



MANUFACTURING STRATEGY FORMATION PROCESS: CASE STUDY OF IRANIAN MANUFACTURING COMPANIES

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Abstract. This paper describes case study research undertaken in six Iranian manufacturing companies aimed at advancing the understanding of the manufacturing strategy formation process. As shown in this study, culture, leadership, policy and incrementalism have their own undeniable roles in manufacturing strategy formation. Cultural factors impact on political factors, and political factors impact on individual factors. It could be useful To utilize formal business planning for firms interested in deliberative manufacturing strategy. In this study, we use Barnes's manufacturing strategy formation process as frameworks with some new changes. Also a case study methodology was used to investigate the process of formation of manufacturing strategy in six small manufacturing companies in Iran like Barnes did in the UK. The results of this study are the main features of the process of manufacturing strategy formation and manufacturing strategy formation model in the case companies. In the case study method, external validity is inevitably compromised due to the limited number of companies that can be studied. The demonstrated model in this study offers a comprehensible view in organizational and external contexts that can be used by manufacturing decision makers.

Keywords: manufacturing strategy, strategy formation, deliberate decisions, emergent decisions, Iran.

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1. Introduction

Today, manufacturing companies are forced to stand up to competitors in the light of a highly competitive environment. This can be achieved by a specific alignment of the manufacturing function (Thun 2008). Manufacturing is one of several functions that have to support the achievement of the overall objectives for a company. The task can be fulfilled with support from a well formulated and implemented manufacturing strategy (Säfsten *et al.* 2007). In many industrial companies, the manufacturing operations is the largest, the most complex, and the most difficult to manage component of the firm. The formation of a comprehensive manufacturing strategy affects, and is affected by, many organizational groups inside and outside the firm (Hax, Majluf 1996). Skinner (1969) is the forerunner in defining manufacturing strategy. According to his studies manufacturing strategy refers to exploiting certain capabilities of the manufacturing function as a competitive weapon. These capabilities are affected by a number of factors. Amongst these are technologies utilised (e.g.; process technology, JIT), sociological factors inside the firm (including political and behavioural), and external variables (e.g. governmental regulations, societal culture). Barnes (2002a, b) proposes a framework that takes into consideration the above variables. His main hypothesis is that firms manufacturing strategy is affected by these variables in deliberate and emergent route.

In this paper, six manufacturing companies of Iran were studied in order to understanding of the process of manufacturing strategy formation. For this we use Barnes's studies (Barnes 2002a, b) as theoretical framework for this study will be explained in the methodology section.

The rest of the paper is organised as follows: section 2 deals with the literature review. Section 3 presents the methodology of the paper. Section 4 offers the results of the study. Finally, section 5 discusses the main results of the investigation, and also offers conclusions and directions for future research.

2. Literature review

A manufacturing strategy is a set of manufacturing policies designed to maximize performance among trade-offs among success criteria to meet the manufacturing task determined by a corporate strategy (Skinner 2007).

Hayes and Wheelwright (1985) have defined manufacturing strategy as a consistent pattern of decision making in the manufacturing function which is linked to the business strategy. Hill (1987) said that manufacturing strategy represents a coordinated approach, which tries to achieve consistency between functional capabilities and policies for success in the marketplace. Swamidass and Newell (1987), describe manufacturing strategy as a tool for use of manufacturing strengths as a competitive weapon to attain business and corporate objectives. Devaraj *et al.* (2001) compare the Hayes and Wheelwright's product-process matrix and the approach of generic manufacturing strategies introduced by Kotha and Orne (1989) empirically. Bates *et al.* (2001) analyse manufacturing strategies empirically by using the scales anticipation of technologies, communication of strategy, formal planning, business strategy linkage, and strategy strength. Cagliano *et al.* (2005), investigate different types of manufacturing strategies based on the data of the International Manufacturing Strategy Survey (IMSS) project.

Other definitions of manufacturing strategy are given below: Swink and Way (1995): Manufacturing strategy as decisions and plans affecting resources and policies directly related to sourcing, production and delivery of tangible products. Berry *et al.* (1995): The choice of a firm's investment in process and infrastructure that enables it to make and supply its products to chosen markets. Cox and Blackstone (1998): A collective pattern of decisions that acts upon the formulation and deployment of manufacturing resources. Miltenburg (2008): Manufacturing strategy is a plan for moving a company from where it is to where it wants to be.

Manufacturing strategy is a driving force for continual improvements in competitive requirements and enables the firm to satisfy a wide variety of requirements.

The manufacturing strategy literature includes contents and process.

In the academic literature, as well as in practice, there is more or less consensus in what constitutes the content of manufacturing strategy. Manufacturing strategy objectives are defined around the generic areas of cost, flexibility, quality, dependability (on-time-delivery) and speed (Adamides, Pomonis 2009). Decision areas and related activities for achieving these objectives have been categorized by Hayes and Wheelwright (1985) into structural (amount, timing and type of *capacity*, size, location and specialization of facilities, direct process technology (equipment, level of automation, linkages), and level and type of integration (vertical–horizontal, forward–backward, extent, balance)) and infrastructural, i.e. human resources (skills, wages policies, social environment), quality practices (systems and control), production planning and control procedures (decision rules, indirect process technologies, centralization), as well as general organizational attributes (structures, roles, interfaces and interconnections). The majority of manufacturing strategy scholars adheres to this list, sometimes with some additions and modifications, in proposing/prescribing (their own) manufacturing strategy formulation processes (Adamides, Pomonis 2009).

Manufacturing content are components that form it and show what the decisions and actions are. It includes manufacturing capabilities, strategic choices and best practices (Dangayash, Deshmukh 2001). Content literature addresses issues of competitive priorities, which includes (Theodorou, Florou 2008): Cost, quality, flexibility, dependability and innovation.

Decision in manufacturing-related issues are often grouped into areas also known as decision categories. The categories are divided into structural and infrastructural categories. The structural decision areas are characterized by their long-term impact; they are difficult to reverse or undo and they often require a substantial capital investment (Säfsten *et al.* 2007). The most important of these areas in manufacturing literature are process technology, facilities, capacity and vertical integration. The infrastructural decision areas are often considered to be more tactical in nature; they are built up by ongoing decisions and generally do not require extensive capital investment (Säfsten *et al.* 2007). It includes quality, organization, manufacturing planning and control.

Manufacturing process explains how a strategy is formed and how those decisions and actions come about. Manufacturing process is regarded as the implementation and improvement of manufacturing strategies in order to enhance the manufacturing function's capabilities (Halgren, Olhager 2005).

The manufacturing strategy process describes the formulation and implementation of a manufacturing strategy (Säfsten *et al.* 2007). This part of the manufacturing strategy area has attracted less attention in the research community than the manufacturing strategy

content (Dangayash, Deshmukh 2001). The few manufacturing strategy process models in the literature are essentially hierarchical (Ward *et al.* 1990). Here corporate strategy drive Business strategy, which, in turn, drives the functional strategies and there are feedbacks on functional capabilities provided throughout the process (Platts *et al.* 1998). Various connotations of manufacturing strategy are given in Table 1.

Table 1. Various Connotations of Manufacturing strategy

Author	Manufacturing strategy connotation
Skinner (1969)	Manufacturing strategy refers to exploiting certain properties of the manufacturing function as a competitive weapon.
Hayes and Heelwright (1985)	A sequence of decisions that over time, enables a business unit to achieve a desired Manufacturing structure, infrastructure and set of specific capabilities.
Fine and Hax (1985)	It is a critical part of the firm's corporate and business strategies, comprising a set of well coordinated objectives and action programs aimed at securing a long-term sustainable advantage over competitors.
Hill (1987)	It represents a coordinated approach which strives to achieve consistency between functional capabilities and policies and the agreed current and future competitive advantage necessary for success in the marketplace.
Swamidass and Newell (1987) McGrath and Bequillard (1989)	The effective use of Manufacturing strengths as a competitive weapon for the achievement of business and corporate goals Manufacturing strategy as the overall plan for, how the company should Manufacture products on a world-wide basis to satisfy customer demand.
Hayes and Pisano (1994)	In today's turbulent competitive environment a company more than ever needs a strategy that specifies the kind of competitive advantage it is seeking in the marketplace and articulates how that advantage is to be achieved.
Swink and Way (1995)	Manufacturing strategy as decisions and plans affecting resources and policies directly related to sourcing, production and delivery of tangible products.
Berry <i>et al.</i> (1995)	The choice of a firm's investment in processes and infrastructure that enables it to make and supply its products to chosen markets.
Cox and Blackstone (1998)	A collective pattern of decisions that acts upon the formulation and deployment of manufacturing resources, to be most effective, the manufacturing strategy should act in support of the overall strategic directions of the business and provide for competitive advantages.
Brown (1999)	Manufacturing strategy is a driving force for continual improvements in competitive requirements/priorities and enable the firm to satisfy a wide variety of requirements.

Many reviewers of the manufacturing strategy literature including Leong *et al.* (1990), Adam and Swamidass (1989), Anderson *et al.* (1989), have noted the continued dominance of Skinner's (1969) Prescriptive, top-down, corporate planning model, with its emphasis on the formulation of plans for subsequent implementation. The most important manufacturing strategy writers including Hill (1985), Platts and Gregory (1990), Mills *et al.* (1996) have followed Skinner's prescriptive intent, primarily focusing on how managers should ensure that an effective manufacturing strategy is formulated rather than how it might be formed in

practice (Barnes 2002a). These models are based on the deliberate view of strategy formulation as a planned and rational activity. While based on Barns view which is influenced by studies done by Bailey and Johnson (1992), Bailey and Avery (1998), and Mintzberg (1978) in strategy formation as well, some other emergent factors like political, cultural, economic, and legal obligations have to be considered.

The strategy process can be seen as a „complex interactive process, in which politics, values, organizational culture and management styles determine or constrain” strategic decisions and actions (Mintzberg, Quinn 1991; Ghazinoory *et al.* 2009). Mintzberg (1978) stated that the strategy process is best viewed as strategy formation rather than formulation then implementation.

On the other hand, some studies have stressed the importance of organizational flexibility in high-tech firms (Maidique, Hayes 1984; Nakamura 1986; Bahrami, Evans 1987; Bourgeois, Eisenhardt 1987; Scherer, McDonald 1988; Covin *et al.* 1990; Dodgson, Rothwell 1991; Berry, Taggart 1998). In this respect, Dodgson and Rothwell (1991) argue small firms to possess considerable potential advantages over large firms in that they have less organizational rigidity than large multidivisional firms, which results in an ability to facilitate effectively information and communication flows within the organization and to respond quickly to marketplace stimuli. Extensive empirical investigations by Covin *et al.* (1990) and Bahrami and Evans (1987) led them to conclude that small firms operating in high-tech industries tend to have entrepreneurial management styles and structures which are characterized by informal control mechanisms, adaptability, flexibility, and open communication channels.

Ghazinoory and Farazkish (2010) argue the planning and formulation of strategy must be tightly coupled with its implementation in a dynamic feedback loop.

3. Theoretical framework

Manufacturing strategy frameworks or models are helpful because they identify the objects that comprise manufacturing strategy and organize these objects into a structure that enables a company to understand and use the objects to develop strategy (Miltenburg 2008). Based on the Bailey and Avery (1998), Bailey and Johnson (1992), strategy perspectives model, Barnes has presented the manufacturing strategy process model (Fig. 1). Bailey and Johnson (1992) and Bailey and Avery (1998), categorized six perspectives of strategy formation:

1. Planning (equal to Mintzberg’s deliberate strategy): This perspective describes the strategy formation as an intentional and logical process, involving a rational, sequential, and analytical set of procedures.
2. Incrementalism (equal to Mintzberg’s emergent strategy): According to the incremental perspective, strategy is developed in an iterative manner, encompassing feedback loops to previous phases in which problems and solutions may be redefined or redeveloped.
3. Political (i.e. application applies of power and influence by individuals and groups within the organization): The political perspective views the strategy formation as a negotiation process developed by the firm. In this perspective, different interest groups or stakeholders, both internal and external to the organization, come into play, each one with their own goals and objectives.

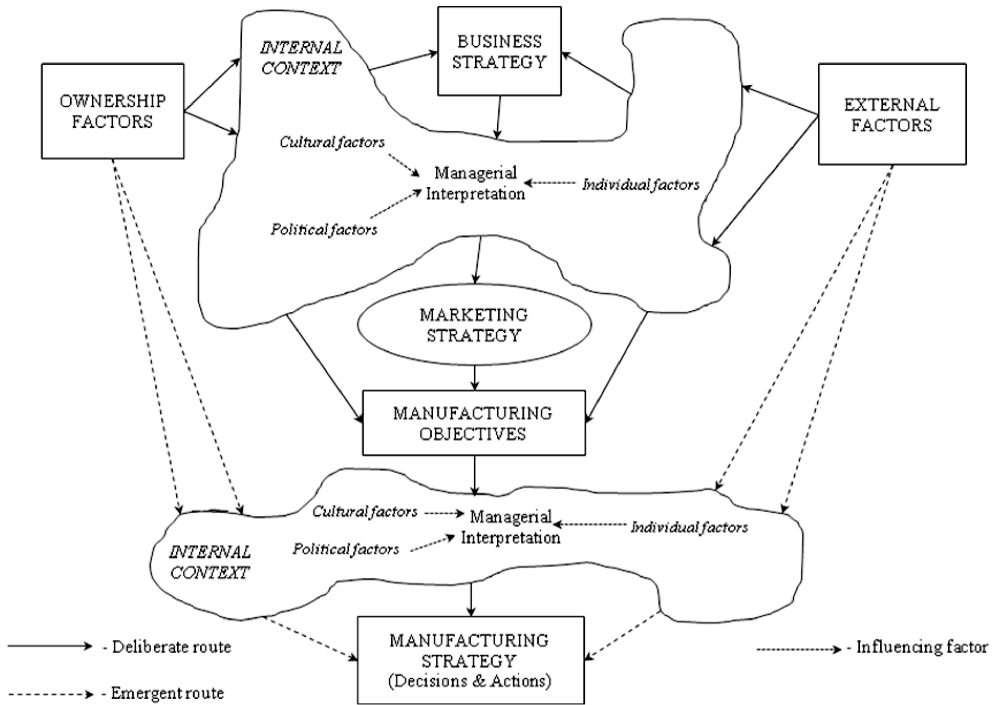


Fig. 1. The manufacturing strategy process

4. Cultural (i.e. the influence of shared assumptions, beliefs, norms and values of organizational members): The cultural perspective describes the strategic process based on the concept of business culture. Shared frames of reference, which are the organization's beliefs, enable the organization and the world in which it operates to be understood.
5. Command (i.e. the impact of a strong dominant commander): This perspective defines strategy as a visionary process, in which the leader establishes a founder play an important role.
6. Enforced choice (i.e. the effect of powerful external factors): The enforced choice perspective was developed through the organizational ecology perspective proposed by Hannan and Freeman (1989), among others based on the consideration of strategy as a reactive and deterministic process. In enforced perspective, realized strategy is determined by powerful factors in the external environment that limit the organization's strategic choices.

With the generation of these strategy perspectives, Barnes (2002a) has developed his model.

The model shows that manufacturing strategy is formed through both a deliberate and an emergent route. In the deliberate route, the manufacturing strategy is developed as the result of a managerial interpretation of ownership and external factors (Barnes 2002a). Similarly, managers develop a set of manufacturing objectives as a result of the implication for manufacturing of the marketing strategy, identified as a result of their interpretation of the business strategy and also their interpretation of implications for manufacturing of ownership and external factors (Barnes 2002a).

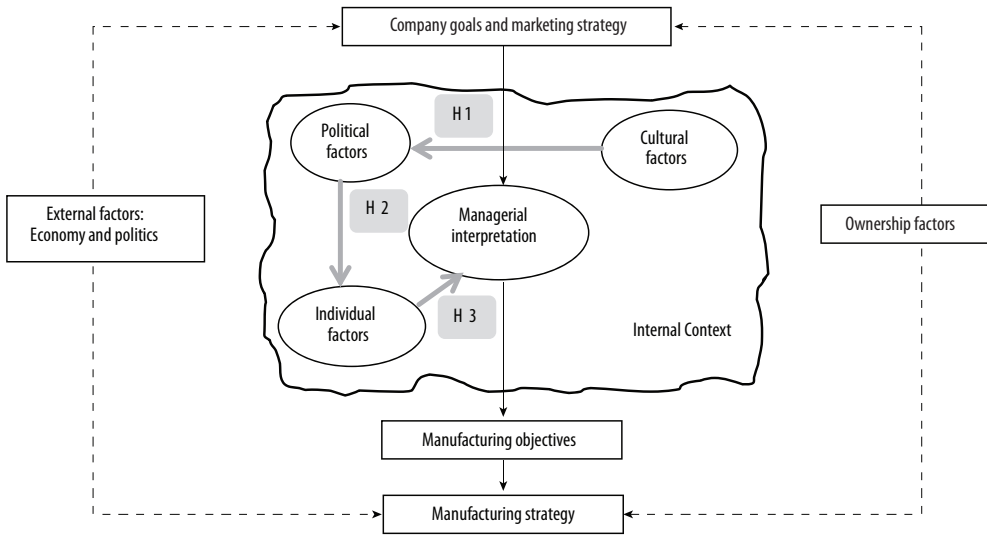


Fig. 2. Hypothetical Manufacturing strategy formation model in the case companies

Managerial interpretations are used by some manufacturing strategy activities and decisions which were taken after manufacturing objectives. In the emergent route, the other strategy activities and decisions occur in action just as the other managers interpret some concepts for manufacturing out of other ownership and external factors. Every instance of the managerial interpretation occurs in a specific context of the organization.

Based upon Barnes’ model we developed a new simple model. This model has some exclusive features compared to current model. The first and most important feature which is shown in the process of strategy formation is in the relationship between cultural, political and individual factors. As it is illustrated in the Fig. 2 for testing this path between mentioned factors we stated the following hypotheses:

- H1: Cultural factors has influenced on political factors.
- H2: Political factors has influenced on individual factors.
- H3: Individual factors has influenced on managerial interpretation.

Previous research studies on manufacturing strategy have focused mostly on economic measures of corporate performance. Studies in the area of social are still lacking. The goal of this article is to explore this issue, with special emphasis on a developing cultural context which affects on individual aspect of decision making in the process of strategy formation.

4. Methodology

To acquire valid and reliable multiple and diverse realities, multiple methods of searching or gathering data are in order (Kaklauskas *et al.* 2009). An open-ended perspective with the notion of data by allowing participants in a research assist the researcher in the research question as well as with the data collection. Multiple methods, such as, observation, interviews and recordings will lead to more valid, reliable and diverse construction of realities. To improve

the analysis and understanding of construction of others, there is a step taken by researchers to involve several investigators or peer researchers' interpretation of the data at different time or location. In a related way, qualitative research can "use investigator triangulation and consider the ideas and explanations generated by additional researchers studying the research participants" (Johnson 1997; Golafshani 2003). Hence author followed mentioned theoretical framework in the methodology of the paper.

A case study methodology was used to investigate the process of formation of manufacturing strategy in six small manufacturing companies in Iran. This section includes of data collection from interview and analysis of the collected data base on qualitative research method.

Hence, the aim of the research is to test the hypothesis to determine experimentally the impact of some new components of the Barnes' model. In the other word the author assess model in six Iranian companies to investigate and test the fitness of the Barnes' model in another situation like Iranian companies and finally, in article the purpose is to find and describe the impact of supplementary components in Iranian companies.

4.1. Data collection

A case study methodology was used to investigate the process of formation of manufacturing strategy in six small manufacturing companies in Iran (Ghazinoory, Khotbesara 2007). All field data was collected through interviews. The interview questions have been designed by considering notes quoted in Barnes's model and have been asked as semi-structured ones from senior managers of studied companies. Some of them are as follow:

1. Does the firm have a specific strategic planning?
2. How the structural decisions (capacity, establishments, production facilities, vertical coherence) and sub structural ones (production planning and control, quality) are made?
3. How does the company win the orders in a marketplace? (price, quality, delivery, color variety, production diversity, design, trademark image in customer's mind, after sale services)
4. How do you identify costumers and market needs in terms of manufacturing?
5. Do you assess your competitors' manufacturing capabilities? How? (threats and opportunities)
6. What are your manufacturing resources? And how are they recognized? (advantages and disadvantages)
7. Are there any new production process or operation which may be useful for the organization?
8. What is the relation between decisions and manufacturing operation and the higher goals of the organization (growth, survival, profit sharing, capital return, etc.), strategies and decisions related to the business (in what kind of business does the organization involve itself? How does it position itself in business arena?), strategies and decisions related to market (segmentation of product and market, volume, standardization, innovation level, to be a leader or follower)
9. Who are involved in decision making related to production?

10. Is there a classification for a specific product in your firm?
11. How the decisions related to the goals of the production (cost, quality, flexibility, delivery, innovation) are made?
12. How do you assess the effect of economic, cultural, political, social and environmental factors on the manufacturing function?
13. Which are the strategic decisions in manufacturing field and how they are made?
14. How do you assess the effect of cultural factors on political factors?
15. How do you assess the effect of individual factors on political factors?
16. How do you assess the effect of cultural factors on individual factors?
17. How do you assess the effect of political factors on individual factors?
18. How do you assess the effect of political factors on cultural factors?

The needed data were gathered in the studied firms by meeting the senior managers in various sessions (managing director, planning director, production manager, research manager, and QC director) and doing various interviews with them and examining the documents. For providing a common frame for the interviews, the interviewees were provided with some definition on issues related to manufacturing strategy and decision making areas.

To enrich the data scientifically, some free interviews were carried out by those who are knowledgeable in strategy, which had a good agreement with the results of interviews with the managers.

All interviews were recorded on a tape to be analyzed later in order to maximize time management.

4.2. Data analysis

The empirical data was gathered 2 years ago and after this 2 years the feedback from studied companies show the same results which we had achieved.

Those activities carried out for reliability and validity of the present essay based on Yin (1994) are as follows:

- Construct validity: a great number of the sources were used to collect data, including interviews, observation, and examination of the documents and observation of manufacturing and technological processes of the studied firms. Further, the experts' views were used in this regard.
- Internal validity: in analyzing data, the interpretation of the perceived relations and gathered information by case studies based on Bailey, Johnson and Avery's model was used.
- External validity: although it is impossible to talk decisively about the external validity of the research, we have tried to somehow provide this kind of validity by selecting a proper number of firms for the case study. There is not any ideal number for cases, but numbers between 4 to 10 are generally proved to be useful. For present research 6 cases were selected.
- Reliability: to demonstrate the reliability, the development of the databases was used in a way that in every firm some interviews with managers and employees were carried out and nearly the same results were provided.

5. Results

5.1. The main features of the process of manufacturing strategy formation in the case companies

MECO Company: MECO works in the area of electro motors manufacturing and home appliances. Its market share is about 15 percent. The products features of this company include high volume, low value and simple technical and product processing so there is no need for highly skilled workers. The company is owned by shareholders, but they do not manage it. The strategy formation process in this company is characterized by the following:

The decisions and actions for manufacturing are taken in an emergent way in a repetitive and adaptive process consisting of trials and error, and in some cases by a series of random reactions which indicates the fact that the existing manufacturing strategy is formed in an emergent manner in absence of any strategic planning. There is no obvious process to link the manufacturing process to business strategy. Although it seems that there is no unity about what the manufacturing purpose, there is not any written manufacturing strategy or plan.

There is little or no focus on coordination and their interrelated components. There is some evidence of a strong historical manufacturing culture which apparently acts as a barrier to changes. The prevailing manufacturing paradigm was for years based on a necessity of confronting marketing strategy with high volume, low price and low variety in the product. But now this method is not proper because the market requirements have shifted their orientation towards products with higher value and lower volume.

The company managers who make the final decisions in the manufacturing area are influenced both by ownership factors (the influence of owner's visions on business strategy which, in itself, depends on mental goals of the executives) and external pressures (by customers, market and economic situation of the community). These factors, as well as individual interpretation of the managers of the manufacturing purpose and business strategy, have profound impact on the manufacturing strategy formation process. Since there are various power bases in this company influencing manufacturing, it seems that there are some political factors influencing it as well.

FGCO Company: The main areas of activity for this company include manufacturing and development of machine tools and milling machines, high pressure molding, machine making, industrial automation, CNC controllers, and designing and manufacturing of production lines. It takes hold of 35 percent of market share. The product features in FGCO include low volume, high value and technically advanced, and their production processes are capital-intensive and need highly skilled personnel to produce. The ownership and management of the company is family based. It's manufacturing strategy formation process is characterized as follows:

The Manufacturing strategy formation process in FGCO has mostly been deliberative (the result of implementation of predetermined intentions which are derived in a rational and analytic and sequential process from business strategy) and top-down. In spite of using formal business planning, there was no formal manufacturing strategy planning. A manufacturing task was commonly accepted, though there was no written manufacturing strategy or plan. The cultural impact on manufacturing strategy formation was so strong that it seemed that the majority of manufacturing strategy stems from a powerful vision and totally shared manufacturing purpose and goal in the firm.

SSCO Company: This Company is active in manufacturing automotive and industrial parts. Its major customers and markets are manufacturers of home appliances and auto makers. Its market share in some components is 100 percent and in others is about 30 percent. SSCO's products are characterized by high volume, high value and technically advanced. The manufacturing processes are capital-intensive and need highly skilled staff. The company is owned by shareholders who are managers of the company too. The feature of the manufacturing strategy formation process is as follows:

The Manufacturing strategy formation process in SSCO has mostly been deliberative. It seemed that manufacturing strategy was a rational reaction to the business strategy imperatives. But despite using a formal business planning process by the company, there was not a formal manufacturing strategy, nor was there a written manufacturing strategy or manufacturing plan.

The other feature of the manufacturing strategy formation process was the role played by the prevailing individual (i.e. the operations manager). He has imposed the preponderance of the evident manufacturing strategy. There is also some evidence of organizational culture impact on the formation of the manufacturing strategy because there was a shared belief in manufacturing value for the company. Also, the managing director's political ability (negotiation and bargaining) has some influences in making decisions related to manufacturing.

KPCO Company: This Company is active in manufacturing industrial pressing machines used in military and automotive industries. Its main customers are auto makers and military institutions. Its market share in some items like automatic converting presses is 100 percent and in the remaining areas is about 30 percent. Its products are characterized by low volume, high value and technically advanced. The manufacturing processes are capital-intensive and need highly skilled staff. The company ownership and management is family based.

The manufacturing strategy formation process had a powerful emergent aspect and a weaker cultural one. The emergent aspect was evidenced in the way that manufacturing strategy was adopted to suit the changing demands of customers. There was no document about strategic planning for business or manufacturing. It was probable that culture had little impact on manufacturing strategy formation since there was a common understanding about the manufacturing task among KPCO managers who had a long standing record. In some decisions there was commanding aspect evident too.

MICO Company: This Company is active in manufacturing industrial pressing machines used in tire production and steel industries. Its market share is 20 percent. The MICO's products are characterized by medium volume, medium value and technically advanced. The manufacturing processes are capital-intensive and need highly skilled staff. It is owned and managed by shareholders.

The manufacturing strategy formation process had powerful cultural and political aspects. There was no evidence about deliberative planning for business or manufacturing. The political aspect was apparently so strong that political conflicts were forming an important part in internal framework. Evidently there was not a mutual understanding about a manufacturing task. And there was no evidence of the use of formal business planning in the company.

AFCO Company: This Company is active in manufacturing refrigerator and freezer components and other home appliances. Its market share is 30 percent. AFCO's products are characterized by high volume, low value and technically simple. The manufacturing

Table 2. Key features of manufacturing strategy formation in the case companies

Case company	ME CO	FGCO	SSCO	KPCO	MICO	AFCO
Products	Electro motors and home appliances	Machine tools	Automotive and industrial parts	industrial pressing machines	industrial pressing machines	Refrigerator and freezer components
Employees	50	30	35	40	5	33
Markets	Iran	Iran	Iran	Iran	Iran	Iran
Ownership state	Owned by Shareholders	Subsidiary of a family-owned company	Owned and managed by Shareholders	Subsidiary of a family-owned company	Owned and managed by Shareholders	Owner-Managed
Products Features	high volume, low value and technically simple	low volume, high value and technically advanced	high volume, high value and technically advanced	low volume, high value and technically advanced	medium volume, medium value and technically advanced	high volume, low value and technically simple
Production Processes	Labor-intensive, Low-skilled staff	Capital-intensive, Highly-skilled staff	Capital-intensive, Highly-skilled staff	Capital-intensive, Highly-skilled staff	Capital-intensive, Highly-skilled staff	Labor-intensive, Low-skilled staff
Manufacturing Task	Not Articulated	Articulated	Articulated	Not Articulated	Not Articulated	Not Articulated
Formal Business Planning Process	NO	YES	YES	YES	YES	NO
The order of Characteristics of the manufacturing strategy Process	Emergent, Cultural, Political	Deliberate, Cultural, Emergent	Deliberate, Command, Cultural, Emergent	Deliberate, Command, Cultural, Emergent	Political, Cultural, Emergent	Command, Emergent, Cultural

processes are labor-intensive and do not need highly skilled staff. The company is owned by the managing director who is also the company leader.

The manufacturing strategy formation process had powerful cultural, emergent and commanding aspects. There was no evidence about deliberative planning for business or manufacturing. Evidently there was no strategic planning for business or manufacturing. The impact of an individual was apparent in the company. He was the founder and chairman of the company.

The key features of manufacturing strategy formation in the case companies are illustrated in Table 2.

5.2. Manufacturing strategy formation model

The Manufacturing strategy formation model has been reached by the combination of the results of interviews with the case company's managers and Barnes's model. This model shows that the manufacturing strategy formation is done through a complex process which includes a combination of emergent and deliberated actions and decisions. The managerial interpretations are influenced by individual, cultural, and political factors. Cultural factors impact on political factors. Also, political factors impact on individual factors. Other our findings are:

- Individual: All managers are people with different personalities, knowledge and experience which influence them by their record, education and working experience.
- Cultural: the organization culture and especially any deep-rooted collective beliefs about manufacturing function play a role.
- Political: There is a Machiavellian type of power politics within these organizations that plays a role in this process.

Based on this model, the core of decision making about manufacturing strategy is managerial ideas, external and ownership factors, and corporate goals, as well as market strategy via a deliberative way and in the form of synergy, as well as via an emergent route, lead to manufacturing strategy formation.

6. Discussion

In all companies, the manufacturing strategy is formed through a complex process which includes a combination of deliberate and emergent actions and decisions. It seems that the strategy concept by Mintzberg and Quinn (1991) as a “complex interactive process” which includes “policy, values, and organization culture and management styles” is valid in manufacturing strategy formation as business strategy formation.

All companies studied show a degree of incrementalism which is due to lack of strategic planning and influence of unwanted factors on the formation of these strategies (Ghazinoory *et al.* 2011).

The inherent influence of business factors on manufacturing strategy formation is visible in all studied companies. The results show that a strategic planning format has a major role in the manufacturing strategy development process.

In all intended firms, cultural factors affect the manufacturing strategy formation. logically it is expected that the organization culture has an influence on manufacturing strategy

formation just as what is realized in business strategy. In those firms with a high level of political influence in manufacturing strategy formation there is a high level of incrementalism as well. It is no surprise that political processes tend to cause emergent strategies, since both actions and decisions are taken by bargaining, maneuvering, preventing, and other tactics of organizational policy.

Each and every firm showed some evidence about the key role of managerial interpretations in translating obtained information into strategy actions and decisions. The role of managerial interpretations is not appreciated in the manufacturing strategy literature. Seemingly, it is assumed that actions and decisions related to manufacturing will be the same, regardless of who are involved. This research shows, as Barren's does, that it is not so; therefore, it highlights the contextual factors of people, organizational policy and culture on managerial interpretations.

The findings of the research denote the limiting and influencing role of the external factors including politics and economics governing the decision maker's mind. They overshadow the strategic choices in the field of manufacturing. In Barnes's study, the external factors had not such a deep impact on manufacturing strategy formation, which is due to the differences in political and economic and business environments in developed and developing countries.

The firms with high levels of deliberateness in manufacturing strategy formation (FGCO, SSCO) were those whose managers in all levels were educated in the highest level of business training. Managers formally trained are aware of strategic planning processes and considered it as favorable. Thus they will get a high level of deliberateness in manufacturing strategy formation by using strategic approaches. although there are differences between economic and political environment and cultural heterogeneity between the studied countries (Iran and UK), the results are the same. Perhaps the reason of this sameness is this fact that this case study was carried out to just check out the factors influencing on the formation of the manufacturing strategy and better understanding of it. If the rate and kind of the effect of each factor were analyzed, there would be some distinct differences.

7. Conclusions

The present study is based on Barnes' study on 6 UK companies active in the field of manufacturing.

The contribution of the research presented in this paper lies along two dimensions. In the first we put some changes on Barnes' model and in the second we examined this conceptual model with Iranian case studies and results justified empirically in 6 Iranian manufacturing companies.

The main finding of this study is that it is not possible to determine manufacturing strategy through a top-down planning process. Culture, leadership, policy and incrementalism have their own undeniable roles in manufacturing strategy formation. Cultural factors impact on political factors, and political factors impact on individual factors.

In manufacturing strategy formation, the political behavior has a direct link to incrementalism in a way that by decreasing one, the other will decrease and vice versa.

The model found for manufacturing strategy in Iranian companies can help researchers understand the present interactions in manufacturing strategy formation in other countries.

Finally, this research opens the ground for further analysis which should include other important variables of the proposed model like: external factors, uncertainty of the environment and contingencies like: age and size of the firm, etc. Moreover, results might be validated by increasing the number of the firms and including firms from different branches and extending the time period of the study applying a dynamic systems approach.

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GAMYBOS STRATEGIJOS FORMAVIMO PROCESAS IRANO GAMYBOS ĮMONĖSE

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Santrauka. Straipsnyje aprašomi šešiose Irano gamybos įmonėse atlikti moksliniai tyrimai, įrodantys gamybos strategijos formavimo proceso reikšmę. Tyrimas nustatė, kad kultūra, vadovavimas ir politika turi savo neginčijamą įtaką gamybos strategijos formavimo procese. Kultūriniai veiksniai daro įtaką politiniams veiksniams, o politiniai veiksniai veikia individualius veiksnius. Gali būti naudinga naudoti formalų verslo planavimą formuojant įmonės gamybos strategiją. Šiame tyrime buvo naudojamas modifikuotas Barnes gamybos strategijos formavimo procesas. Barnes pavyzdžiu buvo siekiama iširti gamybos strategijos formavimo procesą šešiose nedidelėse Irano gamybos įmonėse. Šio tyrimo rezultatai atskleidė

tiriamų įmonių gamybos strategijos formavimo proceso ypatumus. Tyrimui neišvengiamo subjektyvumo suteikia ribotas ištirtų įmonių skaičius. Pasiūlytas modelis leidžia visapusiškai ištirti vidinę ir išorinę organizacijos aplinkas bei pasiūlyti sprendimus gamybos planuotojams.

Reikšminiai žodžiai: gamybos strategija, strategijos formavimas, apgalvoti sprendimai, staigūs sprendimai, Iranas.

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