“Analyzer” according to, is such organizations between Prospectors and Defenders, and attempt to balance the risk factor with the provision of products or services with a wide range of profits [13]. And, as this is a combined model, they will look for other products and services, but their finances will come from those same products and services that they launch on the market. The areas will be both centralized and decentralized, so it will have both types. “Reactors” according to [14], is a reactive organization does not present a consistent generic strategy, their behavior is unpredictable and unstable, they do not establish consistent systems or structures, which is why they are considered a strategic type unstable over time. Furthermore, characterized the strategic, components and the dimensions of “Reactors” type, and conclude that type of this company lacks any competitive strategy, in which managers are not able to perceive the change and market uncertainty in the proper way, so they are inefficient in responding to the demands of the environment. They are usually organizations without an explicit strategy. Consequently, depending on the strategy chosen by the organization: defender vs. explored, or mixed, approaches to undertaking performance appraisal processes vary.

2.3. *Small and Medium Enterprises (SMEs)*

According to the Indonesian Central Statistics Agency, an enterprise or industry business is a business unit that carries out economic activities, aiming to produce goods or services, located in certain buildings or locations, and has its own administration records on production structure and costs and there is one or more responsible for the business. The manufacturing industries are grouped into four classes based on the number of workers, namely: the large industry using at least 100 or more; Medium or medium industry employs at least 20 to 99 workers and small industries employing 5 to 19 workers while micro-businesses employ 1 to 4 workers.

Union Europe stressed the definition of SMEs as companies employing less than 250 people. In addition, there are two other criteria to choose from: the annual turnover must not exceed 50 million euros, or the balance sheet total must not exceed 43 million euros (Commission recommendation of 6 May 2003). These definitions are important when selecting companies that can benefit from European funding programs for SMEs, as well as in the context of certain policies, such as competition rules specific to SMEs.

Sandoval et al summarized the different definitions of SMEs are more arbitrary than similarity to the level and nature of economic development, and the concept of SMEs is relative. The concept of SMEs appears on the premise of the existence of large companies [15].

3. *Methods*
3.1. Identification of methods and tools applied for Miles and Snow typology

Table 1 below provides a listing of the journals methods and tools applied for Miles and Snow typology. The distribution of 15 international journal articles over the last decade from 2011 to 2018 has selected, investigated and reviewed for further analysis.

**Table 1.** A selected references of previous research studies.

| Approaches                        | Applied in                                                                 | Findings                                                                                                                                                                                                 |
|-----------------------------------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| - Cross Case Analysis             | Auto Parts Manufacturing Small to Medium Enterprises (SMEs) in Pakistan      | The use of various approaches to find business strategies that are implemented helps in validating methods and also determining them in the context of a competitive environment in developing countries. |
| - Miles & Snow Typology           | Mobile Phone Companies                                                      | The framework created was able to find changes in orientation and typology in both business cases.                                                                                                       |
| - ANOVA                           | Turkish and Kazakh-Turkish Businessmen Association                           | Prospective organizations prefer communication, risk-taking, and a higher proactive discussion of defenders and analysts.                                                                                  |
| - Ordinary Least Square (OLS)     | SMES of Paint Manufacturing in South-western Nigeria                        | A typology of Miles and Snow is a strategy for development where strategies are related to small companies and prospector strategies with large corporations.                                          |
| Regression.                       |                                                                             |                                                                                                                                                                                                         |
| - Correlation Matrix              |                                                                             |                                                                                                                                                                                                         |
| - ANOVA                           | Hotel in Turkey                                                             | The competitive strategy at Turkish Hotelwer influenced by the uncertainties of the relevant environment between                                                                                       |
| - Likert Scale                    |                                                                             |                                                                                                                                                                                                         |
| - Miles & Snow Strategy           |                                                                             |                                                                                                                                                                                                         |
| - SEM-PLS method                  | Strategic Business Unit (SBU) of the firm.                                  | The capability lifecycle pathways, or decisions made on the development of mature skills, are an important part of a series of decisions made during the adaptation to ensure performance. |
| - PLS Analysis                    |                                                                             |                                                                                                                                                                                                         |
| - SEM-CB method                   |                                                                             |                                                                                                                                                                                                         |
| - ANOVA                           | Car Dealers in Brazil                                                       | Prospectors scan data from competitions as well as technological aspects and access written information sources more frequently than those that adopt other types of strategic behavior.   |
| - Fischer’s least significant     |                                                                             |                                                                                                                                                                                                         |
| difference (LSD)                  |                                                                             |                                                                                                                                                                                                         |
| - ANOVA                           | Manufacturing and Services Firms                                           | The finding of this research is the importance of the exploration activities undertaken in cross-sectoral and industrial segments.                                                                   |
| - Brown-Forsythe Test             |                                                                             |                                                                                                                                                                                                         |
| - Regression                      |                                                                             |                                                                                                                                                                                                         |
| - DEA                             |                                                                             |                                                                                                                                                                                                         |
| - Robustness analysis             | Health Service Companies (178 Hospitals in Germany)                        | This research argued that this research was consistent with the evidence of innovation in the hospital industry.                                                                                  |
| - Kolmogorov-Smirnoff tests       |                                                                             |                                                                                                                                                                                                         |
| - Seven (7) - Point Scale.        |                                                                             | This research is provided a balanced proposition that alternatives to different strategies and structures associated with similar performance levels.                                           |
Regression analysis - One and two way ANOVA - Multiple Regression

Cement and Mineral Manufactures in Pakistan

The framework for identifying strategy groups provides greater views and attention to be applied to other typologies research.

 Tau-Kendal Correlations - One way ANOVA - Yule’s correlation, Pearson’s C - Cramer’s V

Manufacturing Enterprises in Southern Poland

The research result revealed the existence of a "clear" strategy in most companies but highlights strong enough relationships between the types of strategies specified and organizational performance.

- ANOVA - Levene’s test of Homogeneity of Variance - Scheffe’s Post-Hoc test

Individual Micro Entrepreneurs (IME) in Brazil

The results showed that entrepreneurial efficiencies could affect the adoption of a more consistent business strategy, contributing to actions that react to unstable social and economic scenarios.

- PLS-PM Algorithm - SEM - Smart PLS 2.0 M3 - Pearson Correlation - Measured Latent

389 Brazilian companies

There is strong evidence that the SIS promotes the ability and flexibility to create competitive strategies in response to environmental changes.

- Rasch Measurement Theory - Rasch-residual-based Principal Components Analysis (PCAR)

SMEs (Retail, Services sector, Construction and Industry) in the Canary Islands (Spain)

The research showed that SMEs follow strategic behaviors, although not purely, able to react to a deliberate and adapted strategy with a moment of high uncertainty in which they exist and against the dynamics of their adoption cycle.

| 4. Discussion on the identified methods and tools for miles and snow typology |
| As shown in Table 1, thus it can be outlined for in-depth analyses as discussed as follows: |
| **Tabel 2. In-depth analysis of previous research on miles and snow typologi** |
| Analysis |
| The researchers discussed how business strategies are related to SME Functional Strategies in a limited domestic market environment and low export facilities. This study used multiple case studies approach, which is Four companies were analyzed through structured and non-structured interview techniques, where information sources were taken from CEOs and production managers, related to strategic decision making, and CEO perceptions regarding business strategies. This research analyzed two case businesses, i.e. First company is NOKIA, which products and services, the network systems business merged with Siemens and Nokia Siemens Networks. The second one is the AMER company which focuses on marketing and manufacturing of branded sports equipment. The empirical data collected from the annual report. The strategy focus, product-market domain, value creation, operational driver, culture, organization were used as study variables. The research investigated the relationship between international entrepreneurial commitments and strategic adaptation. The study was conducted by gathering owners and top managers from 114 companies in the Kazakhstan and Kyrgyzstan region. The strategic adaptation, international entrepreneurial orientation, innovativeness, risk-taking, proactiveness, success, longevity, environmental hostility were used as the variables of this paper to investigate the 285 Turkish |
companies that are members of the Kyrgyz-Turkish Business Association (KITIAD) in Kyrgyzstan and the Kazakh-Turkish Business Association (KATIAD) in Kazakhstan.

Prospector, Anxious analyzer, Domain defender, Reluctant reactor, Gross Rev, Number of Customers were used as a dependent variable. Meanwhile, prospector strategy, analyzer strategy, defender strategy, reactor strategy was used as an independent variable. Oyedijo and Akewusola RO (2012) used A convenience and judgmental sampling method.

This study adopted regression method, Analysis of Variance (ANOVA), the calculation of correlations, and questionnaire to hypothesizes the relationship between multinational firms and Turkish hotels business strategy, environmental uncertainty, and organizational performance in Turkish hotels, using a generic strategy typology from Miles and Snow typology, and also Porter. Prospectors, analysts, and defenders outperform reactors both along with financial and non-financial performance measures.

studied the effect of Capability Lifecycle Path on a set of strategy-process-structure arrangements.

Seven Indonesian company namely, banking, airline, food producer, insurance provider, healthcare services, hotel services, and mobile telecommunications services as the samples of this study. SEM approach (SEM-PLS method) was the approach to examine and investigate the management decisions based on the circumstances around the organization, including the environmental settings. A survey questionnaire used in this study.

Two variables are First, strategic behavior (defender, prospector, analyst, reactor). Second, environmental aspects (competitors, technological aspects, regulatory aspects, economic aspects, social and cultural aspects). The third variable is the source of information (written External and Internal) were investigated in this study. Strategic behavior, environmental scanning, performance, size, and age were considered as characteristics in this study. To support this research, Cancellier et al. (2014) used 123 car dealers as the sample, from the city of Itajaí in the State of Santa Catarina, identified by cross-checking the Secretaria de Receita da Prefeitura Municipal database (Department of City Revenue Council) and the car company database of the city’s junior university companies.

This study introduced a new concept of “Holistic Corporate Level Marketing Capabilities” and builds on HFMC’s partial theory that tries to understand, explain and predict how organizational learning influences HFMC under various strategic orientations which in turn affect organizational performance, and also utilize a novel methodology to operationalize these variables by the use of secondary data. Data Envelopment Analysis (DEA) technique to measure marketing capabilities, ANOVA, and Brown-Forsythe test were used to examine this research.

In their article “Extending Miles & Snow’s strategy choice typology to the German hospital sector”, predicted that contingency theory and internal congruence models; that is, highly complex environments lead to complex organizational structures and strategies. Helmig et al. (2014) also postulated that their study consistent with the literature on exploration and exploitation, which postulates that the combination of exploration and exploitation, inherent in the orientation of the analyzer, is the desired strategic attitude. 2038 hospitals in Germany between October 2010 to January 2011 were listed, and 1980 hospitals were identified.

This paper used 300 largest Slovenian manufacturing companies as the samples to investigate the effectiveness of different types of configurations of strategic management and accounting strategies, and also assess how alignment and horizontal management accounting with strategies can facilitate the performance of the company. Kolmogorov-Smirnoff tests, a seven-point scale, and validation examination were applied as the tools to identify the three successful configurations that manifest various approaches to the philosophy of the advocate, as well as the various levels of the Strategic Management Accounting (SMA). Cadez and Gelming (2015) presented three variables/indicators and several techniques and dimensions, namely, First, Prospector/Defender strategy. Second, Market orientation (competitor accounting employs three techniques, strategic costing comprises five techniques, strategic decision use two techniques, and strategic planning and control apply two techniques). Third, Performance (market share, return on investment, and development of new products).
This study conducted a survey 21 companies of Cement and Mineral Products that were collected from to financial statement, COMPSTAT and PIMS to provides the latest review of relevant literature to find out the methods of analysis, data collection, research design, performance measures, strategies, results and findings and results for the strategy-performance relationship. Regression analysis, a one way ANOVA and a two way ANOVA were applied. Anwar et al. (2016) used four variables to capture the company's strategic orientation, namely Marketing Costs (general costs, administration, and Selling) to Sales Ratio. This study identified 2 types of the company strategies measurement, i.e. Strategy and performance, and Strategic orientation.

In the article of “Relationships Between Miles and Snow Strategic Types and Organizational Performance in Polish Production Companies”, applied the one-way ANOVA with post-hoc tests (NIR), Tau-Kendal Correlations, Yule’s φ correlation, Pearson’s C, and Cramer’s V to the find out the chosen strategic type influences the size of organizational performance of the transition economy in Poland. A semi-random sample selection procedure of 101 companies was used as samples of this study for research hypothesis. This study identified four strategic types: Reactor (R), Defender (D), Prospector (P), and Analyzer (A) to carried the correlation analysis. Besides, company size and company age were also considered as the control variables.

This paper analyzed the relationship between entrepreneurial competencies and the strategic patterns of entrepreneurial behavior in responding to the social and economic environment in which they operate, taking into account the limitations that are common in developing countries. To analyze and fulfill the objectives of this study, G. Behling and F.C. Lenzi (2017) apply the quantitative approach and adopt Analysis of Variance (ANOVA), Levene’s test of homogeneity of variance and Scheffé’s Post-Hoc test. Data were collected from 211 Individual Micro-Entrepreneurs (IME) that operates in the state of Santa Catarina, in the South of Brazil.

This paper focused to explore how SIS supports business strategy and corporate performance, and how the effective use of SIS to support business strategy affects these outcomes. 389 Brazilian companies during economic crises were selected using a quantitative survey. Key informant methodology used to obtain the sample. Key informant methodology was used to obtain the sample, and respondents based on experience, professional knowledge, and position. Statistical test of Partial-least-squares path modeling (PLS-PM) methods, the Statistical Package for the Social Sciences (SPSS, Version 20.0), The Smart-PLS 2.0 M3 program, and the Fornell–Larcker (1981) criterion were used and applied in this study. Besides, variance inflation factor (VIF) values were evaluated using the test among the model’s constructs.

This paper analyzed the strategic behavior of small and medium-sized businesses (SMEs) and identify issues of technology, technology, and entrepreneurship of Miles and Snow. The sample of this study located in the Canary Islands (Spain). Rasch measurement models, Point-measure correlations (PTMA), and Rasch-residual-based Principal Components Analysis (PCAR) were used to evaluate the quality of the measurements of strategic behavior.

5. Conclusion
This paper has presented an investigation of the previous literature on Miles & Snow typology which applied in the decision-making of company business strategy. A discussion of the findings, various methods, tools, and approaches to analyze the Miles and Snow strategy was provided and reviewed in this paper. The identification of 24 paper on Miles & Snow typology was chosen to support this study, and 15 articles were identified and considered to analyzed. Most of the case studies were adopt statistical tools to analyze the relationship between business strategies and strategy performance while others attempted to find out the new technologies or strategies in a deal with technological challenges and market globalization, which include improvement, efficiency, selection, and implementation. It is also found that Miles and Snow typology was not a particular strategic orientation, but simply the establishment and maintenance of a systematic strategy that takes into consideration the environment, the technology and the structure of a company.

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