UNIVERSITA' DEGLI STUDI DI PADOVA

DIPARTIMENTO DI SCIENZE ECONOMICHE ED AZIENDALI "M.FANNO"

CORSO DI LAUREA MAGISTRALE / SPECIALISTICA IN BUSINESS ADMINISTRATION

TESI DI LAUREA

"A CONTINGENCY VIEW ON ITALIAN COMPANIES' ADOPTION OF STRATEGIC PLANNING SYSTEMS: AN EMPIRICAL RESEARCH"

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MATRICOLA N. 1127925

ANNO ACCADEMICO 2017 – 2018

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ABSTRACT

In the 2016 some Italian academic professors (Cugini et al.) published a research investigating performance measurement practices among North and Center based Italian firms.

This research has revealed a scarce utilization of strategic planning support systems (the most popular and, probably, the more complete is the Strategy Map) in respect to performance measurement ones, then highlighting the absence of a diffused sense of the importance to link performances to the strategy formulation.

This work was born with the intent to investigate this phenomenon by identifying environmental and organizational characteristics that, once statistically analysed, could have been defined as contingent on the adoption of such strategic planning systems due to dependence relationships.

This work is articulated into three chapters: the first one proposes a in-depth analysis of the strategic planning process, whose understanding is fundamental in order to be able to recognize the right importance of its relative support systems. At the end of the chapter some of these systems will be presented, in particular the Strategy Map, because considered the one through which be able to manage and keep track of the entire process.

The second chapters continues with a literature analysis in order to identify all those factors that, in decades of publications, have been put into relation with the strategic planning and that, then, represent the "candidates" to be the contingent factors we are looking for. In this chapter we provide an explanation of the link that the various Authors have identified and describe how these factors are "operationalized" in this research.

Data have been collected by sending a questionnaire and partly (those related to the activity sectors represented by the sample) searched on Istat databases.

The third chapter is about the statistical analysis of these data: a Chi-squared test of variables' independence is presented but, because not significant results have been obtained, a Linear Discriminant Analysis is proposed as an alternative approach through which try to delineate some patterns of relationships.

CHAPTER 1
STRATEGIC PLANNING: PROCESS AND SUPPORT SYSTEMS

Introduction

This chapter provides an in-depth analysis of the literature about the strategic planning process starting from earlier contributes of Sixties to nowadays.

Then, through several articles which have been analysed, we delineate an evolutionary role for the process that, more recently, has started to be recognized has a fundamental way to enhance the well-being of the organization, meant as communication and participation among members.

A consistent part of the chapter will be dedicated to contributes analysing the impact that the strategic planning process has on performances; the literature is so rich in this topic to highlight the importance that the strategic planning has in the business academic world even if, during the researches, it has been personally experienced a drop in publications during last years. Reasons for this have been found in a recent article and reported in the following paragraphs.

The review of the literature culminates in the description of tools that can support firms in pursuing the strategic planning process: in fact it is a process which requires to integrate different hierarchical levels, organizational units, people, but also patterns to objectives' achievement. Along this "chain" something could be missed in absence of an instrument that allows to keep track of this process. Then, the Strategy Map will be described as a tool able to foster this integration and, in general, enhance the execution of the strategy. It allows to visualize links between strategy and performances and immediately make them understandable.

1 Strategic planning: definitions and evolution of the concept

In 1965, in his book *Corporate Strategy*, H.I. **Ansoff** declared that the strategy process must be formalized through detailed procedure, including the use of checklists for delivering objectives and assessing synergy:[1] this formalized, detailed procedure is commonly known in the business literature as *strategic planning*.

Far from being a static concept, the contents of this business topic has been enriched overtime in respect to new business and environmental conditions, a finding observed also by Ocasio and Joseph (2008), who investigated how the strategic planning has changed at General

[1] Ansoff H.I., Strategia Aziendale, p. 31

Electric. They found that the system's evolution reflects its history, the environment, the organization's decision making structure and changing leadership agendas.[2]

Lorange, one of the most popular advocates of planning, described in one of his book (1979) the three phases planning has gone through, namely the *extrapolative planning*, *the business planning*, and the *portfolio planning*. The first one was popular during Sixties, when the economy was characterized by stable, relatively rapid growth; it was focused around the constraints (especially financial) of the company's ability to pursue growth opportunities. It was typically performed by lower level departments and divisions inside the organization, then lacked true decision orientation.

The second stage was reached during the late Sixties and early Seventies, years distinguished by a higher social and economical instability and the felt need of companies to dispose of a planning system through which be able to better assess the attractiveness of the product offerings as well as their own competitive strengths, in this way gaining the necessary knowledge to develop plans for repositioning products, if desired.

A further increased instability led to the third stage, in which planning started to focus on the overall corporate or portfolio strategic resource balance, in terms of where the resources should be allocated and where they should come from. Moreover, in this third stage, planning started to include resources other than financial, like human ones, technological and marketing expertise (Lorange, 1979).

Then, overtime, the literature has identified different, but related roles for the corporate planning that have been later summarized by Grinyer, Al-Bazzaz and Yasai-Ardekani in an article of 1984. Behind the role of *proactive mechanism*, able to allow the organization to respond to threats and opportunities, it served as a *reduction of the uncertainty* and a *basis for control of lower organizational units*, as well as it could be regarded as a more general *integrative device per se*.

Definitions of strategic planning are numerous, but what most of them have in common is the emphasis on a systematic, stepwise approach to strategy development (Wolf, Floyd 2017).

In an article of 1966, Russell L. **Ackoff** highlighted the distinction between strategic and tactical planning, stating that the former could be defined by referring to three features: *range of time, size of the company it is impacting on, emphasis on the establishment of goals*.

[2] Ocasio W., Joseph J., Rise and Fall – or Transformation?: The Evolution of Strategic Planning at the General Electric Company, 1940-2006, p. 268

Then, a plan is increasingly strategic as the *longer is the time horizon*, as *the portion of the organization that is encompassed by it approaches unity*, as *it tends to be more oriented to ends*.[3]

According to the Author the plan should be the sum of five parties simultaneously developed: *objectives and goals*, *operating policies*, *generation and allocation of resources*, *organizational structure*, *control system*. In particular, Ackoff affirmed that, in order to properly determine the operating policies, it is indispensable a model of the market in which the firm operates: *there is nothing else so important in the planning process as an understanding of the reason for the consumption of the products involved.*[4]

In his book of 1979, **Steiner** encompassed a view according to which strategic planning is not simply a tool, but something interwoven to the entire process of management: managers are called to identify what the business is and what it should be. It means set the objectives, develop strategies and plans, make today's decisions for tomorrow's results in order to exploit opportunities and avoid threats, but also consider implications of choices. All these functions are nothing else than strategic planning, and linkages among them show how it is not possible to disentangle planning from organizing, directing, motivating and controlling activities.

Then, the definition Steiner provided is of the strategic planning seen as *the systematic and more or less formalized effort of a company to establish basic purposes, objectives, policies and strategies, and to develop detailed plans to implement these policies and strategies to achieve the objectives and purposes*[5], namely a process through which assess where to go and how to get there and that would result in a set of written plans having **explicit statement** of time, means and people involved.

The Author also underlined as, differently from how companies were usual to conduct planning during Fifties, the tendency was moving toward the awareness of the need to review plans due to business related changes, impossible to disregard.

Steiner also highlighted the complementary nature that should lie between manager's intuition and planning; if perfectly tailored to the managerial characteristics, planning could help managers to improve their intuition, as well as it cannot be really effective unless managers inject their judgments and intuition into the process.[6]

One year after, Lorange published his book *Corporate Planning*, which contains considerations similar to those of Steiner.

[3] Ackoff R.L., The meaning of strategic planning, p. 50
[4] Id., p. 53
[5] Steiner G.A., Strategic Planning, p. 15
[6] Id., pp 10-11

According to Lorange, "where to go and how to get there" is translated with with the key words of *adaptation* and *integration*, where the former stays for the assessment of opportunities and threats and the consequent identification of relevant options in order to fit with the environment, and the latter concerned with the narrowing down of options, attempting to build on the firm's strengths and avoiding its weaknesses. The Author underlined that the two aspects should not be dichotomized by overemphasizing one to such an extreme that the necessary absolute minimum capability level of the other dimension is violated.[7]

By recognizing the intrinsic fragile nature of the corporate planning, also Lorange stated the importance to review plans when necessary, as well as the complementarity between people involved and processes, affirming that good management and effective strategic planning systems go together.[8]

Similar to Ackoff, Lorange identified a process to conduct through five phases: the *definition of objectives*, the *strategic programming*, the *budgeting*, the *controls* and the *managerial incentives*. In particular, this last point highlights that, in the Author's point of view, the strategic planning must be based on the willingness of managers to work together towards the achievement of a competitive advantage for the firm. In order to do this, there is need of partial congruity between managers' personal objectives and those of the company itself.[9]

The budget, also known as operating plan, should not be confused with the strategic planning activity because, as described above, it is just one step of the process: the strategic plan includes strategies indicating how objectives will be accomplished and information about how performances will be controlled and measured, whereas the operating plan is the setting of short-term objectives for specific areas (finance, marketing, personnel).[10] Then the operating plan, as defined by Lorange (1980), represents the *iceberg* of a detailed operations activity pattern for the next year which should be consistent with the longer-term strategic programs. The budget includes, beyond activities to accomplish in the near-term, assignation of tasks to organizational units and management, and allocation of financial resources.

This view is consistent with the one of Ackoff about the difference between strategic and tactical plan.

A similar thinking is present in **Armstrong** (Armstrong, 1982) according to which the strategic planning could be defined as an *explicit process for determining the firm's long-range objectives, procedures for generating and evaluating alternative strategies, and a*

[7] Lorange P., Corporate Planning, p. 196
[8] Lorange P., Implementation of Strategic Planning, p. 44
[9] Lorange P., Corporate Planning, p.68
[10] Shrader C.B. et al., Strategic and Operational Planning, Uncertainty, and Performance in Small Firms, p. 46

system for monitoring the results of the plan when implemented. Each of these steps must be characterized by the commitment of all the people involved. An important guideline emphasized by the Author is the inclusion of *slack resources*, meaning that time, money and facilities should be held in reserve. This recognizes uncertainty and adds flexibility to the plan.[11]

The idea of the strategic planning as the result of a stepwise approach is present also in **Hopkins** and **Hopkins** (1997), who identified formulation, meant as the development of a mission, setting of objectives, assessment of the environment, evaluation and selection of alternatives; implementation; control. The Authors underlined how the strategic planning has a positive impact only when all the three components are emphasised in an equal manner.

Planning's idea contained in the work idea of **Ketokivi** and **Castañer** (2004) is of a process through which organizations identify priorities and translate them into resource allocation; following Porter (1985) they defined the strategic planning as an instrument for managing the interdependencies that horizontal and vertical differentiation across units and hierarchical levels has created.[12]

Other recent view has been offered by **Brews** and **Purhoit** (2007) who evaluated the strategic planning across four dimensions: the *Symbolic Planning*, which contains mission and vision of the firm; the *Rational Planning*, which represents the overall formal planning systems by including formulation of goals/objectives, action plans/programmes and the budget; the *Transactive Planning*, the representation of the degree to which plans are formed iteratively on an ongoing basis, based on a continual adaptation and feedback; the *Generative Planning*, which represents the degree to which plans encourage product/service and internal process innovation.

In a study investigating the evolution of strategic planning at General Electric, **Ocasio** and **Joseph** (2008) defined the strategic planning as a form of planning practice intended to formulate strategy, where planning is defined a formalized procedure, whose three necessary conditions are: articulation of goals and objectives; division of authority and responsibilities for planning, implementation and control; the development of standardized procedures.

With the aim to conclude the present overview it seems useful to provide a definition able to synthesize how the literature has defined the strategic planning over fifty years of

[11] Armstrong, The Value of Formal Planning for Strategic Decisions: Review of Empirical Research, pp. 198-199

[12] Ketokivi M. and Castañer X., Strategic Planning as an Integrative Device, p. 340

publications. For this purpose it is possible to refer to **Wolf** and **Floyd** (2017), whose definition is the following:

"*Strategic planning is a more or less formalized, periodic process that provides a structured approach to strategy formulation, implementation, and control. The purpose of strategic planning is to influence an organization's strategic direction for a given period and to coordinate and integrate deliberate as well as emerging strategic decisions. Strategic planning comprises a range of different activities designed to fulfil this purpose (such as strategy reviews, meetings, generation of strategic plans, etc.); the extent to which such activities are governed by explicitly rules and procedures, that is, the degree of formalization, varies both within and between organizations*".[13]

2 Does planning improve performance?

First studies examining the relationship between strategic planning and performance appeared during Seventies. At the beginning researches focused on samples of large firms, but around Eighties studies involving small companies became more popular. Only more recently, authors started to investigate the impact of planning on new firms.

The literature has been and is still divided in two school of thought: "planning is useful" and "planning is not useful" (Armstrong, 1982). Reminding that supporting one or another thesis is not the purpose of the present elaborate, a review of the literature reveals itself as interesting and necessary to understand the importance of the topic in the business environment.

The analyzed literature refers principally to past decades: as it has been experienced personally during the researches, Wolf and Floyd (2017) have recognized a significantly drop in publications after early 1990s. In particular, they identified 1994 as the *turning point in the scholarly conversation about strategic planning.*[14] This year, according to the Authors, was the one during which Miller and Cardinal, and Mintzberg published two milestones of the strategic planning which seemed to reduce the motivation for further studies.

Over 40 years of published researches they have distinguished three principal tendencies towards planning: between Seventies and early Eighties most of the literature was either prescriptive or descriptive then, during Eighties and Nineties, the focus moved on the link with organizational performance (especially financial ones) and on the design of the process

[13] Wolf C., Floyd S.W., Strategic Planning Research: Toward a Theory-Driven Agenda, p. 1758
[14] Id., p. 1756

due to environmental and/or organizational contingencies. This decade represented the peak in the volume of publications.

The raise of the third wave could be linked to Mintzberg's publications (1994) about the fallacies of planning, which led researchers in the following years to move toward more realistic and socialized process models, including those that foreground emergence, evolutionary forces, and strategizing as a social practice.[15]

However, in order to provide an easier understanding of the following analysed literature, in this work it has been decided to maintain the "good or bad" impact on performances as the differentiation element.

Given the high number of published researches, it is impossible mention all of them, that's why the attention has been focused on the most popular and the ones that offered particular sparks for the development of the work.

2.1 The positive effect of planning on performance

The reason why it has been decided to dedicate an important part of the literature research in investigating the positive impact that planning could have on performance rely on the fact that, studies published in a so-long period, allow also to delineate different and "more innovative" roles for the strategic planning.

In the 1970 Thune and House analysed performances achieved by companies using formal planning against those of comparable companies that did not; the analysis concerned a comparable period of time.

They also compared performances of a group of companies over two equal periods of time, before and after they initiated planning.[16]

Performances referred to *sales*, *stock prices*, *earnings per common share*, *return on common equity and return on total capital employed*.

The study showed that **formal planners** (taken as a whole) **outperformed informal planners** in terms of earning per share, earnings on common equity and earnings on total capital employed and that the formers outperformed their own records registered before the beginning of the long term planning activity.

The study highlighted that formal planning helped companies competing in certain industries (drug, chemical and machinery) to gain competitive advantage in respect to companies

[15] Wolf C., Floyd S.W., Strategic Planning Research: Toward a Theory-Driven Agenda, p. 1765

[16] Formal planners have been considered those firms that determined corporate strategy and goals for at least three years ahead; all the other have been identified as informal planners

competing in other industries: in the food and oil industries[17] formal planners outperformed informal ones, respectively, on three and all the five criteria. However the study found that formal planners of the two above mentioned industries did better also before the planning activity, then the higher performance after the initiating could be the consequence of past results.

Then, Authors tried to justify the reason why formal long-range planning could produce different results according to the type of industry the firm competes in: they referred to political and governmental factors (especially for oil and steel industries) but, since most successful performances were obtained by medium size companies in rapidly changing industries, they identified *size of the company* and *degree of competitiveness* within the industry as important predictors.

The Authors also recognized that formal planning was (probable) not the only cause of superior performances but, rather, that it was the result of well managed firms using sophisticated methods also for organization design and analysis; managerial selection, development and compensations; administrative controls.[18]

By taking advantage of the above observation, it seems useful underline at this point how further researches showed that even in well managed firms strategic planning is a proactive approach difficult to sustain over time: a study conducted in 1985 by Sexton and Auken showed that, basing on their sample, going from 1981 to 1983 only a small percentage engaged in a higher degree of strategic planning activity, with a major percentage dropping to a lower level. According to who is writing the commitment of all people involved and the congruence of their objective with the ones of the firm, as mentioned previously in this work referring to Lorange and Armstrong, is an indispensable determinant for a continuous implementation.

In the same year of Thune and House, Ansoff *et al.* studied the effect of planning on the success of acquisition operations by American firms. They distinguished among *firms with little formal planning*, *firms with only strategic planning*, *firms with only operational planning* and *firms with both strategic and operational planning*; measures of success were both subjective (perceptions of top management) and objective (financial performance before and after the acquisition).

Subjective measures led to inconclusive results: the analysis showed lower incidence of failure in firms which planned, but no significant differences in perceived achievements between planners and non-planners. The Authors justified this result by saying that executives

[17] No comparisons were available for the steel industry

[18] Thune S.S. and House R.J., Where long range planning pays off, p.87

which did not plan had no explicit statements of expectations and so they could easily adjust their aspirations ex post facto, other than the fact that they obtained success even without planning because the acquired firms were small and well known through already established relationships.[19]

On the contrary, **objective measures showed that planners significantly performed non-planners and their performance were even more predictable**, meaning that planning allowed to reduce uncertainty.

In 1972 Herold published a study in which he attempted to validate the conclusions reached by Thune and House; the validation consisted in studying the relationship between the long term planning and two additional criteria able to synthesize the success of a firm, *pretax profit* and *R&D*.

The idea of this approach, called *construct validation*, is that *measures of variables in a theoretical framework would relate to each other in systematic and predictable ways; i.e. the magnitude and pattern of relationships should meet a set of test requirements that a valid questionnaire would expected to meet.*[20]

More simply the idea has been that both pretax profit and R&D (this latter in the previous study has been recognized as a feature of well managed companies) would have been higher for firms adopting long range planning. Findings exactly validated both these hypothesis and so the Thune and House study, too.

Further studies investigated the relationship with performance through a **resource based view**, affirming that formal strategic planning provides benefits through which it is possible to produce economic value, generate information, ensure a thorough consideration of all feasible options, force the firm to evaluate its environment, stimulate new ideas, increase motivation and commitment, enhance internal communications and interaction and that it has symbolic value to stakeholders.[21]

It is reminded that, in order to reach a competitive advantage, a resource must be *scarce*, *difficult to imitate*, *non-substitutable* and *not readily obtainable* in factor markets.

Then, as affirmed by Powell (1992), strategic planning cannot produce sustainable competitive advantage unless it meets the features mentioned above. His study distinguishes itself from the other for comparing "*planning equilibrium*" industries from "*planning*

[19] Ansoff H.I., Avner J., Brandenburg R.G., Portner F.E., Radosevich R., Does planning pay? The effect on planning on Success of Acquisition in American Firms, p.4
[20] Herold, Long-range Planning and Organizational Performance: A Cross-Valuation Study, p.92
[21] Powell T.C., Strategic Planning as a Competitive Advantage, p.552-553

disequilibrium" ones,[22] arriving to conclude that planning and performance are more highly correlated in planning disequilibrium industries; however the study was not supported by a strong empirical evidence since it includes only two industries.

The idea that planning enables to collect more information, new ideas and higher motivation and commitment could be found also in Hopkins and Hopkins (1997), whose research allowed to delineate under what conditions banks' financial performance is enhanced by strategic planning. They identify intensity placed by managers into the process as a key issue: greater intensity generates the outcomes mentioned above, which serve as a "black box" intermediating strategic planning intensity and financial performance. In turn, intensity is a function of managerial factors, meaning expertise to engage in strategic planning process and the believe it leads to superior performance.

As touched upon at the beginning of the paragraph, the relationship has been examined over time with a particular interest relating to the **size of the company** and the **stage in the life cycle**.

In the introduction of his article of 1982, R.B. Robinson stated that it was rarely, for small firm owner/managers, engage in strategic planning. Referring to different authors, he wrote that planning in small firms was: often done on an ad hoc, problem basis (Golde, 1964); frequently only a mental activity of the owner/manager (Still, 1974); informal, sporadic and closed (Still, 1974); often relying on advice from random acquaintances with less skill and/or less experience than the owner himself (Rice & Hamilton, 1979). Among the reasons for this scarce utilization, Cohn and Lindeberg (1972) found that skills, time and necessary staff represented 98 percent of the planning-related management difficulties in small firms.
The assumption behind Robinson's work, already advocated by other authors like Krentzman and Samaras (1960), Golde (1964), Buchele (1965), Cohn and Lindeberg (1972), was that the presence of **outsiders** could represent a remedy for these disadvantages. Results of the study supported the hypothesis according to which small firms engaging in outsider-based strategic planning experienced significantly higher increases in effectiveness than their counterparts which did not.

Bracker et al.'s (1988) findings revealed that, in face of an increasing environmental complexity, small firms run by opportunistic entrepreneurs and engaged in structured strategic planning outperformed the other in all the financial performances. The *opportunistic* entrepreneur is one who is flexible and aware about future trends and that refuse to leave the

[22] Planning equilibrium stays for industries where planning was more popular and vice-versa for planning disequilibrium

company in hands of professional managers or outsiders that can let the small company lose its uniqueness; *structured* strategic planning, instead, deals with the quality rather than the time spent on it.

Shrader, Mulford and Blackburn (1989) found some positive correlations between strategic planning and performances. However they found that only few small firms engaged in long term planning, so *neglecting a potentially beneficial activity*. Through interviews of top managers, they collected answers for this scarce utilization linked to lack of time and skills, high cost and the unpredictability of the environment.

The meta-analysis conducted by Schwenk and Shrader (1993) confirmed the assertion (demonstrated by fourteen previous studies) that strategic planning has a positive impact on performances: the analysis is consistent with the claim that strategic planning promotes long-range thinking, provides a structured means for identifying and evaluating strategic alternatives, all of which improve firm performance.[23]

The study performed in 1994 by Miller and Cardinal showed that **planning positively affects performance in both large and small firms and capital-intensive and labor-intensive ones**; an interesting result they obtained is that planning affects profitability more strongly in turbulent environments, so running counter all the studies which moved to strategic planning exactly the contrary as the most important critic (critics will be presented in the next paragraph).

As related to turbulence, Grant (2003), analysing the major American oil companies, affirmed that both the practices and the role of the strategic planning changed in response to a more turbulent environment: the tool appeared to be more decentralized, informal and goal focused, less staff driven, with minor specific regard to actions and resource allocation and having shorter term orientation. The increasing emphasis on performance planning rather than on commitments to take specific actions let it be configured more as a *context for strategic decision making*, *a mechanism for coordination* and one *for control*.

This view could be coherent with the idea that the strategic planning is not something to take for granted, implying a sort of rigidity, but it must be continuously updated in line with the changes of the environment. In particular, the ability to respond to changes relies on a decision power that is dispersed throughout the organization in a such a way that lower level managers have a certain degree of authority. This idea has been defined by Andersen (2004)

[23] Schwenk and Shrader, Effects Formal Strategic Planning on Financial Performance in Small Firms: A Meta-Analysis, p.60

as *distributed decision authority*, i.e. the extent to which middle managers are able to take new initiatives without permission from top management.
He found that, not only strategic planning enables higher economic performance in dynamic industries, but strategic planning together with distributed decision authority improve performance even further.

For what concerns the stage in the life cycle, most of the early studies asserted that, for new firms, planning would have been a time consuming activity. Given the level of uncertainty and the attributes of the entrepreneurs, it would have been better for them to follow their intuitions instead of being locked in a plan developed on the base of information, probable, inaccurate and outdated.
Following Boyd (1991), Delmar and Shane (2003) underlined that new firms engage in less strategic planning than mature organizations focusing, instead, on business planning.[24]

Findings by Brinckmann, Grichnik and Kapsa (2010) showed a **positive effect between planning and new firm success,** even if the impact is limited by the higher uncertainty and lack of information of the environment where such firms operates. Another hypothesis tested by the research relates to the cultural context, interpreted through the Hofstede's concepts of high and low uncertainty avoidance. Results showed that **benefits decrease as the higher is the uncertainty avoidance** because in these situational factor managers could adhere too closely to plans and be less confident in deviating from them, so limiting flexibility and innovation of the plan itself. In countries characterized by low uncertainty avoidance managers are more likely to change plans when it is needed and be more inclined to improvisational decision-making in case of ambiguity.

More recent views support the idea that the effect on performances could be the result of the strategic planning seen as an integrative device, as proposed by Ketokivi and Castañer (2004) and advocated also by Jarzabkowski and Balogun (2009), in order to reduce the so-called *position bias*. The position bias could cause adverse effects on the process when integration between functions or departments is required or it could, in the worst case, put at risk the achievement of the overall corporate goals. By involving employees into the process and effectively communicate them priorities, the position bias is reduced, than enhancing goal convergence.

[24] Delmar F., Shane S., Does Business Planning Facilitate the Development of New Ventures?, p. 1181

To show that position bias could easily occur, it is possible to refer to the study conducted by Ocasio and Joseph about General Electric. They identified, in one of the phases of the evolution of their planning system, the level at which it would take place as a critical issue. The reorganization that at the time McKinsey consultants suggested found the resistance of general managers worried about lose their profit and responsibilities.

Jarzabkowski and Balogun (2009) extended the study of Ketokivi and Castñer and, starting from the recognition of strategic planning as an integrative device, have underlined how participation and communication are unlikely to result just by bringing people together because of the involvement of actors having different interests and experiences that should be mediated. The issue is that even when managers are physically present or included in a strategic conversations, they may feel excluded if the interaction dynamic is dominated by one party, allocating a subordinate role to others.[25] In particular, resistance is likely to occur when a subordinate role involves a change of position, and depends to the existing actors' power base. Then, the strategic planning should be conceived in such a way to allow for interactions and negotiations that modify and shape the process in order to accommodate different levels of participation, taking into account divergent interests, experience and power bases of actors.

Then, the participation could enhance the effects of a planning process, but the reader should be aware that these positive effects could be mitigated by other factors that could not be disregarded. Other than how the participation itself is conceived within the process, Elbanna, in a study about strategic planning among Arabic companies, suggested the social-cultural context as important to take into account because countries as the Arabic ones are likely to consider "*seeking for member's participation*" as a symbol of weak management (2008:790).

2.2 Critics

The two-year period from 1970 to 1972, as stated some years later by Mintzberg, seemed to forewarn a *rosy future* for the strategic planning thanks to the popular articles of those years which confirmed its positive effect on performances.

However in 1973 Rue and Fulmer's findings called into question this positive relationship: their study showed as long-range plans were negatively related to financial performances in the non-durable industry grouping, positively related in the durable one, whereas no clear link

[25] Jarzabkowski P., Balogun J., Delivering Integration through Strategic Planning, p. 1282

was identified in the service industry. The **impossibility to deduce a general conclusion** triggered the rise of studies aimed to state one or the other theory.

Grinyer and Norburn (1975) interviewed ninety-one managers in 21 companies in order to assess the relationship between the basic characteristics of a strategic planning process and financial performance. These characteristics were described as: explicit and generally recognized objectives against which test the alternative strategies; clear definition of the responsibility for setting the objectives and taking strategic decisions; formalization of the process; monitoring activity of the environment; aggressive, change-promoting management attitude encouragement. The assumption was that the more each of these characteristics was "emphasized", the higher the financial performance. However, the results obtained led the Authors to affirm, *without reservation*, that there was no basis for believing that corporate planning could help to gain high financial performance, given the lack of positive correlations.

Other critic came from Kudla (1980) who recognized, in the previous studies, the limit of not having included in the analysis external factors that could have exercised impacts on performances. His study overrode this limit and concluded that no clear relation existed between planning and performances. In particular, he found planning able to reduce the systematic risk only for a transitory period because, then, other factors could have a larger impact, like specific growth policies and degree of leverage.

Although with the usual aim to examine the relation between planning and performances, also the research conducted by Leontiades and Tezel presented an "innovative" approach. Differently from previous studies, the focus was not on formal and informal planners, whose distinction always required subjective valuations, but was directly related to the perception of the CEO and CPO. The idea was simply that high levels of importance (meant as effectiveness) attached to the strategic planning would have resulted in high performances and vice-versa.

The statistical test didn't validate this hypothesis and, moreover, Authors' findings showed that the importance attached by the CEO to the planning was simply so high as more was the time spent on the activity.

Bresser and Bishop (1983) summarized, in a comprehensive model, possible planning dysfunctionalities using two social sciences concepts, the paradigm development and the dialectical materialism.

The paradigm development has been a concept introduced by Kuhn, who proposed a matrix which presents, as one of the two dimensions, four basic descriptive areas of consensus:

values, beliefs, exemplars and symbolic generalizations. According to the Authors these elements are in trade-off: if an organization is characterized by many different and conflicting values, beliefs and exemplars, those whose authority dominates the organization cannot expect that their preferences for action will be carried out voluntarily and automatically. Instead, considerable direction and coordination will be required, resulting in symbolic generalization formalized in plans, procedures, programs, budgets, and so on.[26]

Because of the lack of consensus among members about values and beliefs, the strategic planning becomes for top-level management a mechanism of enforcement of its values and one of control to avoid the so-called *contradictions* that could derive from this discrepancy in organizational culture. What Authors postulated was that individuals could respond to policies and procedures with their own understanding of values, beliefs and exemplars; as a consequence more activity should be pre-planned, but in this way the chance for the plan to be inappropriate would be higher, since the restriction of options to respond to environmental changes. Then, to avoid these contradictions, top-level management could decide to introduce closer supervision mechanisms.

By not approving the organizational dynamics, members could decide to leave, in this way triggering an high personnel turnover, able to make still more difficult to build a strong corporate culture and, in consequence, put at risk the same survival of the company.

Closer supervision and control systems, because based more on the short-term than the long one, imply more implementation activities and relative outcomes. What Bresser and Bishop postulated using the dialectical materialism concept was that all outcomes are historical and thus tend to contradict ongoing activities: if this was true, any activity intended to correct deviations from previous plans would result in new contradictions and so on. Then, where many authors advocated the reformulation of plans in case of unsatisfactory results, the current study highlighted the possibility to trigger vicious circles.

Several other critics against strategic planning have been risen by Henry Mintzberg, whose ideas triggered a sort of verbal crossfire with Ansoff expressed in a couple of articles by both the Authors.

Causes of reflection are such that merit the writing of an entirely dedicated paragraph.

[26] Bresser R.K., Bishop R.C., Dysfunctional Effects of Formal Planning: Two Theoretical Explanations, pp. 590-591

2.2.1 The "verbal crossfire" between and Ansoff

In respect to strategy formulation, **Henry Mintzberg** recognized ten schools of thoughts, in particular three considered as **prescriptive** and the other as **descriptive**.

In an article of 1990, he made an assessment of all the pitfalls afferent to the design school (i.e. a prescriptive one), but stating that the other two (among which we find the planning one) were not so different in terms of basic concepts. That's why it is possible to include, in the present work, most of the critics included in the article cited above together with other disclosed in different publications. However, it seems appropriate to precise here that, in his "answer" to Mintzberg's critic, Ansoff moved away from this claim, declaring it as *false* (1991: 453).

In the article of 1990, Mintzberg ascertained the limit of the planning process: rather than be the result of *learning*, the design of the strategy would have been based on company's strengths and weaknesses, whose identification, for Mintzberg, could not be made in advance because they are distinctive to time and application and because only the concrete experience could reveal if a competence is a strength or a weakness.[27]

He specifically addressed to the planning activity the limit lied in the "obsession" with the monitoring function, which ends up to result into its conservative nature.

Consequence of control obsession would result in a sense of risk aversion that leads to be reluctant towards creativity and changes, since their effects are impossible to predict by falling outside the strategic planning. The organization, then, risks to remain paralyzed in its established plans: *the more clearly articulated the strategy, the more deeply imbedded it becomes in the habits of the organization as well as in the minds of its strategists*.[28]

Since it is not possible to act on the environmental variable, plans are the result of forecast, that's why strategic planning works well in stability condition, in which any change could represent a threat. This thinking was the reason why other focus of Mintzberg's critics has been the understanding of the large fuss by planning advocates towards **turbulence**; according to the Author, the aversion and difficulty to conceive what was beyond the procedures could be explained only by pointing at the turbulence that instead, for Mintzberg, was simply a change the planning was not able to handle.

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[27] Rely on strenghts and weaknesses to narrow down a list of alternatives is contained also in Lorange P., Corporate Planning. However in his "answer" to Mintzberg critique, Ansoff, in defence, mentioned a prescriptive school not contemplated by the former (the School of Holistic Strategic Management) which enunciated a different concept of strengths and weaknesses in respect to the one of the Design School. Moreover it has been developed by Ansoff himself the concept of Organizational Capability that replaced the one of strengths and weaknesses.

[28] Mintzberg. H., The Design School: Reconsidering the Basic Premises of Strategic Management, p. 184

In his point of view, strategy should be the result of a **learning** activity, by making mistakes until the organization gradually learns what works for it.

Ansoff thinking is completely opposite. Following Drucker (1980), he stated that Mintzberg was underestimating *the acceleration of the speed of change in the environment*. Turbulence was existing and was an issue.

He also affirmed that Mintzberg missed the important specification of which environment he was talking about, cause **organizations have different environments**.[29] According to what Ansoff defined *turbulent* surroundings, companies leveraging on emerging strategy formation endanger their survival because when they arrive on a market with a new product/service, such firms find the market pre-empted by more foresightful competitors, who had planned their strategic moves in advance.[30]

Moreover Ansoff totally denied the rigidity of the planning, since practitioners periodically reviews the strategy in light of experience and new opportunities; against the exclusive use of a learning approach, he advocated a *rational model* able to allow time and costs savings by selecting action alternatives in advance, and so reducing the need of trials and errors. Immediately it is understandable how much these savings would be important for organizations operating in changing environments. Against the critic moved by Mintzberg about the rigidity of strategic planning, it seems useful to remind that *flexibility* has been considered since Steiner's book in 1979, as well as Lorange (1980) and Armstrong (1982).

Other critic coming from Mintzberg related to the fact that, even if in predictable environments, managers should not formulate a strategy unless they are sure of its consequences; on the other hand Ansoff idea was that managers formulate strategy in advance because they are typically "unsure", and this condition let them be unconfident that the company's future will be simply an extrapolation of the past.

Mintzberg also criticized the management style implicit in the strategic planning, defined as *calculating* rather than committing. By having fixed in advance the destination and how to get there, none of members' preference is taken into account whereas managers with a committing style promote involvement by allowing each member to directly contribute to the objective's achievement.

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[29] Ansoff H.I., Critique of Henry, Mintzberg's "The Design School: Reconsidering the Basic Premises of Strategic Management, p.455

In "The Pittfals of Strategic Management" published in 1993, Mintzberg recognised that environments change across sectors and over time.

[30] Ibid.

What Mintzberg considered really effective for the organization is to adopt an approach including a kind of planning, but together with a strategic vision and learning and let them interact in a balanced way. This point of view is based on his assumption according to which strategic planning is not about create strategy but, through the analysis implicit in its pursuing, support its development: *planners do not enter the black box of strategy making*, [...] *they encourage managers to think about the future in creative ways*.[31]

To conclude, referring to Brews and Hunt (1999) attempt to solve the debate, strategic planning should not be considered as the antithesis of *incrementalism*, but as a necessary precursor to successful learning.

2.3 Recent findings: strategic planning and innovation

"To pronounce any environment permanently turbulent is as silly as to call it permanently stable".[32]

Despite this thinking came from one of the most influential author of the business literature as Mintzberg, "turbulence" is still widely used to describe today environment, and "innovation" is, maybe, its most associated term.

This tendency is able to explain why several researchers have focused their efforts in examining the impact of strategic planning on innovation.

Without go deeply (the effects of strategic planning are not the focus of the present work), in order to complete an overview started analysing earlier studies, two will be mentioned also for this field.

One came from Song et al. (2011) and validated the hypothesis according to which strategic planning is negatively related to new product development (NPD). However, through the utilization of a contingency model including resource-advantage theory variables they found that firm size and R&D positively moderate this negative impact. This is due to the fact that larger firms have the resources to establish strategic planning processes that provides incentives for employees to generate NPD projects[33] and because through huge R&D expense the investments in these projects are higher. They concluded by affirming that, despite the

[31] Mintzberg H., The Rise and Fall of Strategic Planning, p. 114
[32] Id., p. 36
[33] Song et al., Does Strategig Planning Enhance or Impede Innovation and Firm Performance?, p. 513

adverse effect of strategic planning on the number of NPD project, if the former is well managed, their combined effect improve ROI and other financial performances.

One way to manage strategic planning in order to effectively pursue innovation is suggested in the second article we want to cite and it is about the integration of planning flexibility, meant as the extent to which the firm may respond to shifts in customer preferences or economic conditions, the emergence of new opportunities and technologies, the entry of new competitors or changes in government regulations.[34] Through the analysis and the greater knowledge acquired with the formal strategic planning, executives can increase their confidence and exploit the new opportunities.

The strategic planning, considered by many authors as a source of competitive advantage, if combined with planning flexibility, could become a source of **sustainable competitive advantage**.

3 Tools for strategic planning application

Up to this point it has already been written that the concept of the strategic planning has been enriched overtime. The article by Grant (2003) about the planning activity performed by eight oil majors offers some sparks that seems useful to underline here before to proceed in talking about tools which help in the strategic planning.

Today's planning could be considered the same advocated during Sixties and Seventies if we refer to key steps (described in the first paragraph), but it is less formal[35] and has changed in its primary scope. In fact, whereas in the past it was conceived as a mechanism to formulate strategy, today it serves as a mean of communication and participation.

Participation increases the effectiveness that strategic planning tools have on the strategic planning itself;[36] through the participation, participants develop a sense of attachment towards the organization and thus they are more willing to do their best to successfully implement tools. Conversely the use of tools itself can reinforce this effect, by making the participation and the understanding of the process easier. Then the relationship is complementary.

[34] Dibrell C., Craig J.B., Neubaum D.O., Linking the formal strategic planning process, planning flexibility, and innovativeness to firm performance, p. 2005

[35] According to the Author, formality stays for fixed timescales of the planning cycle, reliance upon extensive documentation and written reports, use of standardized methodologies, and deployment of planning specialists.

[36] Elbanna S., Planning and participation as determinants of strategic planning effectiveness, p. 783

This introduction is to highlight that tools which will be described in a few represent some examples of those that companies have at their disposal to allow for participation and access by staff to the necessary knowledge.

3.1 The Strategy Map

In the research about Italian companies' performance measurement published by Cugini et al. (2016) we find description of tools other than the popular Balanced Scorecard used to conduct such activity. Although these tools are thought to measure performances, some of them are explicitly linked to the strategic planning process.

The implementation of the "Tableu de Bord" (De Guerny, Guiriec and Lavergne, 1962), popular among French companies, starts with the definition of strategies and of corporate and business units' objectives, but includes also assignation of responsibilities and descriptions of activities that should be performed by each organizational unit. Then, in a top-down manner, vision, mission and values of the organizational culture are described: this is strategic planning.[37]

Another instrument which is proposed is the Stakholder Approach (Atkinson, Waterhouse and Wells, 1997); it allows for a clear identification of choices made during the planning process in terms of relationships that the firm wants to endorse towards the stakeholders.

In the book published by the Italian researchers is highlighted that this evident link with the strategy is completely missed (or it is just more implicit) in the Balanced Scorecard.[38]

The Balanced Scorecard was proposed by Kaplan and Norton in 1992 and the same Authors, after years of collaborations with hundreds of companies, derived from it the Strategy Map, that we can consider the tool "of excellence" able to support the strategic planning process.

As Cugini et al. reported citing some previous researches, the failure of strategy implementation is often related to the "bad" quality of its execution, not the quality of the strategy itself.

Through the previous paragraphs, we have highlighted benefits that companies could achieve by pursuing a process of strategy formulation as the one advocated by the strategic planning scholars; but the idea included in Kaplan and Norton (2004) is about:

[37] Cugini et al., Strategia, azioni, misure, p. 11
[38] Id., p. 27

"how can people carry out a plan that they do not fully understand"?

The Strategy Map allows to keep track of this process step by step by physically visualize them through its framework (Fig. 1). Moreover it fosters the communication of the strategy to all the levels of the organization, by making clear to employees how their job is linked to the objectives of the company.

The **Strategy Map** follows the schema of the Balance Scorecard, by specifying clear objectives in the four areas of *financial* and *customer perspective*, *internal processes* and *learning and growth*, but adds a **cause-effect** component. By visualizing the link between the desired state and the drivers of the results, the cause-effect relationship makes more explicit the hypothesis that resides behind the reasoning of the strategy, i.e. move the organization from the present position to a desired, but uncertain one.[39]

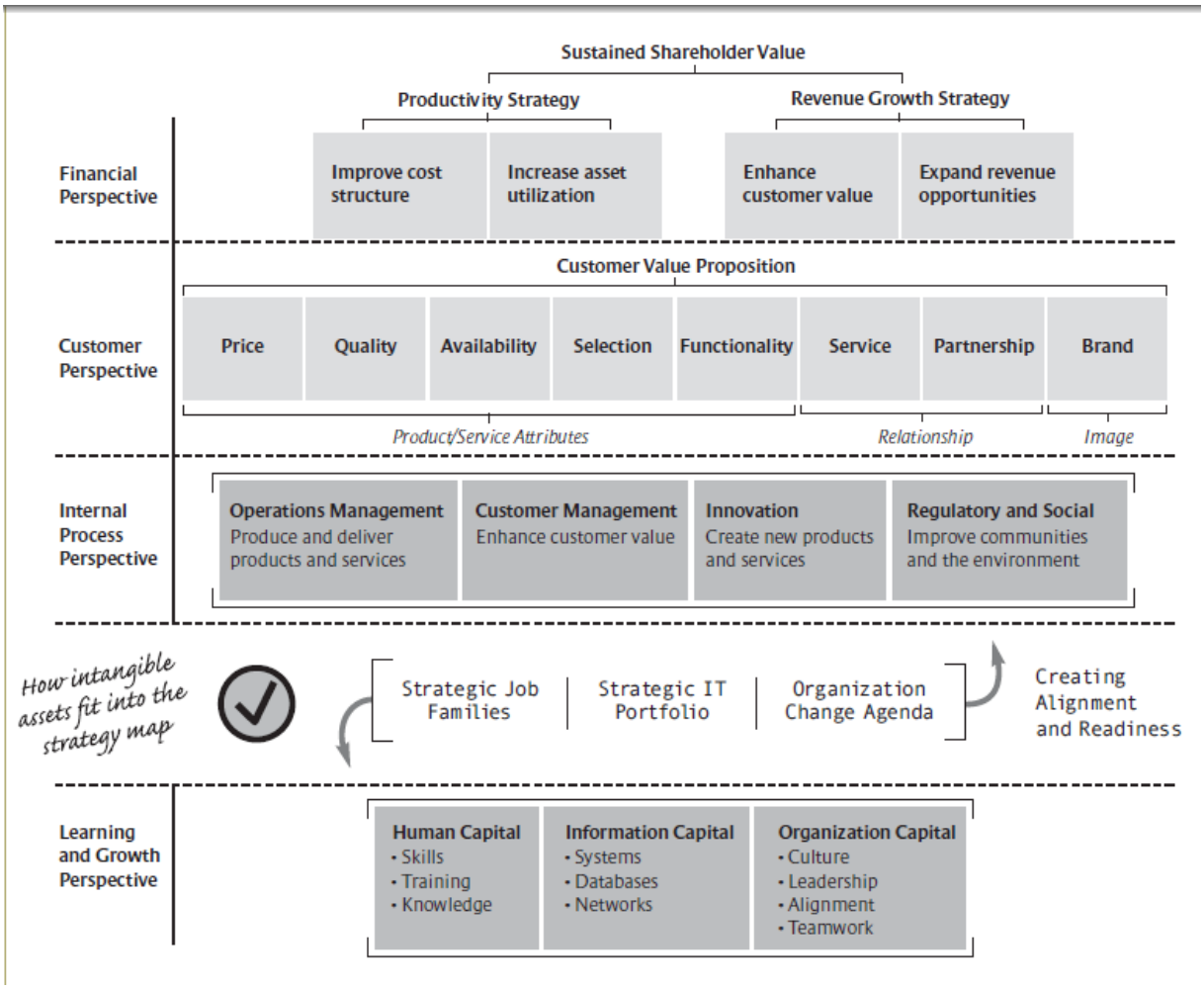
The Strategy Map includes a hierarchy among the perspectives that, instead, was missing in the Balanced Scorecard: it puts at the top of the agenda the financial perspective, through which create value for the shareholders; at the second level there is the customer perspective, that identifies how to create value for the customers, i.e. an indispensable condition in order to achieve the desired outcome stated at the previous level. Then we find the internal processes and the learning and growth perspectives, which represent the "how", the drivers that will guide the company to get the desired outcomes of the first two perspectives (Fig.1).

The Authors suggest that the best way to build the map is through a top-down approach; the base of the map is represented by the learning and growth perspective and, to underline the useful help that the tool could represent, we report a consideration that the same Kaplan and Norton made in their article. Although executives are aware about the importance of the learning and growth perspective, they usually have trouble to define corresponding objectives.[40]

Then, through the map, it is immediately apparent if an element advocated by the framework is missing: when this happens, the strategy is likely to be "*defective*".[41]

[39] Kaplan R.S., Norton D.P., Having Trouble with Your Strategy? Then Map It, p. 60
[40] Id., p. 58-59
[41] Cugini et al., Strategie, azioni, misure, p. 69

Fig. 1 - The framework of the Strategy Map



Source: Kaplan R.S, Norton D.P., Meauring the Strategic Readiness of Intangible Assets, p. 256

The **hierarchy among perspectives** suggested by the framework **is managed through the strategy**: it allows to balance opposite objectives and create priorities for their achievement,[42] in order to have short-medium term objectives in line with the strategic long term ones.

Concretely speaking, this greater integration between the short-term objectives included in the budget and the strategic long term ones included in the strategic plan is enhanced also because (often) these two activities are carried on by distinct functions, then resulting in frequent misalignments.

The necessity to balance strategic long term objectives and financial short term ones derives from the fact that the former usually require investments, the latter require to lower the costs to improve the performance in the short term.

[42] Cugini et al., Strategie, azioni, misure, p.67

Following the top down approach suggested by the Authors, the strategy of any company starts by fixing objectives in the financial perspective. As the map shows, two ways are possible: revenue growth and productivity. Productivity is usual to generate results in a lower interval than growth, but the "strength" of the tool, as stated by Kaplan and Norton, is in making visible how financial performances can be enhanced by both simultaneously and that a balance between the two is possible: pursuing one route should not come at the expense of the other.
To have a practical idea about how the tool functions, Fig.2 reports Mobil's Strategy Map that the Authors included in their work.

The Strategy Map is a complete framework that describes the entire planning process, but there are other tools that firms have at their disposal, especially for communication purposes; they are presented in the next paragraph.

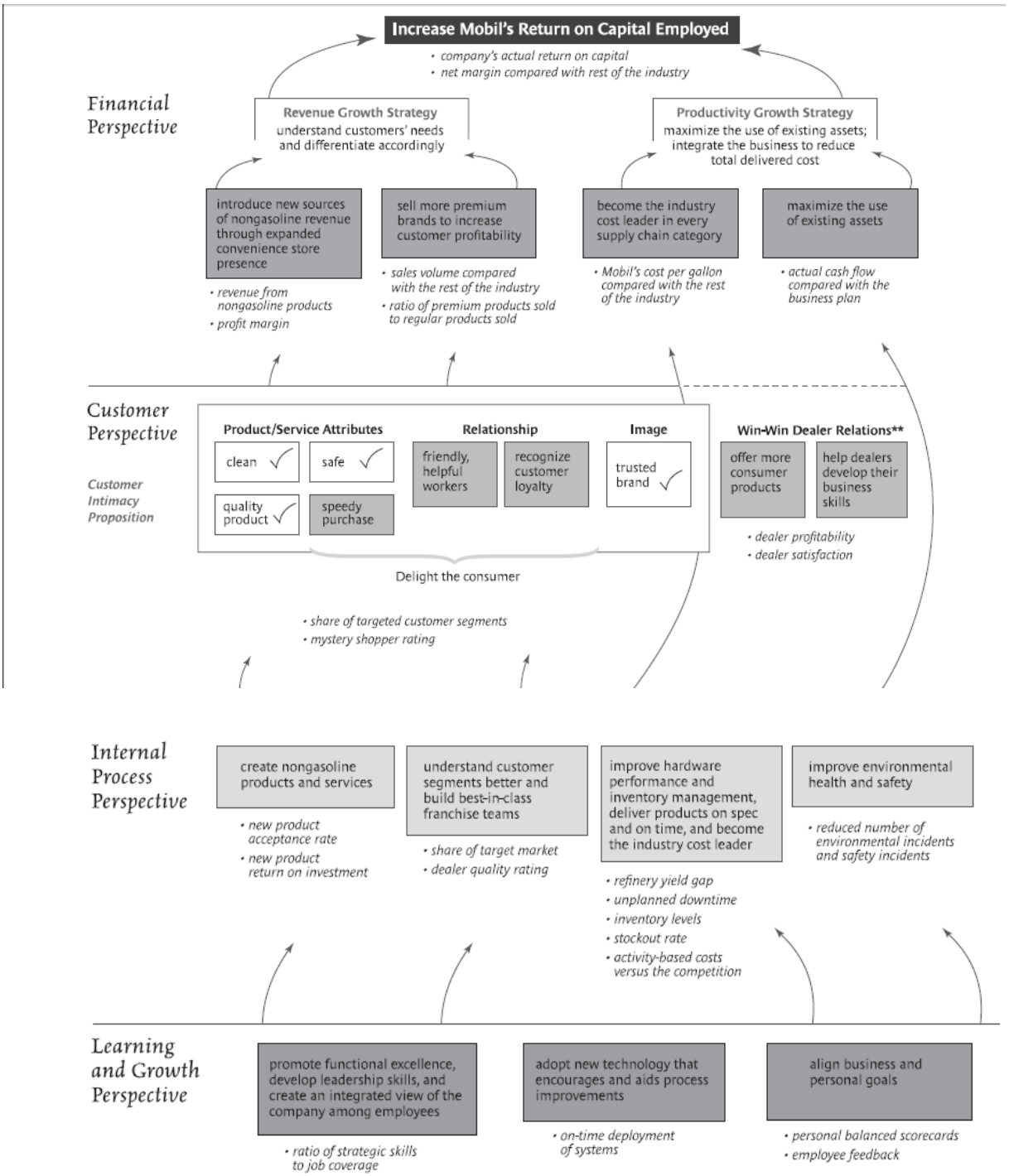
3.2 Other tools at support of the planning process

Visualization, meant as the graphic representation of information, data and knowledge, could represent a way to balance challenges related to the *cognitive*, *emotional* and *social* sphere due to the adoption of a strategic planning approach.
Benefits refer to easier synthesis of information, comparisons and recall within the cognitive dimension; the integration of different perspectives and the support of coordination between people within the social one; the creation of involvement and engagement, as well as inspiration and convincing communication within the emotional sphere.[43]
All these characteristics recall us the Strategy Map.

In an article published in 2009, the authors M.J. Eppler and K.W. Platts divided a generic strategy creation process in its four stages of *analysis*, *development*, *planning* and *implementation*. For each one they identified benefits deriving from the utilization of visual representations, as well as the preferred tools to take advantages from (Fig.3).
The article continues with the description of five cases study, by reporting the description of the used tool.[44]

[43] Eppler M.J., Platts K.W., Visual Strategizing, p. 43
[44] In the article we did not find explicit reference to the authors who suggested the tools reported by Eppler and Platts, then we remind directly to the bibliography of such article.

Fig. 2 - Mobil's Strategy Map



Source: Kaplan R.S, Norton D.P., Having Trouble with Your Strategy? Then Map it, p. 57

Fig. 3 - Four genres of strategy visualization methods

Visualization Method Type	Main Features	Examples of Typical Visual Formats
Structuring Methods (Analysis Phase)	Provide a ready-to-use structure (incl. categories) to organize and synthesize information	Bar diagram, line chart, system/loop diagram, 2by2 positioning matrices (BCG, McKinsey, SWOT), Porter's five forces diagram, S-curve diagram strategy chart, product-market diagram
Elaboration Methods (Development Phase)	Provide rules and a relatively open structure to elaborate on information, discover new patterns, build a common understanding and develop options	Decision tree, Ansoff matrix, morphological box, knowledge map, concept map, Mind Map, Parameter Ruler, influence diagrams, strategy canvas
Sequencing Methods (Planning Phase)	Provide rules, categories and graphic structures to organize information, such as tasks or goals, chronologically to prepare action	Timeline, flowchart, Gantt chart, road mapping, CPM diagram (critical path method), PERT diagram, swim lane diagram, loop diagram, Synergy Map
Interaction Methods (Implementation Phase)	Provide an interface to capture, aggregate, present and explore information.	Management controlling dashboard/ cockpit, Strategy Map, visual metaphors, tracking diagrams such as flight plans

Source Eppler M.J., Platts K.W., Visual Strategizing, p. 48

In the analysis stage, i.e. the one during which the company makes an assessment of the external environment, a **strategy charting** could be implemented.

By attaching sheets of flipchart paper on the wall, activities and events representative of planned and emergent strategy, allow people to understand past, present and future strategy of the company.

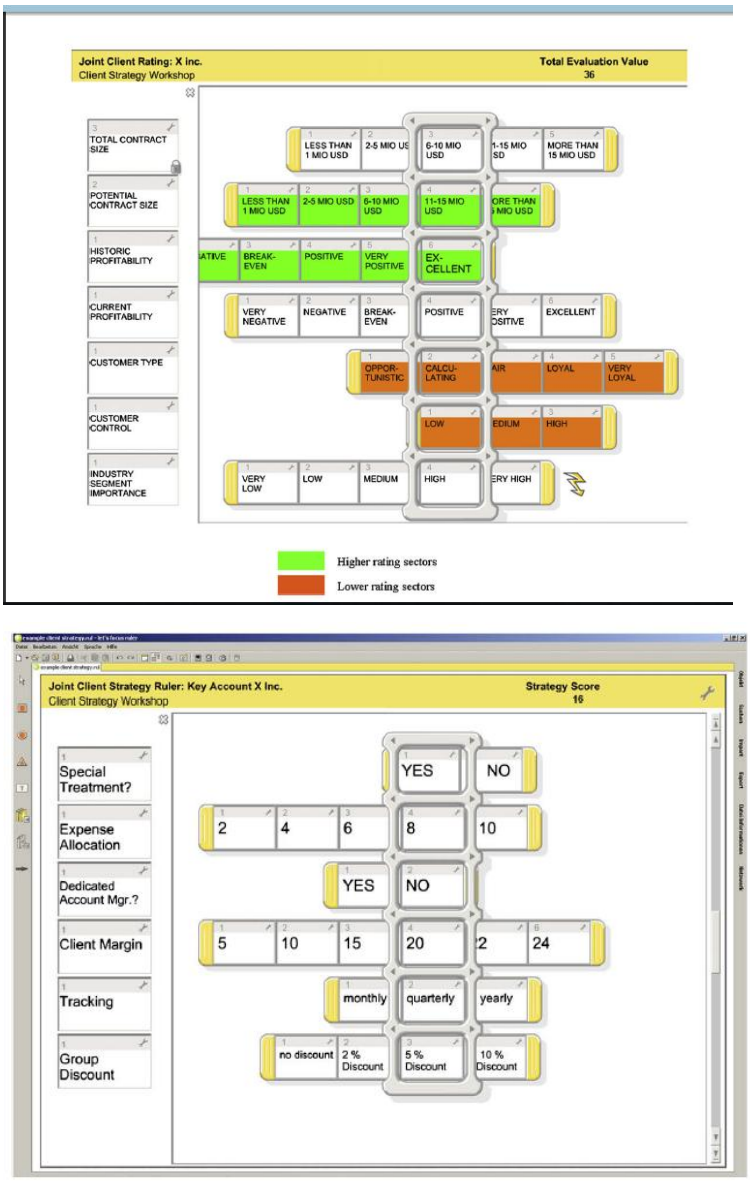
The tool is built by putting time on the horizontal axis and the levels of strategy decisions on the vertical one; colours and organized space help an easier reading. Principal advantage is the understanding of evolution and current status of the strategy.

The development phase is about the generation of options, that's why it is important having a tool able to make comparisons among them. The case study refers to a company that needed to delineate a profile of the client in order to identify the right approach to deal with him/her.

This has been possible through the application of a **parameter ruler** (Fig. 4), where assessment criteria are listed on the left hand side of the interface and are rated on scales previously determined by the group devoted and annotated in slider fields that could be selected by moving the ruler.

The advantage in this case is the generation of a common and shared view about how to deal with the client, taking away individual data and opinions. In the strategic planning process, which define the overall strategy and not how to deal with a single client, we could presume that such a tool could represent an help in define how to behave in case of different scenario analysis and develop the respective strategies.

Fig. 4 - The parameter ruler at work



Source: Eppler M.J., Platts K.W., Visual Strategizing, pp. 54-55

Other case study related to the development phase is about a company that needed to determine its capacity level in order to meet forecasted demand.

Through the application of the **Tool for Action Plan Selection** (**TAPS**), the company has been able to identify the appropriate actions to pursue.

TAPS is a software tool that, through a network diagram, visualizes the relationships between a production variable and its connected ones; variables are represented by nodes and are linked by arrows and the graphic allows to always edit the current hierarchy.

The tool envisages also the utilization of a database, where information about the variables are "stored" allowing, in this way, sensitivity analysis.

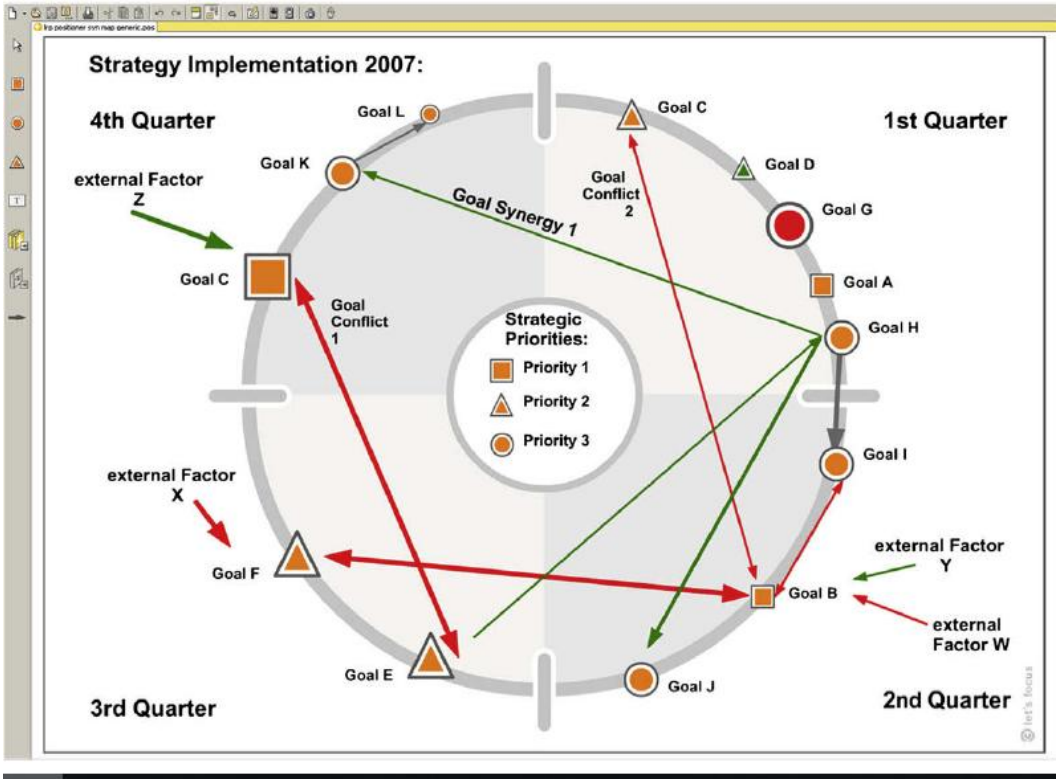
Through TAPS is possible to have an understanding of the operation as a whole as well as of the variables interactions in this way allowing focusing on the most relevant ones.

The **Synergy map** (Fig.5) could be used to plan and implement strategy; during the planning phase broad aims are translated into specific objectives and plans are formulated, whereas implementation requires the visualization of actions, relationships and result.

It is represented as a circle whose centre is occupied by strategic priorities while on the contour (which indicate the timeline) there are the main goals to reach. Their size represents the amount of work that it is needed to reach them (in other words, the budget) and the shape indicates the link with the priority. Eventual synergies and conflicts among goals are signalled by arrows; at the external of the circle management could position external factors.

A tool like this makes immediately understandable the interdependency among goals and another advantage to underline is the indication of possible lack of resources in the case of big goals positioned very near along the timeline.

Fig. 5 - An example of Synergy Map



Source: Eppler M.J., Platts K.W., Visual Strategizing, p. 59

Despite the advantages described above, tools present an important pitfall to not underestimate: the impossibility to be understood by people not directly involved in the strategy development; then **visual metaphor** could be used.

The fifth case presented by Eppler and Platts is about the utilization of an interactive Balanced Scorecard tree. The metaphor behind to use of the tree is that if roots are weak, the trunk will be unstable, the crown small and the fruits meagre.

The interactivity is ensured through the possibility, for example, of clicking on one of the dimension and hear the explanation of key goals and performance indicators or perform a sort of sensitivity analysis too evaluate how the tree changes as users change actions.

Tools should not be considered as not free from risks; they could occur if management, on the first line, doesn't consider them. For example could happen that managers distort their contributions or over-construct them in order to fit the schema, or simply tools could become too complex as they capture more content.

In order to exploit all the potential of the method (and so of the strategic planning), management needs to be aware that efforts should be made for continuous reviews and, instead of being locked only on a tool, it would be more effective combine different ones.

As stated by Kaplan and Norton, if people describe strategy in disciplined ways, they will increase the likelihood of its successful implementation.[45]

4 Conclusions

What could be learnt from this chapter is that the strategic planning is not only about formulate a strategy and the fact that it is usually labelled as a formalized procedure should not lead to intend it as something "rigid". The formalization of the steps to follow is just a recommended pattern to avoid that formulate a strategy becomes a casual process. Because if this could seem unreasonable for large companies, we should think that the industrial fabric is also made by smaller size firms, and Italy is one of those country which presents this characteristic.

To engage in a formulation of strategy of the "strategic planning" type should be thought as aimed to an in-depth knowledge of the external environment and the internal capacities and constraints of the organization, formulate objectives according to logical patterns and with the awareness that strategic long-term objectives should not be sacrificed in favour of financial short-term ones. In particular, this latter point should be emphasized first of all at the managerial level, in order to create goals' congruence as advocated by Lorange.

[45] Kaplan R.S., Norton D.P., Having Trouble with Your Strategy? Then Map It, p. 60

The process is not an easy one because it requires personnel to involve, resources to invest, time because it is an ongoing process, but there is reason to believe (and researches showed this) that from a well formulated and executed strategy could derive better performances.

Moreover, if implemented in a participative manner as recent works advocated, the strategic planning creates the conditions for an organizational environment made by people who feel attached to the company and will work hardly for a common goal, and nowadays establish good relationships also with their own employees is recognized as an *intangible assets*.

In implementing this process, academics have proposed tools able to support it and, in particular, the Strategy Map should be considered an opportunity not to lose for those companies that define themselves as planners because, its features are such that could produce greater value for the process.

CHAPTER 2
THE IDENTIFICATION OF POSSIBLE CONTINGENCY FACTORS

Introduction

This chapter starts with an overview of worldwide managerial tools' adoption, with an explicit focus on strategic planning's data of implementation. From this worldwide perspective we move to the Italian context, whose data come from a research performed by Cugini et al. (2016), of which this thesis represents an attempt for an in-depth analysis.

After having clarified the focus of the work, we proceed with the literature, that represents also the base of the statistical analysis that will follow in the next chapter. The literature refers to factors that researchers have identified as having an impact on the adoption of strategic planning systems.

The chapter provides description of the factors together with reasons for the link with strategic planning that authors have hypothesized.

Since factors represent the starting point for the questionnaire (or for activity sector's researches) sent to companies, we also report very briefly how each factor is "operationalized".

1 An overview of worldwide Management Tools' adoption

In line with an overall decreasing trend in the use of managerial tools, which fell down from the peak of 16.1 tools in 2002 to 7.0 in 2014, also the use of strategic planning has been reduced even if, over a ten years period, it is still in the Top 10 of the most utilized tools, scoring a quite high satisfaction rate (Fig.6).

The last report by Bain & Company about the utilization of managerial tools has been published in 2015 with data referring to 2014, and in that year Strategic Planning resulted to be the fourth most used tool at a global level (Fig. 7) and the first one in Latin America.

This result could be explained with the trend emerging from the report, which revealed that it is possible to distinguish regions preferring traditional tools from those going for newer ones. In particular, firms in North and Latin America and Europe are part of the first cluster, whereas Chinese and Indian ones have preference for innovative tools like Disruptive Innovation Labs, Complexity reduction, Big Data Analytics and Digital Transformation. This choice is probably due to their greater focus on innovation; however, Chinese and Indian

firms use a lot of old tools as well – perhaps in the effort to leave no stone unturned as they challenge entrenched market leaders.[1]

Fig. 6 - 2017 Tools' Usage and Satisfaction

Source: Management Tools & Trends 2015, Bain & Company

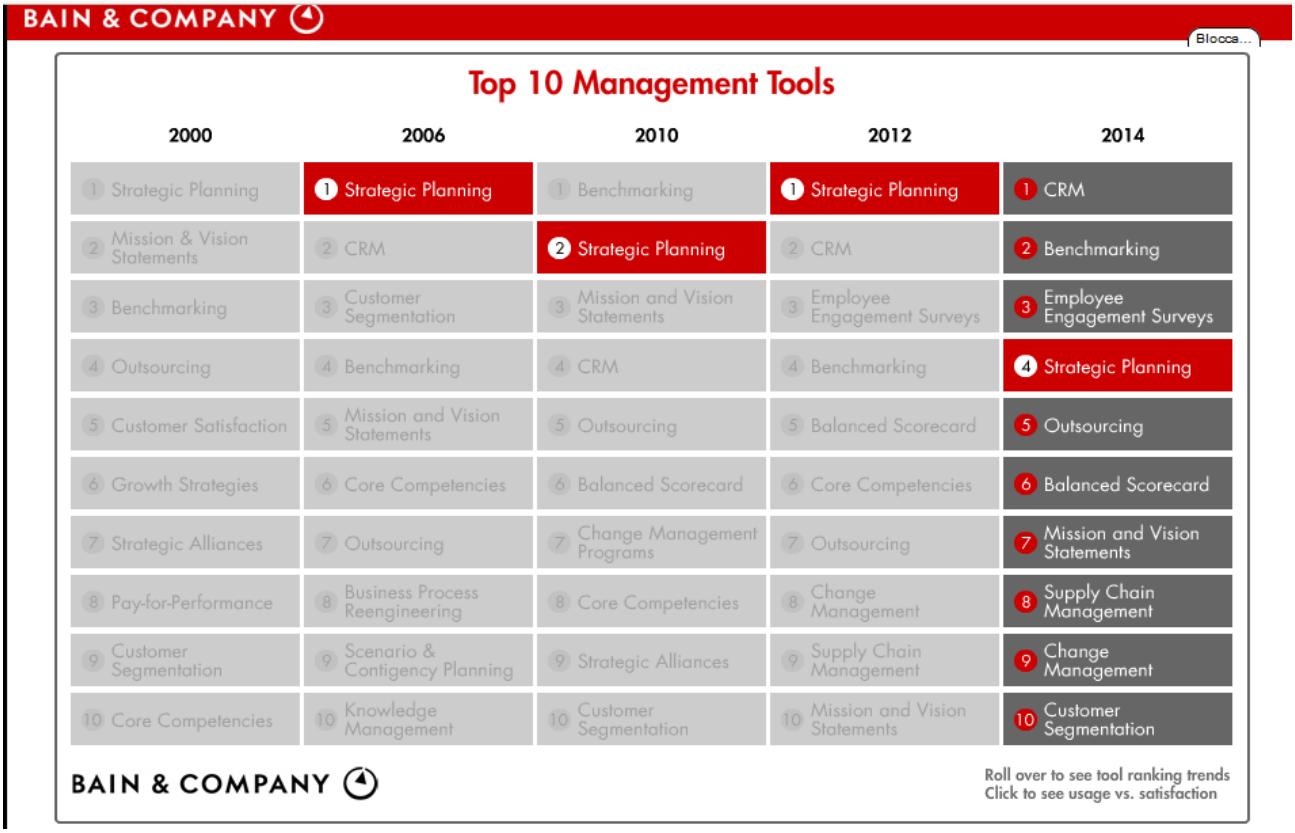
Based on their surveys, Bain & Company recognized innovation at the top of the agenda and indentified, beyond China and India, also Europe as be placing greater emphasis on innovation and long-term growth capabilities in respect to North America.

Innovation could also be seen as a way to respond to declining customer loyalty (whose improvement, in turn, helps to raise revenues and profits, respectively first and second executives' priorities according to Bain's survey). A tool which could help in improving loyalty is Customer Segmentation, whose biggest users in 2014 were European firms.

This should explain also the reason why the most implemented tool at a global level has been the Customer Relationship Management (Fig 7).

[1] Rigby D., Bilodeau B. (Bain & Company), Management Tools & Trends 2015, p.11

Fig. 7 - Top 10 Management Tools



Source: http://www.bain.com/management_tools/BainTopTenTools/default.asp

2 Findings from a research on Italian companies' adoption of strategic planning systems. Purpose of this work

A research published in 2016 by Cugini et al. about the utilization of performance measurement frameworks among companies established in North and Centre of Italy has showed that, on a sample of 127 companies, 94 of them use a Balance Scorecard system. Among these 94 firms, 70 use a BSC together with a strategic planning system (PL); 60 use a BSC with an incentive system (SI) and 52 adopt a configuration BSC+PL+SI. In the research Authors took into account, as strategic planning systems, the use of the strategy map or the identification of specific objectives and the implementation of KPI to compare actual against ideal performance. If we look just to the adoption of the Strategy Map only 16,1% of the sample affirmed to adopt it completely and the 22% in part.

Franco and Bourne reported the argument of Neely and Bourne (2000) according to which the process of measuring performance is completely wasted unless the performance data produced informs management's actions (2003: 698).

The BSC was born as a performance measurement framework however, the same Authors who designed it, Kaplan and Norton (1992), by collaborating with hundreds of companies, recognized that it creates the premises to go beyond the simple performance measurement to encompass new management processes, for instance *translate the vision*, because people inside the organization should understand how to translate words in actions, or a broad-based *communication* with all employees *of the strategy and the critical objectives* they have to meet if the strategy has to succeed (1996: 40).
Then, Kaplan and Norton summarized these patterns in a common visual framework, the *strategy map*, that in the first chapter it has been described as a strategic planning system.

What seems to derive from this preamble is that, in order to have the BSC (and in general the performance measurement) producing more benefits, it should be linked to a strategic planning system able to cope with the issues described above.
If this is not the case, the BSC continues to execute its function of measuring the performance, but what we could assume is that the company would lose the opportunity to succeed in better performance deriving from the integration of the two systems.

This consideration lead to the focus of this thesis: if the integration of a strategic planning system and one of performance measurement would help the firm in gaining major performance, we are interested in knowing causes for the scarce utilization of strategic planning systems in respect to performance measurement frameworks, as the research by Cugini et al. showed (2016).

Possible causes have been identified through the literature and, in particular, through articles which have addressed the adoption of a strategic planning system to contingency factors as organizational or environmental characteristics.

Contingency theory has been proposed for organization design (Woodward, 1965; Lawrence and Lorsch, 1697), individual behaviour (Skinner, 1969), leadership (Fiedler, 1967), business strategy (Hofer, 1975) and planning (McCaskey, 1974)[2] and, put in a very simple way, the content of the theory is about *fit the contingencies in order to realize higher performances* (Donaldson, 2001).

[2] Lindsay W.M., Rue L.W., Impact of the Organization Environment on the Long-Range Planning Process, p. 385

In the current work, the contingency view is used to identify the factors that influence, *fit*, the adoption of a strategic planning system.

The factors are firstly described relying on the literature research and then statistically analyzed in order to determine which are the "important" ones influencing the phenomenon.

In this chapter we try to follow a logical thread according to which describe the possible contingency factors starting from those external to the boundaries of the organizations to arrive to those that are typically internal. This pattern, behind to ensure an easier understanding, allows also to keep track of the role played by the strategic planning in the specific situation: if it represents a proactive mechanism towards the environment, if it serves to coordinate complex business structures, or if it enables communication and participation according to the management style and the organizational culture.

To follow this schema we start with variables related to the external environment.

3 Variables outside the boundaries of the organization: the environmental conditions

Although leveraging on their own competences and capabilities to reach a competitive advantage, organizations cannot disregard the environment they operate in so, as a consequence, its features have an impact on how the top management decide to run their business.

Environmental conditions have been strongly related to the topic of strategic planning, and this was already understandable in the first chapter of this work where, analyzing the relationship with performances, studies advocating if the adoption of the strategic planning would have fitted a certain external context by producing major benefits (or not) have been reported.

This literature already highlighted that several authors used to compare organizations belonging to different activity sectors to conduct their researches.

This immediately offers the starting point to think if firms from different sectors could have also different needs and then predispositions towards strategic planning.

Stonehouse and Pemberton (2002) performed their study by distinguishing between service and manufacturing firms; they found that the majority of organisations adopt an approach to planning with an horizon of three years or less, without no statistical differences between the two sectors. However this raise the question as to whether such planning could be classified as strategic (2002: 857); going into the the content, Authors found that the two sectors were statistically different. Firms in the service sector were found as putting greater emphasis in having clearly articulated vision and mission statements, with manufacturing

ones focusing more on sales, profit and costs; these latter are considered as business rather than strategic targets and Stonehouse and Pemberton stated that this was, perhaps, not unexpected given the nature of the business within the two sectors (2002: 860).

Then, the **activity sector**, implying for the firm different nature and needs to deal with different conditions, could be considered as a possible contingency factor.
Our quantitative research extends the distinction made by Stonehouse and Pemberton to meet all the sectors identified by the list ATECO 2007 (i.e. used in the questionnaire) with the aim to assess if belonging to a certain sector in place of another is statistically significant to explain the adoption or not of a strategic planning system.

Even if the activity sector is not a real environmental condition, its identification is preliminary to the description of factors that follow. Indeed, the identification of the activity sector the company competes in is fundamental to assess the level of complexity and instability the firm should face. Authors have often investigated these two dimensions in relation to the strategic planning to assess if they imply a stronger or weaker adherence to the planning approach.

Following Cannon and St. John's review of the literature (2007), **complexity** is considered as a function of the number of heterogeneous environmental components with which the firm must interact leveraging on sophisticated or technical knowledge. Their study supported the idea that complexity is multidimensional, stating that a single-measure approach allows simplicity, but can put accuracy at risk.

Instability deals with the rate of environmental change, with dynamism representing, in turn, the unpredictability of such changes.

As complexity and instability increase, the felt need of more pervasive planning activity increase as well, as recognized by Lindsay and Rue (1980), Jennings and Disney (2006) and Brews and Purhoit (2007). This latter study underlined that instability increases also the need for decentralization and experience in order to develop a planning system able to cope with more challenging environments.

Both complexity and instability are susceptible to be increased by the **competitive pressure**. Yasai-Ardekani and Haugh (1997) suggested that *organizations in competitive environments need a greater analysis of the environment and are expected to rely on a wider*

range of forecasting. This would result in a greater size of planning effort, realized with a major commitment of human and financial resources. The strategic planning, according to the Authors, would serve as a mean for greater proactiveness and adaptation to competitive conditions.

Moreover the intensity of competition, together with the attractiveness of a certain industry, creates a so-called *portfolio pressure* (Chakravarthy, 1987) which shape the design of the system.

Taken together, complexity and instability could be considered as a proxy of **uncertainty**; according to Armstrong (1982) and Shrader et al. (1989) *uncertainty requires more planning*; in particular the study of Shrader et al., examining small firms, validated the hypothesis according to which both operational and strategic planning help managers to cope with it.

Even if the uncertainty is a given environmental condition, organizations can show a higher or lower degree of tolerance based on the cultural context; this idea can be expressed through the Hoftede's dimensions of **low** and **high uncertainty** avoidance. These attitudes, in turn, influence the predisposition of the organization towards the strategic planning. Through the literature two opposite positions have been found, both of them being reasonable, that's why at this point none of them is advocated instead of the other.

The idea suggested by Hoffman (2007) is that *cultures perceiving a greater control over their environment and that can tolerate ambiguity tend to use a more rational/analytical, top down approach to strategy making*. Individuals operating in cultures with opposite profile perceive less control, so strategy making follows a less methodical approach. Compared to the higher uncertainty avoidance Germanic culture, managers from Nordic and Anglo countries are less likely to see the environment as uncertain and are more likely to believe it can be analyzed and known through rational processes such as strategic planning.[3]

Brinckmann et al. (2010) stated, instead, that in *cultures with high degrees of uncertainty avoidance, people are more easily threatened by ambiguous situations: they have a preference for structures, regulations, and expert knowledge as ways of reducing their perceived ambiguity*. Then, in countries with high levels of uncertainty avoidance, managers rely on more extensive forms of planning to cope with uncertainty.[4]

[3] Hoffman R.C., The Strategic Planning Process and Performance Relationship: Does Culture Matter?, p. 30
[4] Brinckmann J., Grichnik D., Kapsa D., Should entrepreneurs plan or just storm the castle?, p. 29

Even if Hofstede already classified countries as having a higher or lower need to avoid uncertainty, for the purpose of this work it has been decided to adapt this construct with the aim to understand if the felt need is different among organizations based in the North, Centre or South of Italy.

According to Hofstede, in high uncertainty avoidance contexts the effects of conflict and competition are more feared and, within the organization, features like clear rules, precise job descriptions and little opportunity for subordinates to take their own initiatives will be more easily found. In turn, organizations in low uncertainty avoidance contexts are more willing to take risks and are less resistant to change. Managers are of lower average age in higher level jobs and foreigners ones are accepted with relative ease.

We anticipate here that the high or low uncertainty avoidance is determined by asking firms to select a weight from 1 to 5 on sentences that better would fit with the description of the organization. Features to describe one or the other situation have been suggested by Hofstede (2011).

Instability is often identified as **turbulence**;[5] Calantone et al. (2003) identified situations leading to turbulence like high levels of interperiod change that create unpredictability; dynamic and volatile conditions with sharp discontinuities in demand and growth rate; temporary competitive advantages that continually are created or eroded; low barriers to entry/exit that continuously change the competitive structure of the industry.[6]

Grinyer, Al-Bazzaz and Yasai-Ardekani (1986) analyzed turbulence meant as number of adverse market changes; rate of technological change and need for new product introduction. Their findings revealed that *the felt need for corporate planning may be expected to be increased by each of the variable cited above*. In the first grouping Authors referred to **political**, **social** and **general economic conditions** which shape the pattern of demand and supply, but also exchange rates and interest charges, that have effects on the home and foreign countries the firm competes in.

Technological changes can slow down production costs, allow to offer additional attributes for an existing product or create a new one; such changes, together with those deriving, for example, from differentiation of the packaging or of the service offered to the customer, create a **need for new products**.

[5] In this work we take instability and turbulence as synonymous, making the distinction only to respect the relevant terminology used by the authors

[6] Calantone R., Garcia R., Droege C., The Effects of Environmental Turbulence on New Product Development Strategy Planning, p. 91

Anyway, Grinyer et al. recognized that the extent to which the **instability** can damage a company **could be mitigated** by factors like its *market share*, *mutual dependence* and *sales to major customers* (like governments). A company with a high market share is considered as having more time to respond to technological and product changes introduced by smaller rivals, without its dominance being threatened seriously; furthermore following economic theory they reminded that, if barriers to entry are high and the level of competition between the oligopolistic rivals is restrained, a company with high market share will have higher profit margins, that will imply greater organizational slack to cushion the company while it responds to adverse changes.[7]

Where high market share meets a high buyer concentration a mutual dependence relationship is likely to occur, and changes in products are more likely to be negotiated (1986: 5). This relationship is likely to be established between large companies and government departments buying from them.

Beyond these external relationships, the Authors identified also the adaptability or flexibility of the **core technology** as able to influence the impact of turbulence.

Technically inflexible production processes are limited in the range of products they can make and so are susceptible to down-turns in demand; moreover when an investment is made, it could take long gestation periods. They also added disruption in supplies of critical materials as an additional threat on inflexible core technologies. A firm configuration like this requires careful forecasting and analysis before irreversible commitment of large sums.

Then, *when environmental turbulence is high, it is not moderated by relationships with major clients and the core technology is vulnerable, there is a greater need for a proactive mechanism*, i.e. one of the roles the Authors identified for the strategic planning.

Another dimension often used to analyse the environment is the **munificence**, defined as the extent to which the environment can provide sufficient resources for the firms; munificence has been investigated by Castrogiovanni (1996) in relation to pre start-up planning.

In his study the Author defined strategic planning as beneficial for survival by generating three types of benefits: symbolism, learning and efficiency. The symbolism effect results in the legitimization of the new venture proposal and as a way to communicate with external

[7] Grinyer P., Al-Bazzaz S., Yasai-Ardekani M., Towards a Contingency Theory of Corporate Planning, p. 4

stakeholders; strategic planning is able to produce a symbolism benefit by helping founders to obtain financing.

The learning effect derives from the uncertainty reduction benefit advocated by Armstrong (1982) and Shrader et al. (1989): because the uncertainty is the absence of knowledge about cause-effect relationships in a decision context (Leblebici and Salancik, 1981), then the uncertainty reduction benefit represents a learning effect.

The efficiency benefit relates to time and cost savings to realize in the post start-up phase deriving, respectively, to plans already communicated to members and to details already addressed during the pre start-up one.

The Author also recognized that some contextual factors serve as moderators of the planning-performance linkages; among these he identified the environmental munificence that, being the extent to which the environment can support a new business and enable it to grow and prosper, facilitates the survival by making easier to realize profit.

Thus, *munificence reduces the incentives to engage in pre-start up planning because there is less need for the symbolism, learning and efficiency benefits*.

Another factor identified through the literature is the **market's inefficiency**; as studied by Armstrong (1982), by providing little information on the proper pricing strategy and raising questions about how allocate rewards among stakeholders, it is another factor which could *promote the use of a planning system* because it allows to examine the pricing issue in a more systematic way and allocate rewards in an explicit and open manner.[8]

3.1 The operationalization of the environmental conditions

Before to go deeply in the description of how the variables of complexity and instability[9] are evaluated in this elaborate, some clarifications are necessary.

For the purpose of this work, it has been decided to not consider the factors moderating the environmental turbulence as relevant because, even if reasoning is acceptable, they seem to not reflect anymore dynamics able to reduce instability in the modern economy.

The munificence as intended by Castrogiovanni (1996) is not included in our quantitative research because we are not interested in planning activity conducted in pre start-up phases, as well as also market's inefficiency is not represented through a specific variable because it is

[8] Armstrong J.S., The Value of Formal Planning for Strategic Decisions: Review of Empirical Research, p. 202

[9] The choice to analyze only complexity and instability rely on the consideration that turbulence is just a synonymous for the latter and uncertainty is a result produced from both the variables. Vulnerability of core technology will be analyzed further.

believed that it could be considered as included in the dimensions of complexity and instability.

The vulnerability of the core technology, although in the article of Grinyer et al. was referred directly to the firm, here it is considered at the activity sector level because, despite a certain degree of action each firm could have at its disposal, this configuration is typically common to all the organizations belonging to the same sector.

To identify the level of complexity and instability it has been decided to use objective measures rather than subjective ones, that's why we relied on activity sectors' data published by ISTAT instead of asking firms' perceptions in the questionnaire.

For the purpose of this work, it has seemed reasonable to adopt a multidimensional approach as suggested by Cannon and St. John, however not all the variables they suggested are available on ISTAT database. By summarizing the analyzed literature of measuring complexity and instability we ended up with the following indicators: *concentration ratio, technical intricacy, geographical diversification, product diversification, innovation,* and *changes of the competitive context*.

Sharfman and Dean (1991) offered two view points about **concentration**: on one side, concentration could be intended as a measure of high complexity because of the greater number of organizations (within the region) to take into account in making a decision; on the other side greater concentration could slow down complexity because greater proximity of firms facilitates inter-firm communication, rendering information processing easier.[10] Authors advocated this latter position, stating that firms could not anymore disregard to take into account also organizations far from their own location.

Cannon and St. John's reasoning was that, when the competitive concentration increases, the range and variety of tactics available to an incumbent become restricted (305: 1991).

Then, following the literature, it is assumed here that *concentration is an indicator of low complexity* and, to measure it, the Five Firms Concentration Ratio is used; it is provided by ISTAT database for each of the activity sectors identified from the quantitative research.

Technical intricacy as a variable to measure environmental conditions was already included in Dess and Beard (1984), who specifically addressed it to the technological

[10] Sharfman M.P., Dean J.W. Jr., Conceptualizing and Measuring the Organizational Environment: A Multidimensional Approach, p. 686

instability; however, following Dean and Sharfman (1991) and Cannon and St. John, we keep technical intricacy as a variable to measure the complexity. It is calculated as the percentage of workforce in scientific, engineering or technical occupations and the idea behind its inclusion is that the higher the percentage, the greater the degree of sophisticated knowledge required for participation in the industry and so, the technical complexity. Also these information are available on ISTAT database.

The inclusion of the **geographical** and **product diversification** comes from the idea, even if here used with some adaptations, included in Dess and Beard (and replicated also in Cannon and St. John) of input and output concentration.

Concentration of industry input and output reflects the extent to which a large portion of an industry's input (or output) is supplied by (or purchased by) relatively few industries. Both these indices, according to the Authors, provide a measure of heterogeneity, however they are not available on ISTAT database.

Anyway, in nowadays globalized economy most of the businesses are part of a greater network of firms which maintain buying and selling activities.

Then, it has been decided to use as further measures of the environmental complexity the product diversification, available on ISTAT database through the specialization ratio and the geographical diversification, identified by the import intensity and export sales.

Both the diversifications increase complexity because of the higher need to understand issues like production processes and inputs from one side (Dean and Sharfman, 1991:686) and socio-political and economic on the other. Strategic planning not only could help in screening the environment, but could also facilitate the relationships with several and external partners (Coskun Samli et al., 1998).

Following Dean and Sharfman (1991), instability is considered here as both market and technological instability.

For the market instability the literature has not suggested methods to apply with relative ease then, it is assumed here, that a market is more unstable the higher are the firms' birth and death rate.

The logic behind this idea is that **changes in the competitive context** let the market equilibrium continuously change as well; regardless of the balance between the two rates, the more they move from zero, the higher the instability. The choice to disregard the final balance

is due to the fact that, even if it tends to zero, survived firms have to deal with competitors which are unknown.

For the technological instability we use the **percentage of the level of innovation**, intended here as a proxy of the level of patents granted in an industry. The idea of the Authors is that the more are the patents in a given industry, the faster the technology is changing, thus making the environment unstable.

The **number of innovative firms** in the sector is also considered because it could be seen as representing the need for new product advocated by Grinyer et al.

The vulnerability of core technology is assessed through **investments in fixed assets** because we assume that investments are necessary when existing assets cannot sustain innovative processes or new products.

Although at the beginning it has been written that complexity and instability would have relied on objective measures, the reader should consider that a certain degree of discretionality is implicit in how the measures will be judged to assign a final score to the variables.

We also remind that, for the purpose of this work complexity and instability, have been identified as contingency factors that, when increase, raise the need for strategic planning.

4 Variables inside the boundaries of the organization: the organizational dimensions

The logical thread adopted to describe the contingency factors now continues by investigating features that belong to the organization itself and that we include in the macro cluster of the organizational contextual dimensions.

4.1 The contextual dimensions of the organization

The **size** of the organization has been widely examined over the years and all the papers the literature research has been able to identify (Litschert, 1968; Lindsay and Rue, 1980; Miller, 1987; Grinyer, Al-Bazzaz, Yasai-Ardekani, 1986; Yasai-Ardekani, Haugh, 1997; Stonehouse and Pemberton, 2002) suggest that *larger organizations rely more on strategic planning*.

Reasons for the scarce utilization in small firms have been investigated by Robinson and Pearce (1984), who summarized conclusions of several articles published

before their own one in four principal reasons; beyond the lack of time due to continual day-to-day operations managers should face, the lack of a specialized expertise to engage in planning and the lack of trust and openness in sharing the strategic planning with employees and consultants arose.

Miller (1987) simply stated that the CEO in small firms could be considered as able to manage most things alone and the decision making could be more sporadic and inconsistent without much consequence. This would not be possible in larger firms due to their greater complexity and environmental contingencies they should face (1987:14).

The organizational complexity of larger size firms was recognized also by Grinyer et al. (1986) and Yasai-Ardekani and Haugh (1997); by inducing more needs of coordination and control of organizational activities, larger size firms are more willing to engage in planning because of its integrative role. This greater effort could also be explained by underlining that larger size is often reflected in a diversification strategy then, there is a broader and more intense monitoring of environments.

Wang et al. (2011) referred to ownership motivations as the reason why many small firms do not engage in planning; motivations to run a business are basically of two types: on one side the owner-manager pursue profit/growth maximization goals, on the other personal fulfilment goals. The majority of small firms' owner-managers are happy to remain small or simply they want to ensure themselves employment; because strategic planning is recognised as a vehicle to drive business development, competitiveness and economic success (2011: 8), they proposed that only owner-managers pursuing profit/growth goals will be more willing to engage in planning.

By referring to the size, it is necessary to underline that parameters and relative values to distinguish the dimensions are not equal all over the world. In the European Union an harmonization rule has been adopted among countries but, for example, there are substantial differences when we want to make comparisons with the US legislation, which presents many exceptions on the base of the industry taken into consideration. Then in the US, in some cases, it is possible to classify a business as small even if it implies more than 500 people.

Anyway, for our quantitative research we keep the parameters as defined by the European Union and we address our questionnaire only to Medium and Large companies, because we believe reasonable that micro and small enterprises have not resources, time and skills to engage in strategic planning. The aim, as usual, is to assess if there are statistically

significant differences between Medium and Large companies adopting a strategic planning system.
Parameters to determine the size rely on Ministerial regulation; in order to be classified as a Medium sized, the firm should employ between 50 and 249 individuals and having an amount of net sales between 10 and 50 million of euro, or total assets (liabilities) not exceeding 43 million of euro. All the other are considered as Large firms.

The **strategy** adopted by the organization is another factor that the literature as identified as possibly contingent.
Yasai-Ardekani and Haugh (1997) stated that differentiation based advantages are less susceptible to erosion in respect to low cost ones. Indeed, the latter can be readily imitated or eroded by competitors through vertical integration and, because they are based on the efficiency of the operations, increase the need for integration of organizational activities.
Thus, *organizations with a low cost orientation should engage in planning processes that enable anticipation and adjustments to changing environmental conditions and ensure greater integration*.

The position of Veliyath and Shortall (1993) and Jennings and Disney (2006) referred, instead, to the Miles and Snow's archetypes, and offers an opposite view finding that *Prospectors have greater planning implementation than Defenders*.

At this point the aim is not to advocate one or another theory, we just identify through the literature that the strategy adopted by the company could imply different needs and then be contingent to the adoption of a strategic planning system.
Because nowadays boundaries are always more confused and new theories of strategy arose, we move from the usual distinction from differentiation and low cost leadership to encompass also strategies that hold features of both the previous one, like the Blue Ocean strategy.
More than strategy adopted, in our questionnaire we chose the terminology of strategic orientation and we asked companies to indicate actions and initiatives undertaken during last years in order to identify the relevant orientation. On the base of the identified ones, the aim is to address if different strategic orientations lead to differences in the adoption of the planning system.

A methodology similar to the one for the strategic orientation has been adopted for another factors we found possibly as contingent, i.e. the **type of performance improvement** that is needed.

Chakravarthy and Lorange (1991) distinguished between the pressure for strategic development and financial pressure, the latter more focused on operating than strategic planning.

However, it is not possible to typify companies as simply having one pressure or the other because all of them have some kind of financial pressure in the short term; what could change is the weight they assign to financial and strategic results in the long-term. Then, if a company assigns a higher grade to financial results also in the long term, we assume that it could be engaged in operating planning, but it has no motivations to engage also in the strategic one.

In the questionnaire we ask companies to assign a weight from 1 to 5, in both the short term and the medium-long one, for different types of objectives. Through the statistical analysis we want to assess if the relevant predisposition on financial or strategic objectives is able to show significant differences in the adoption of a strategic planning system.

In nowadays context companies put more and more emphasis on the goal of **innovation**, both to adapt and initiate changes in the market and industry.

In a resource-based view, Eddleston et al. (2008) identified innovative capacity as able to enhance performances; they suggested that firm's resources should be integrated and deployed effectively through strategic planning to achieve a competitive advantage. Indeed, *strategic planning may heighten the positive effects of innovative capacity because it helps to better assess how resources should be dedicated for greater innovation and risk taking*.

However, contrary to this hypothesis, they found that firms rich in innovative capacity had slightly lower performance when they relied on high levels of strategic planning.

Despite Authors' conclusion, we keep the focus on innovation for our quantitative research, especially because findings cannot be generalized due to the fact that the study specifically addressed only family firms. Moreover, we remind that our aim, at this point, is not to advocate other's study, but use the variables they suggested to investigate the adoption of strategic planning systems among Italian companies.

In the questionnaire we ask respondents to indicate values which are expression of the top management and, among these, we include the focus on innovation. We want to assess if having an innovation focus could show significant statistical differences between companies relying on a strategic planning system and those that do not.

Talking about values, we included also ethics: Barnard (1968), Freeman and Gilbert (1988) and Hosmer (1994) highlighted the importance of ethical and moral principles to apply at each step of the planning process to determine if a given decision or action could be considered as "right" and "just" and "fair". These principles allow to avoid conflicts in values, goals and projects, build trust and commitment in all the stakeholders then making the strategic planning implementation easier and more effective.

The activity of identifying company's features that influence the choice to adopt or not a strategic planning system should take into account the **corporate culture** and the importance attached from the company itself to spread values and beliefs.
In the first chapter it has already been highlighted how the role of the strategic planning has evolved overtime arriving to encompass also a role of communication and participation facilitator.

Even if older than this point of view, the study published by Bresser and Bishop (1983), already mentioned while analyzing the possible disadvantages of the strategic planning, seems to offer a reason for an acceptable opposite view.
It suggests that *planning is more valued in organizations characterized by many and different values, beliefs and exemplars because it serves as a way to direct and co-ordinate the executives' preferences* that, because of cultural differences among individuals, will not be carried out voluntarily and automatically.

The food for thought deriving from this article is about think if a corporate culture i.e. strongly diffused within the organization (then it is implicit the importance to spread it) exercises some form of influence on the choice to adopt or not a strategic planning system.
To assess if a corporate culture is strongly diffused, or *homogenous*, would imply to interview different people from the organization and compare if their answers would be coherent in a way to show that they share the same culture. This is the methodology used by Hofstede et al. (1990) to measure organizational culture however, in our case, it is not a feasible solution; but it has been taken spark from this article to measure culture through its manifestations of *symbols*, *heroes*, *rituals* and *values*, that the Authors identified from the previous literature. The idea is that if the company shares these manifestations, is to bring people together. Then the culture is likely to be stronger. We ask respondents to indicate if the top management cares about the diffusion of the corporate culture and, in case of positive answer, we ask in which way this is done by giving the option to select some of the *manifestations* suggested by Hofstede.

As related to corporate culture, we also report Eddleston et al. (2008), who envisaged a relationship between reciprocal altruism (specifically referred to family owned firms) and strategic planning. The reciprocal altruism would result in a strong sense of identification and value commitment towards the firm, by making people believe that work to reach organizational goals will allow to satisfy personal needs, too. The Authors stated that, in absence of strategic plans, family members do not know how to prioritize their effort or how best communicate to the firm; then strategic planning may help leverage reciprocal altruism of family members by making apparent the goals of the firm and direct effort where they are most needed to maximize performance (2008: 33).

Following this description, the strategic planning would serve as a mean of communication, however we do not address specifically this factor in the quantitative research because the need of communication is already considered as implicit in other factors like size and structure.

The technology is another feature of the organization which can play the role of contingency factor; the vulnerability of the core technology has been already analyzed by referring it to the activity sector rather than to the firm as a single entity. Then, at this point, we refer the technology as the **Information Technology** that, through its systems, could offer a great help in implementing strategic planning. Indeed, strategic decisions are characterized by an enormous complexity and quantity of internal and external data and planners have to cope with insufficient knowledge because of uncountable interdependencies (Moormann and Lochte-Holtgreven, 1993).

Then, a Decision Support System (DSS) could help executives in their strategy decision making process by integrating multiple variables, whose effect could not otherwise be calculated, and generate alternatives, as well as a Group Support System (GSS) could enable groups to meet face-to-face with computer-mediated electronic communication, providing also the integration of database that can be easily consulted during the discussions. The GSS also allows participants to enter in a cognitive map to better see the reciprocal influences of different factors. Orwig et al. (1996) stated that not only GSS provide a mean by which a larger number of organizational stakeholder can efficiently and effectively participate in the process, but also that the resulting plan benefits from the richness of knowledge

provided by the greater representation of members and will be more easily implementable due to the greater "buy-in" that would result from a higher level of participation.[11]

The importance of the Information Technology in the field of the strategic management triggered a considerable amount of research within the information systems literature to the development of frameworks and methodologies to conduct the strategic planning in the attempt to aid IS planners to align their strategies to those of the organization, but also help planners to discover opportunities to utilize IT for competitive advantage.[12] Teo and King (1997) advocated that firms with IS competence should be more likely to leverage on IS applications and the IS competence should play an important role in the interaction between the IS function and business management during strategy formulation and implementation (for example by including an IT manager in the planning staff/department).

By summing up what the literature suggests, the company should exploit the opportunities that the technology offers in order to develop strategic plans that are the more accurate as possible. Because of the great effort necessary to gather and evaluate information, generate alternatives and approve solutions, we could expect that companies which do not heavily rely on IS do not engage in strategic planning because conscious of the limited cognitive ability of members involved in the strategy formulation.

Then, we ask to the sample of companies if they have an IT function and, if yes, to assess their level of competence; we list some initiatives asking to indicate if they have been already implemented or this will be done in the future. Among these initiatives we include investments in Big Data, Analytics and hiring of specialized personnel to understand if companies make use of such instruments or rely in this kind of figures to support their decision making process; we want to verify if the presence of such instruments could be a predictor also of the presence of a strategic planning system.

Moreover we are interested in understand which is the role of the IS function within the organization.

4.2 The characteristics of the organizational structure

Beyond the contextual dimensions, organizational features can be related also to the structural dimension.

[11] Orwig R., Chen H., Vogel D., Nunamaker J.F. Jr., A Multi-Agent View of Strategic Planning Using Group Support System and Artificial Intelligence, pp. 37-38

[12] Segars A.H., Grover V., Teng J.T.C., Strategic Information Systems Planning: Planning System Dimensions, Internal Coalignment, and Implication for Planning Effectiveness, pp. 303-304

It is intuitively understandable that the **structure** of the firm is a characteristic included in this cluster and the literature has identified also it as a factor influencing the use of the strategic planning.
Grinyer et al. (1986) and Yasai-Ardekani and Haugh (1997), beyond the larger size, identified also *divisionalization as increasing the level of the organizational complexity and, as a consequence, the need for the strategic planning as a method of coordination and control* because of the separation of head office from subsidiary business operations (1986: 5). The issue of high organizational complexity requiring greater need for plan was included also in Armstrong (1982) even if, in his article, the Author stated to have not find any empirical evidence.

A factor considered as implicit in the type of structure is the level of **centralization**, that is, theoretically, higher in functional structures in respect to divisional ones because in, the latter case, managers of the divisions have the power to make most of the decisions for the division itself.
According to Miller (1987), *centralization discourages rationality* by placing most of the onus of decision making on top executives, taxing their cognitive abilities and imposing significant time constraints, *in this way impeding analysis and planning*.

To assess the level of centralization we list some typical actions of running a business (like price strategy, hiring/firing of people, relationships with supplier) and we ask to indicate if such decision are taken by the top management or by the middle/line managers with authorization of the top ones or by the line/middle managers autonomously.
What we expect from the statistical analysis is to understand if the level of centralization is significant to explain the adoption of a strategic planning system.

The organizational complexity is expected to increase as the company moves from one stage to another of its life cycle. In the first chapter of this work, while analyzing the relationship between strategic planning and performance, we already mentioned some contributes of the literature related to the adoption of the strategic planning in different development stages, however at this point the **development stage of the firm** is specifically addressed as a possible contingency factor.

Lindsay and Rue (1980) already mentioned the *age* of the firm as a contingency factor, however we found the topic more deeply investigated in further studies.

Sarason and Tegarden (2003), adopting a resource-based view, suggested that *in early stage firms strategic planning is a major source of competitive advantage*. They found strategic planning in the first years of life as improving performance, whereas no relationship was found in later stages. One reasoning they offer takes spark from Powell (1992) and suggest that, when companies approach later stages, more firms have access to strategic planning tools and time to implement them, then the strategic planning seems more imitable (2003: 5).

We remind here also the contribute provided by Brinckmann et al. (2010), who found *significant positive effect between planning and new firms success, but greater returns for the average small firm than the new one* then, they suggested that in earlier stages resources could be allocated to other value creation activities.

What results from the literature is that, although the firm can benefit from strategic planning in each of its stages (see also Castrogiovanni mentioned while analyzing munificence), the decision to implement a system could rise together with greater needs and also through the accumulation of information from prior operations, routines and practices, which support planning (Brinckmann et al., 2010).

Through the questionnaire, we want to identify the development stage of the firm; the method Sarason and Tegarden used was taken from the work of Kazanjian (1988) and was about ask to respondents to indicate the characteristic that would have better described the firm and, on the base of the selected ones, identify their life cycle phase.

Although theoretically this method could work, there is need to take into consideration that many exceptions could be in place depending on the activity sector or the ownership: for example family firms retain founders' supervision not only in the introduction phase but, often, also in the maturity one. Service firms, for example marketing agencies, preserve an informal structure even if they are not anymore new born or growing, whereas other organizations could be specialized already in their introduction phase. Then the most feasible option it has seemed to directly ask to participants their perception about the phase in which collocate their company.

The idea, as usual, is to understand if there are significant differences in the adoption of a planning system depending on the phase of the life cycle the company is going through.

As the company moves through the different stages, it could decide to introduce **integrative liaison devices** like task forces and coordinative committees in order to make the communication easier. According to Miller (1987), the presence of these groups can

encourage rationality, i.e. central in the planning process, because allows to develop, scrutinize and reconcile divergent perspectives. In the specific case of the strategic planning, the integrative liaison device could assume the form of a **strategic planning staff** composed by specialists who have time and training to engage in planning, in this way supplementing to a lack of time of top executives.

After having assessed if the system is adopted or not, we ask to the company if it has at its disposal a permanent planning staff and how it is composed. Academics, in fact, advocate planning staff where members share different backgrounds and whose chief planner was in a lower position. Indeed, Al-Bazzaz and Grinyer (1980) and Armstrong (1982) sustained that managers sometimes use planning to control other (we remember that this point of view also reflects what it has been written by referring to Bresser and Bishop analyzing the corporate culture), but in this way facing the dissatisfaction of line departments. Findings by Al-Bazzaz and Grinyer suggest that the perceived success of planning was higher in companies where the chief planner was in lower positions. This view is opposed to the original one of Lorange (1980) according to which the responsibility of the overall strategic planning would have been on behalf of a senior staff executive because of his/her broad background.

The need to ensure the diversity of members' background in the strategic planning staff should take place also to discourage an excessively high group cohesiveness, which would tend to result in less knowledge and more biased knowledge about the strategic plan.[13] Members of highly cohesive groups are less information-receptive (so-called groupthink effect), meaning that they are likely to ignore potentially important information, and this could lead to decisions which are suboptimal to the organization.

Our discussion about strategic planning staff/departments should not be concluded before having underlined that, in respect to the contributes cited above, nowadays roles and responsibilities have changed.

In his book of 1980, Lorange precisely described the role of corporate and division planners however, in an article of 1998 the same Author recognized that staff were getting smaller and smaller and in some cases disappearing, becoming substituted by a new breed of planning staff at the interface of the project management support and the human resource management function.[14]

[13] Whitney J.C., Smith R.A., Effects of Group Cohesiveness on Attitude Polarization and the Acquisition of Knowledge in a Strategic Planning Context, p. 174

[14] Lorange P., Strategy Implementation: the New Realities, p. 19

What results from other studies, like the one by Grant (2003), is that the strategic planning department appears to be relegated to just the corporate level and, rather than actually doing the planning, it serves as a supporting resource by facilitating communication between corporate and business management, providing technical and administrative support and acting as internal consultants; this goes with a shift of responsibility towards middle managers and business units (Wolf and Floyd, 2017).
It is understandable how this would create a sort of ambiguity and roles' overlap, in which the figure of the strategic planner would not be anymore clearly identified. Indeed, Whittington et al. concluded that strategic planners have adapted discriminatingly to increased levels of environmental turbulence, decentralizing organizationally and rebalancing analytically. In this sense, strategic planners are not locked into any particular model, whether "old-fashioned" or otherwise.[15]

5 The autonomy of the top management: does the support from the parent matter?

In the previous paragraphs it has been already mentioned that the strategic planning could represent a mechanism of coordination and control of separate business units. We can extend this principle to include, beyond the business units, also the single entities when they are part of a group of companies.

Groups of companies can be distinguished on the base of several criteria, two of those are the level of integration between the activities and the role played by the holding company. However in this work we decided to not enter deeply in groups differences that could, instead, represent a further step if this analysis will show that the variable is significant. Then, we are simply interested in knowing if the company answering our questionnaire is an independent company or if it is part of a group; in the latter case we ask to indicate the position.
We addressed this variable as the **autonomy of top management**.

In the first chapter it has been mentioned that outsiders like consultants can represent valuable and often necessary assistants to owner/managers in fulfilling their planning process (Robinson et al., 1984). However Robinson and Pearce (1984) found that *small firm owner/managers are highly sensitive* and guarded about their business and decisions that affect them; *as a consequence they are hesitant to share their strategic*

[15] Whittington R. et al., Strategic Planners in More Turbulent Times, p. 10

planning with consultant. Despite the interest of the finding, they did not specifically addressed to independently owned firms.

We find ownership specifically addressed in O'Regan and Ghobadian (2002) who, at the beginning of their article, stated that it is reasonable to suggest that *independently owned small and medium sized firms have a less structured approach to strategic planning deployment in respect to wholly owned subsidiaries*. The backing and support of a larger organisation would result in critical differences between independent and wholly owned firms, regardless of their size. Reporting Variyam and Kraybill (1993) Authors stated that strategic planning is more likely to be present in subsidiaries because they tend to have the necessary resources; moreover, by summarizing the previous literature, they identified several barriers to strategic planning implementation and all of them, according to their statistical analysis, were found as stronger for independent firms. Such barriers are:

- inadequate communication;
- longer implementation than anticipated;
- a shortfall in employee capabilities;
- overall goals of strategy not well enough understood by staff;
- co-ordination of implementation not effective enough;
- crises which distracted attention from implementation;
- unanticipated external problems;
- external factors which impacted on implementation.[16]

This study includes the idea that the parent company could ensure a certain degree of support for the strategic planning, or at least plays an important role. Grant (2003) reported that at the oil majors the parent was usual to provide guidelines, with plans prepared by the single business units/firms and then submitted to the approval of the headquarter to prepare the corporate plan as a results of the aggregation of the business plans (2003: 500). In opposite, the strategic planning at General Electric has always remained integrated with corporate-level strategy development and decision making (Ocasio and Joseph, 2008).

For whatever role of the different entities, the aim of our quantitative research is to assess if the autonomy of the top management is able to explain the adoption or not of a strategic planning system.

[16] O'Regan N., Ghobadian A., Effective strategic planning in small and medium sized firms, p. 665

In the presence of a group of companies, there is often the need to deal with different cultures; the study by Brock et al. (2000) focused on how culture influences the relationship between headquarter and subsidiaries in multinational firms related to the strategic planning.

Authors distinguished between home country culture, which guides the preferred planning dimensions of the headquarter, and the host country national culture, which dominates the character of subsidiary planning. By applying the Hofstede's framework of cultural distance they suggested that, as the two culturally-influenced systems interact, different outcomes could emerge.

The systems may clash, with each group defending its approach and ignoring the other, or a subsidiary could rebel, finding a way to subvert and contravene headquarters.

In case of strong, control-centered headquarter's planning, the subsidiary can opt for a blind conformity, so follow the "orders" even if reluctantly; a fourth option is compatibility, in this case synergies could arise.

The resistance by separate units was addressed already in Lorange (1980), whose specific case was the one of division managers. According to the Author, resistance could arise because of the perception that planning might diminish the power of the division managers or simply because of lack of knowledge.

Even if this situation is not uncommon, we do not include the dimensions of the cultural distance as influencing the adoption of strategic planning systems because, as stated by Lorange, the CEO, in such cases, should sooner or later face the issue by deciding if removing division/subsidiary's managers not willing to cooperate. Conversely, he/she could might seriously strain the usefulness of planning as a meaningful strategic decision making tool (1980: 264).

6 The characteristics of the top management: composition of the team and psychology of the members

The task of developing a strategic planning system would fall primarily under the CEO's jurisdiction; moreover he should be willing to devote a sufficient amount of time and intellectual involvement in order to have it functioning (Lorange, 1980).

Each CEO will be different because of different career patterns, ambitions, pressure from stakeholders and also psychology and this will be reflected in his/her management style and the the willingness to engage in planning.

Jennings and Disney (2006) summarized previous literature about CEO and management's psychology and the impact these features could have on the choice to implement strategic planning; they reported the study by Miller et al. (1982) investigating the *locus of control* of CEO, which found that CEO with a more internal orientation will rely more on scanning devices and long term planning.

By relying on the study of Gardner and Martinko (1996), the two Authors also reported couples of different individual psychological types that, directing the use of perception and judgement, have implications for strategic planning.[17]

Couples of psychological types are: *extraversion and introversion*; *sensing and intuition*; *thinking and feeling*; *judging and perceiving*.

The Extraversion-Introversion preference refers to the direction in which attention and energy are drawn: the former implies wishing to experience things in order to understand them, the latter is about understand something before trying it.

Sensing and Intuition refer to the gathering of information and understand situations: sensing focus is on data, with orientation towards the present, whereas intuition focus is on connection between data and possibilities, with a focus towards the future.

Thinking and Feeling refer to how information are organized and structured and the process to come to conclusion: the former implies a preference for analytical and logical principles to make objective decisions, the latter prefer to follow own and other's value, encouraging participation and consensus in the decision making.

Judging and Perceiving are related to external environment: judging has a preference for an environment that is or planned with goals and decisions decided and settled, while perceiving is more about flexibility and spontaneity.[18]

A study by Lang (1997) found that *most of strategic planners share the the following types: extraversion, intuition, thinking and judging*.

Jennings and Disney, relying on the study of Nutt (1979), stated that the psychological type of those who initiate planning is not the only important one because, *in order to avoid conflicts over methodology preferences, the psychological type of those involved in planning should be investigated in order to assess their acceptability towards planning methods*.

Also the composition of the top management[19] is expected to influence planning: *managers having high tenure within the firm tend to adhere to greater formality and*

[17] It is not specified in the study who the psychological types refer to; we can suppose that to both CEO and top management they could be addressed

[18] Jennings D., Disney J.J., Designing the strategic planning process: does psychological type matter?, pp. 602-603

inflexibility of of the planning process; functionally heterogeneous teams are associated with greater formality of the process; the extent of cognitive diversity act to inhibit rather than promote planning (2006: 601, 602).

According to Cohen (2001) *management's attitude toward strategic planning is influenced by prior experience, observations of managements teams in competing organisations, knowledge of normative planning guidelines, influence of consultants and influence of external information sources*.[20]

Although psychology and attitudes of top management would have been interesting to investigate, it has been thought than if the respondent was not directly a top manager would have been impossible or too subjective to answer to questions related to the locus of control of the prevalent psychological type.

Then we retain just the composition of the team itself to assess if it influences the choice to rely or not on a strategic planning system.

It is interesting report here also the finding of Castrogiovanni (1996), whose study is already been explained previously, referred to the founder's knowledge. The Author stated that founder's knowledge generates a symbolism effect of its own which may reduce the need for planning's symbolism effect. Indeed, financiers tend to give weight to the background and experience of the founder, in this way making easier to obtain financing.

Knowledge also reduces the need for learning and efficiency because, respectively, what might be learned through planning is already known and operating details could have been already worked out. Then, a founder's pre-existing knowledge creates disincentives for planning.

However we remind here that this study specifically addressed pre start-up planning, then it will not be part of our quantitative research.

7 Past performance as creating an incentive and a need for strategic planning

In the first chapter, while analyzing the relationship between strategic planning and performance, we heavily relied on the issue if strategic planning precedes improved performance or not.

At this point we are more interested in the inverse relationship, meaning if **better performance** precedes planning introduction.

[19] Following Lorange (1980) we assume that executive directors play the same role laid out for the CEO
[20] Cohen J.F., Environmental uncertainty and managerial attitude, p. 21

Findings from the literature reveal that this is the case: *higher performers have more resources to engage in strategic planning* (Papadakis et al., 1998).

The hypothesis tested by Gibson and Cassar (2005) revealed that *planning is more prevalent in better performing firms* and, in particular, there is slightly stronger support for the notion that improved performance precedes planning introduction than for the more popular belief that planning will precede improved performance.[21] However the limit of this study is that it does not address reasons for these findings, Authors simply offered a couple of possible explanation like the relationship between the adoption of planning and the need to cope increased growth or the adoption as a mean of legitimization device for future capital requirements (2005: 221).

We should precise that this study specifically refers to small firms and the measures of performance the Authors used were sales growth and employment growth because considered, respectively, the more likely free from potential bias among the financial indicators and the least troublesome indicator of non-financial economic performance. However, as it has been reported in the article citing Keats and Bracker (1988), performance may have a different set of meanings for small as opposed to large firms, then it would be inappropriate consider for our sample same types of measures.

On the other side, it is equally true that the performance construct has a multidimensional nature and the literature has offered different operational definitions for this nature. Then it is almost impossible rely on measures universally acceptable.

For this reason, we have decided to rely on the measures used by the previous research by Cugini, Dossi , Ghezzi and Derchi (2016), of which this work represents and attempt for a in-depth analysis.

Their measures refer to *net sales*, *number of employees*, *ROA*, *ROS* and *gearing ratio*; however net sales and number of employees are already used to assess the size of the firm then we rely just to the other three; information of this type are not included in the questionnaire but are available on Aida database.

The aim is to assess if the level of performance has a meaning in the choice of adopting or not a strategic planning system.

Also here we report the contribute by Castrogiovanni even if, referring to pre start-up planning, it is not included in the quantitative research. The Authors stated that the amount of capital invested by the founder reduces the incentive to plan. First of all, there would be a

[21] Gibson B., Cassar G., Longitudinal Analysis of Relationships Between Planning and Performance in Small Firms, p. 219

lower need for planning's symbolism effect since a lower financing need; moreover abundance of capital would allow the luxury of enactive learning, in this way reducing the planning's learning effect, and would enable to tolerate inefficiency, decreasing also the need for the planning's efficiency need (1996: 815).

8 The effectiveness of the strategic planning: findings from the literature

After having identified factors which can influence the adoption of a strategic planning system, we now turn to the description of factors that, according to the literature, are related to the efficacy of the planning itself.

Scholars have debated if it is the planning process, i.e. the activities performed to develop the plans, or the outcome of the planning, i.e. the written strategic plan, to be more important for company's performance.

Brinckmann et al. (2010) summarized some of the previous literature and reported reasons for one or the other theory: on one side plans could be seen as more important because a written documentation legitimizes the organization and enables better communication with both internal and external stakeholders (Matthews and Scott, 1995; Stone and Brush, 1996). On the other side, part of the literature underlined the importance of the process because it helps to understand the mechanics of the intended business and enables learning (Sexton and Bowman-Upton, 1991).

In attempting to validate one or the other position, in their study Brinckmann et al. (2010) also tested the hypothesis if it was the outcome of the planning or the process itself to have a greater effect on performance; their findings showed that both of them increase performances and we follow this assertion.

Because the factors described at this point already presume that a strategic planning system is in place, we are not interested in determining their impact or significance; we will limit to some descriptive statistic.

Both Lorange (1980) and Das (1987) recognized that individuals have different time perspectives and, as stated by the former, the difference in time horizon between the corporate strategy and the individual manager's goal could represent a delicate issue to face.

As a demonstration of this, the study conducted by Das showed that the most appropriate corporate planning horizon would have been 2.85 years in respect to the 5 advocated by researchers in those years; according to the Author this incompatibility would have forced managers to make decisions against their own judgement.

Lorange recognized the pressure to show short term results in order to obtain promotions and job autonomy as the cause for which managers can be more interested in budgets (and then short term results) in respect to objectives and strategic programs fulfilment (1980: 52).

He stated that **incentives** should be administered in such a way to ameliorate the goal incongruence and the issue is so important that management incentives should be considered as an integral stage of the system.

Incentives could be monetary rewards, non monetary rewards or individual feedback and what the Author underlined (and that it is believed could be still valid) is that incentives, even if popular, may not be executed in the context of the strategic planning. This would make an opportunity to create a more realistic emphasis on planning be lost, but also that non-coordinated incentives could reinforce non-strategic managerial behaviours (1980: 54).

The importance of incentives could be found also in the research conducted by Cugini et al. (2016), who found that the presence of both incentive and planning systems make easier the integration and alignment among different levels and members of the organization towards the strategic objectives (2016: 140).

Then, we want to know from the sample of companies if an incentive system is in place and, in the positive case, on which indicators/performance they are based.

When the size factor has been described, we have already cited the study by O'Regan and Ghobadian who, summarizing the previous literature, reported causes of implementation failures. Among them we find inadequate communication and overall strategy goals not enough understood by staff. It is intuitively to understand that **communication of the content of the strategic planning** becomes essential to have the system being effective.

For this purpose we report here two studies which advocate the need for a participative planning system, that could not result unless communication efforts are put in place.

Vilà and Canales (2008) reported the example of the Reial Automòbil Club de Catalunya and recognized the importance of preparing those critical for strategy implementation: middle and operational managers. To do this, it is essential to make strategy relevant for them, involving in the process and gaining their commitment to the execution. However the participation will not produce any benefit unless people do not see their own role clearly; this is the real key to raise credible and active participation.

The idea included in Kohtamaki et al. (2012) is that participative strategic planning increases personnel commitment to strategy implementation because it clarifies and explains

company vision and strategy, fosters comprehension of company strategy and enables management to reach a consensus about strategy.[22]

Authors suggested that the participative strategic planning results from the explication of the strategy and the involvement of the personnel in the process; we could oppose this view to the mechanisms of control and supervision included in Bresser and Bishop to ensure that contradictions do not arise between plans and implementation.

In order to assess how many firms of the sample respect these suggestions of effectiveness, we are interested in knowing if strategic planning's contents are communicated and in which way; moreover we ask if the company foster the implementation through explication of the strategy or through mechanisms of control.

The strategic planning considered as a participative tool is strictly linked to the importance that the organization attach to **Human Resource** and, in our specific case, how the function is considered in relation to the strategic planning itself.

Golden and Ramanujam (1985) recognized the lack of integration between Human Resource Management and strategic planning as one of the major source of implementation failures; HR should not be relegated to simply have a reactive role and be tailored to match company's objectives, but it should acquire a more proactive role, acquiring the necessary top management role and assuming a strategic business partner role.

The issue is then to understand the role of the HR function within the strategic planning system, if it is considered a key resource that is actively involved in the process or if it is just a mean to reach company's objectives.

In order to have the Human Resource function actively involved in the strategic planning system, one of the managers interviewed by Golden and Ramanujam recognized the need of an easily accessible information system.

This could be possible, for instance, through distributed decision making system (DDM) suggested by Rathwell and Burns already in 1985, which could foster organizational communication, information sharing and conflict resolution by offering explanations of decisions.

Nowadays this would be possible also with the instruments of the so-called Web 2.0, like social networking, that firms can decide to develop for their internal use to enhance information sharing and communication; we talk in this case of Enterprise Social Network.

[22] Kohtamaki M. et al., The role of personnel commitment to strategy implementation and organisational learning within the relationship between strategic planning and company performance, p. 162

While we have previously referred to information systems able to help in the decision making process, here we specifically address to the presence of **information systems or Web 2.0 instruments which foster the internal communication** and that could let the strategic planning being more participative.

A last factor identified through the literature and that we address as having an influence on the effectiveness of the strategic planning is the effort devoted to the information search activities. The study, conducted by Gruber, (2007) specifically refers to new ventures, this is the reason why it is not included in the descriptive statistic; anyway it seems interesting to cite.

The Author suggests than even if entrepreneurs recognize the importance of external information, some of them make a conscious decision not to engage in the search of external information at all or to expend little effort on the task; others are prone to exhibit cognitive heuristics and biases that, subconsciously, lead to a low level of external information gathering (2007: 788). Whatever the reason, Gruber sustained that, due to the centrality of external information, the entrepreneurs who put more effort in information search activities will have a more deeply knowledge of the marketplace, which in turn would result in better planning outcomes.

9 Conclusions

The purpose of this chapter has not been to identify situation in which the strategic planning works better or not, even if this informative content could not be excluded.

Through this literature analysis we entered more deeply in the topic of the planning to assess if there are environmental or firms characteristics that influence the choice to adhere to this more formalized strategy formulation procedure together with its relative support systems.

The reader for sure will have noticed that contributes relate more to the process rather than the presence of systems that, instead, is what we are interested in.

The reader will accept if the choice has been to assume the presence of the system as implicit in the implementation of the process. Of course this is not the reality, otherwise there would be no reason for this research. Not all companies implementing strategic systems adopt support systems and in the chapter it has been stated that, this is a big lost opportunity: if performance measurements are in place (and this is the case in a high portion of the sample of the research from this is work takes spark) it would have sense link them with strategy.

CHAPTER 3
THE STATISTICAL APPROACH TO ANALYSE DATA

Introduction

This chapter represents the quantitative analysis of this research that aims to identify if any relationship is in place between the characteristics identified through the literature and described in chapter two and the strategic planning. In particular, it has been decided to conduct the analysis both on the implementation of the process and the adoption of the system.

The chapter will firstly present information about collection of data and basic characteristics of firms which represent the sample, then statistical methodologies will be presented. We anticipate here that we talk about "methodologies" because we have not obtained the expected results then an alternative statistical model will be presented in order to identify some kind of impact that the characteristics could have on our "dependent variables".

1 The collection of data

The collection of data has been performed through the sending of a questionnaire (see Appendix 1) to 1570 firms. Such firms have been identified through the Aida database searching only for medium and large sized Italian firms that, as said in the second chapter, represent the ones we are interested in.

The questionnaire consists of 40 questions divided in sections; however the participant is asked to fill the sections about characteristics and efficacy of the strategic planning only if he/she answered that the company implements totally or at least in part the strategic planning process. It was available both online, through the platform "sondaggio-online.com" and on a Word file attached in the email.

Participants to the research have been 102, representing the 6.5% of the population; 74 of them filled the questionnaire directly online whereas the other returned it by e-mail.

The questionnaire has been sent twice and, among participants, 50 companies answered after the first sending.

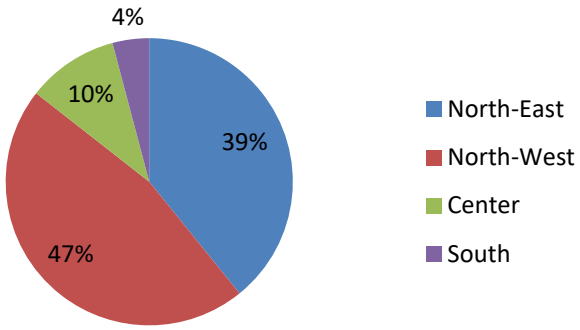
Moreover, 15 firms answered the e-mail to communicate their impossibility to participate to the research, because of internal policy issues or the lack of time disposal by the competent people inside the organization; 25 firms participated to the online questionnaire but failed to fill it completely.

2 Basic characteristics of the respondents firms

The participation to the questionnaire has mostly involved the "entire organizations"; only in five cases it has been filled by members of Business Units.

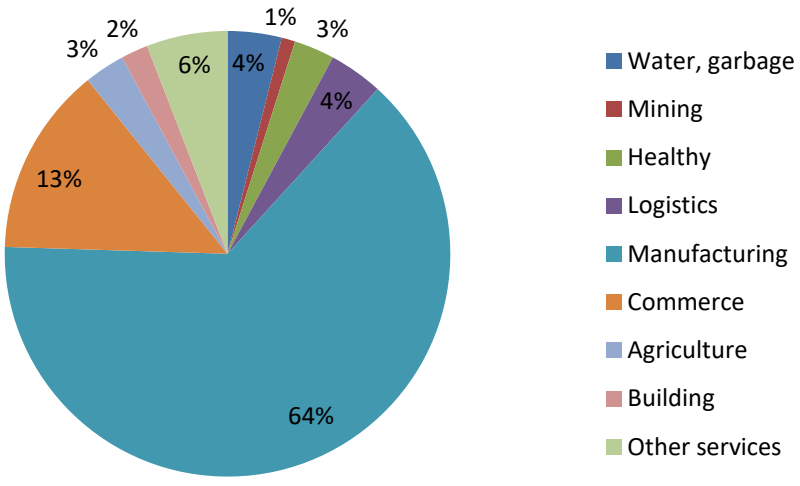
As stated in the second chapter, the research has been addressed to medium and large sized firms independently from their location; the principal reason for this choice was due to the fact that "uncertainty avoidance" has been identified through the literature as a possible contingency factor. Because it could be intended as culture related, differences in location (especially between North and South based companies) could have shown some patterns; our simple is divided in the following way:

Fig. 8 - Geographic location



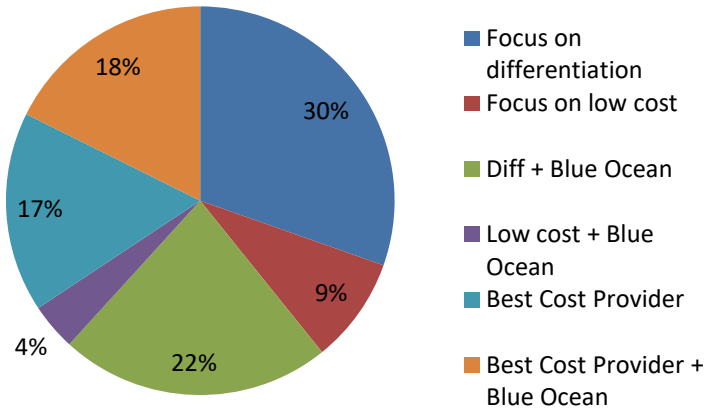
It is evident that mostly of participants have been North based companies and they are especially manufacturing companies, as the following graph shows:

Fig. 9 - Activity sectors



By asking to indicate actions and initiatives which have been undertaken in the last years, we identified what seemed the dominant companies' strategic orientation and results are the following:

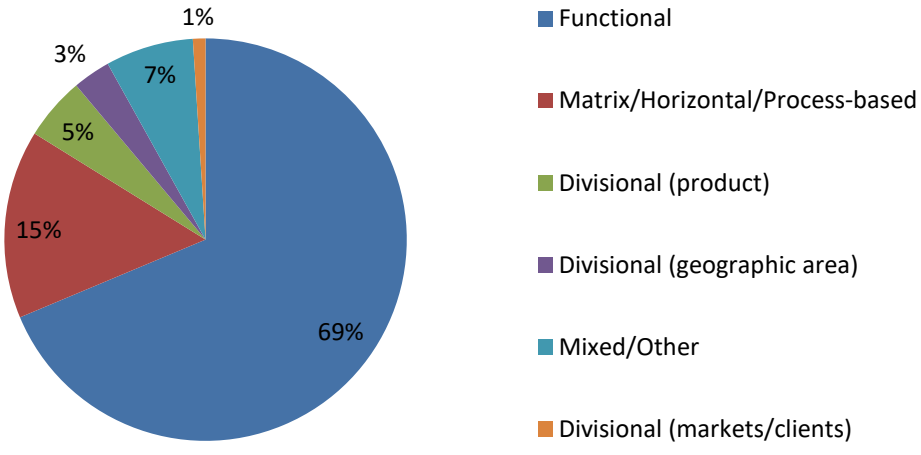
Fig. 10 - Strategic Orientation



Most of the companies base their competitive advantage by differentiating their offering; because of the increasing competitive environment they have to survive in, we also asked if they tried to look for latent needs of consumers and to explore "blue oceans" never explored by competitors. As the graph shows, a good portion of respondents seems to adopt the "Blue Ocean" approach together with their prevalent strategic orientations.

As we expected, the organizational structure typically adopted is the functional one:

Fig. 11 - Organizational types of structure



3 Characteristics and efficacy of the strategic planning: some descriptive statistics

Before to go more deeply into the analysis of data, we proceed in this paragraph with some descriptive information.

The first five sections of the questionnaire are about characteristics of the organization, meaning all the contingency factors which have been identified through the literature.

Then, we asked companies to express a weight from "very low" to "very high" on some of the most important activities which should be performed in formulating a strategy; such activities have been taken from Lorange (1980) and relate to the identification of external opportunities and threats and internal strengths and weaknesses, benchmarking against competitors and identification of scenarios. We also asked about the identification of medium-long term strategic objectives and if, for each of these, the organization identifies near term intermediate ones.

Fig. 12 - Strategy formulation's activities

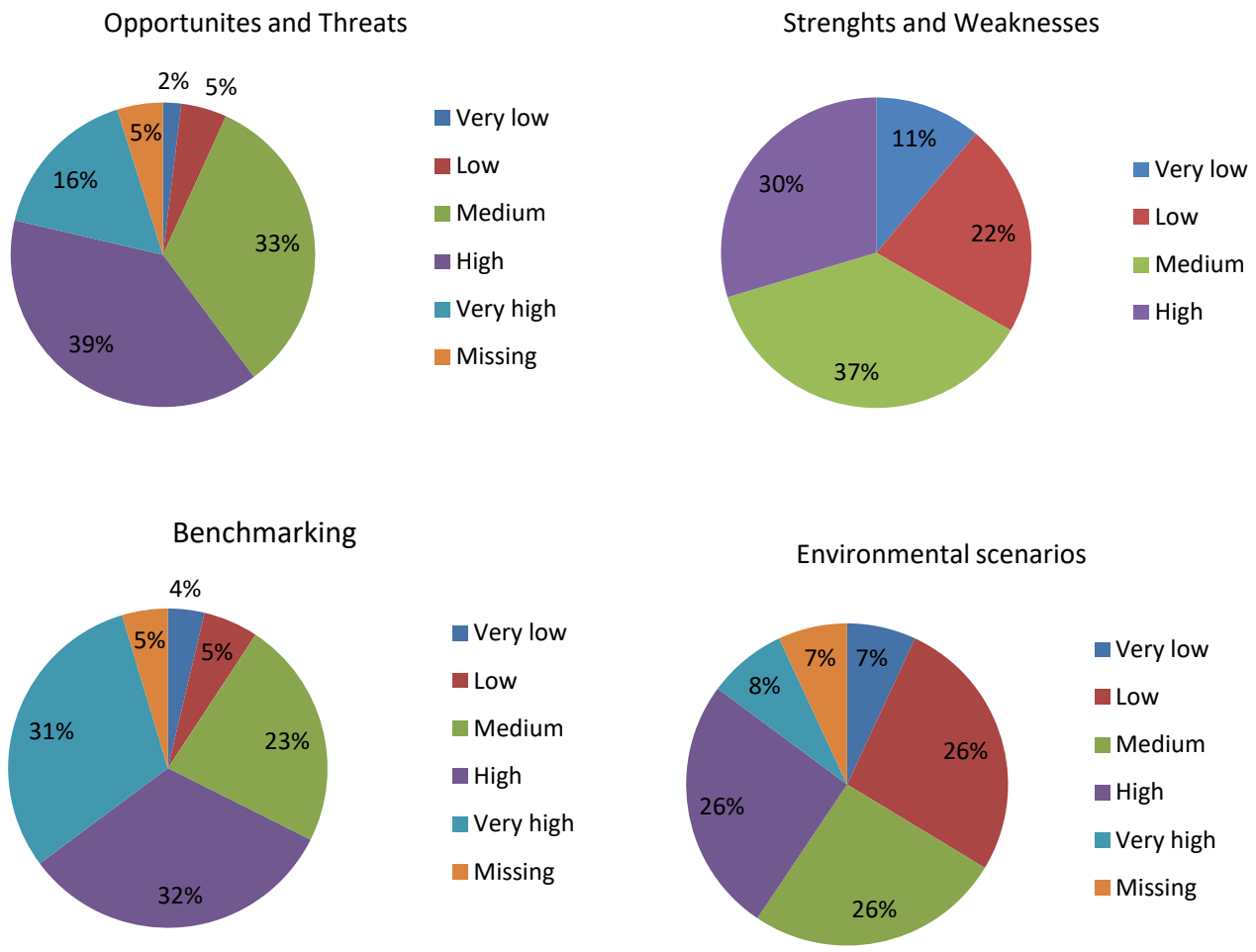
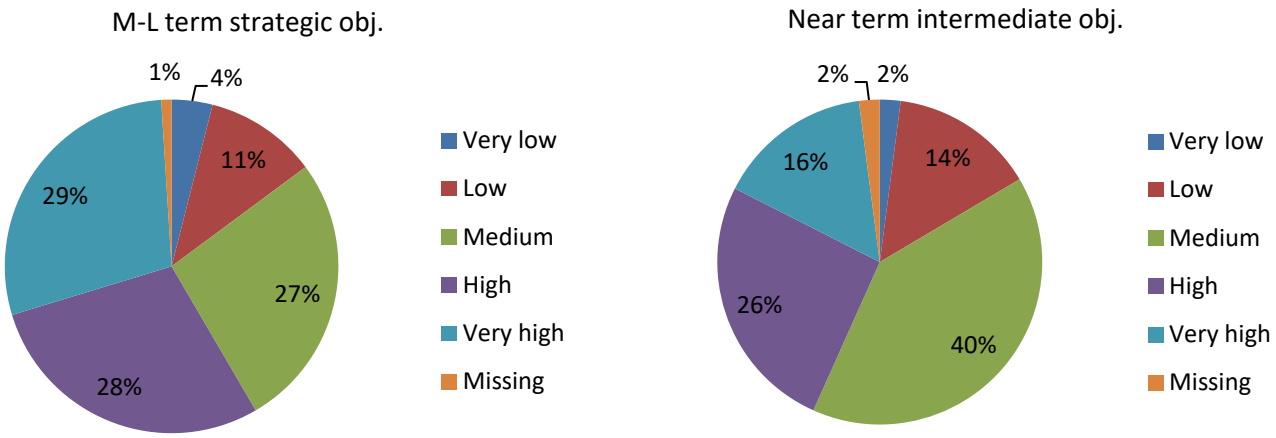


Fig. 12 – (continues)



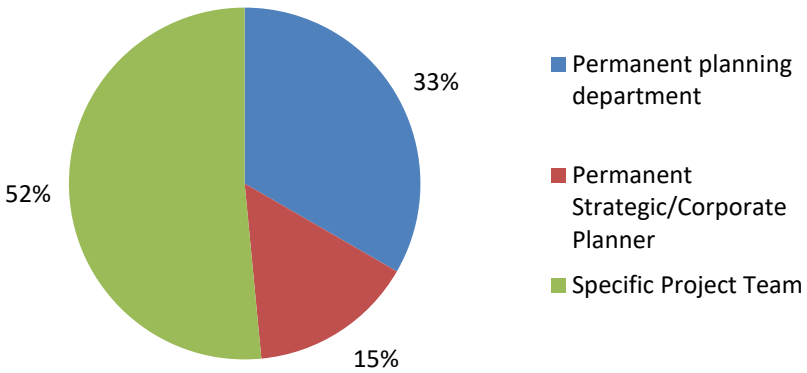
As it is possible to see from the graphs, most of the firms engage in such activities from a medium to a very high level; however it seems important to highlight that a high percentage of them put low emphasis in defining environmental scenarios.

Nevertheless, despite formulation of strategy among participants seems to follow an articulated process, firms which affirmed to adopt a formalized and structured strategic planning process have been 69 (67,6%). In particular, only 19 of them (27,5%) declared to adopt completely such a process, with the rest implementing it only in part. Among these 69, only 24 companies affirmed to adopt strategic planning systems; this data then gives a proof of the scarce utilization of such systems.

Following the literature, we included in the questionnaire Section 7 and 8 about characteristics and efficacy of the strategic planning. As said previously, these sections were asked to be filled only by companies implementing completely or in part the process.

We asked about the presence of planning staff/figures within the company and basically we registered similar results (34 “Yes”, 31 “No”, 3 “I don’t know”), but the interesting information is related to the type of figure present. Accordingly to the evolution of the literature, an important role in supporting the process is played by specific project team rather than a permanent planning department or planner figure (Fig. 13).

Fig. 13 - Figures supporting the SP process



Organizational functions members of these figures come from are divided as in Fig. 14 and the responsibility of the entire process is mostly on behalf of senior executives as Fig. 15 shows.

Fig. 14 - Functional background of the supporting figures

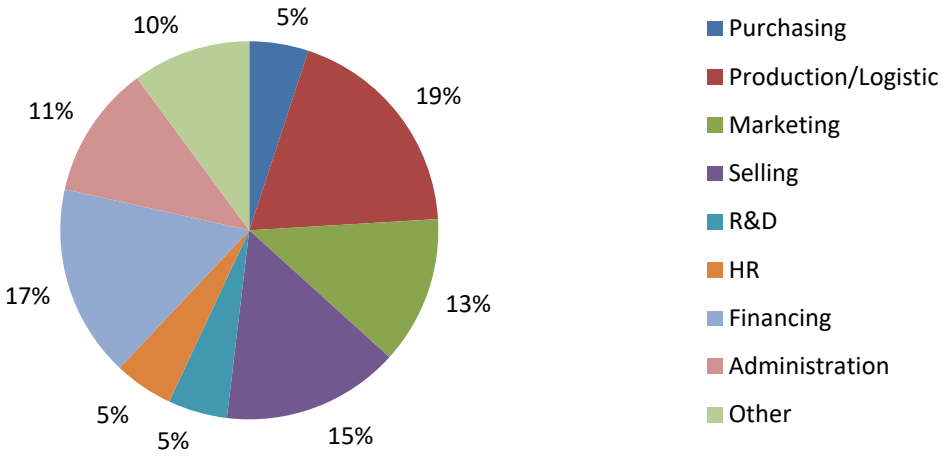
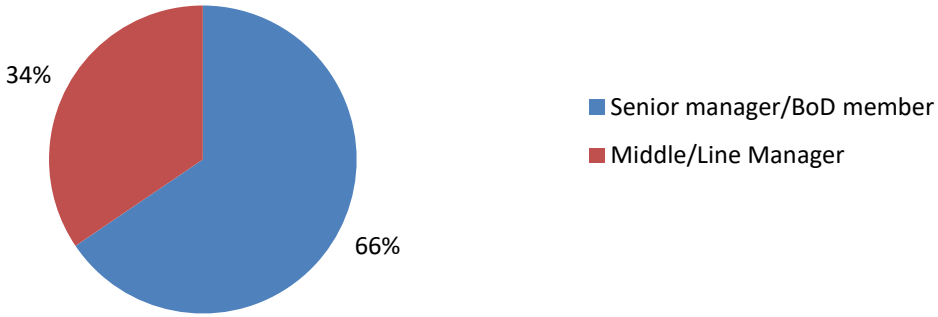
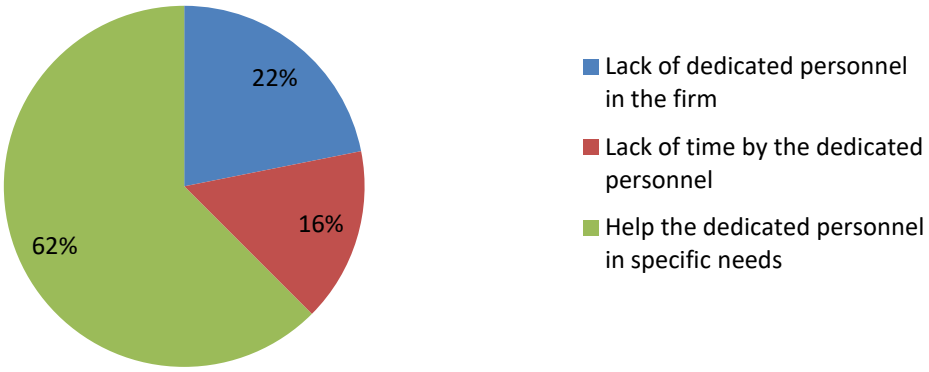


Fig. 15 - Responsible for the process



Another characteristic we wanted to investigate was the presence of external consultants that, in the second chapter, has been identified through the literature as a factor able to enhance the process within the organization. We register significant differences (57 “Yes” against 19 “No”) and the major reason for the presence of consultants is to help the firm in specific issues (Fig. 16).

Fig. 16 - Consultancy's "why"



The role of Human Resource function has also been included in the research because recognized by some authors cited in the previous chapter as key in order to avoid strategic planning implementation failures; between the two options “Reactive” against “Proactive” role we do not register significant differences: in 34 firms the function plays a reactive role whereas in 32 a proactive one. Then, half of the respondents to this question affirm to involve the HR function in the development of strategy, even if it is poorly represented when we go through the background of figures supporting the process (see Fig. 14).

Always in terms of implementation failures, in the second chapter the communication of the content of the strategic plan has also been recognized as essential to avoid them. In this case, most of the respondents affirmed to have a planning content effectively communicated (Fig. 17) and means to do it are especially ad hoc events (Fig. 18), that presumably enhance the participative role that the literature advocates for the strategic planning.

Fig. 18 - Plan effectively communicated

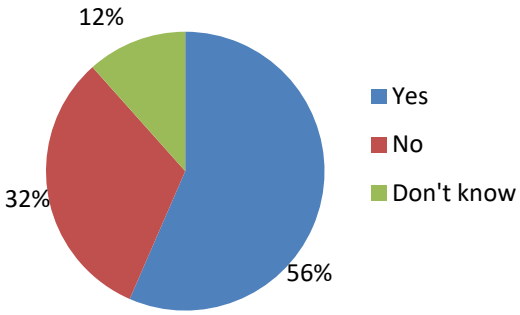
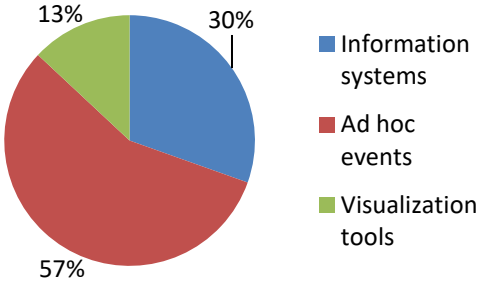


Fig. 17 - Means' communication

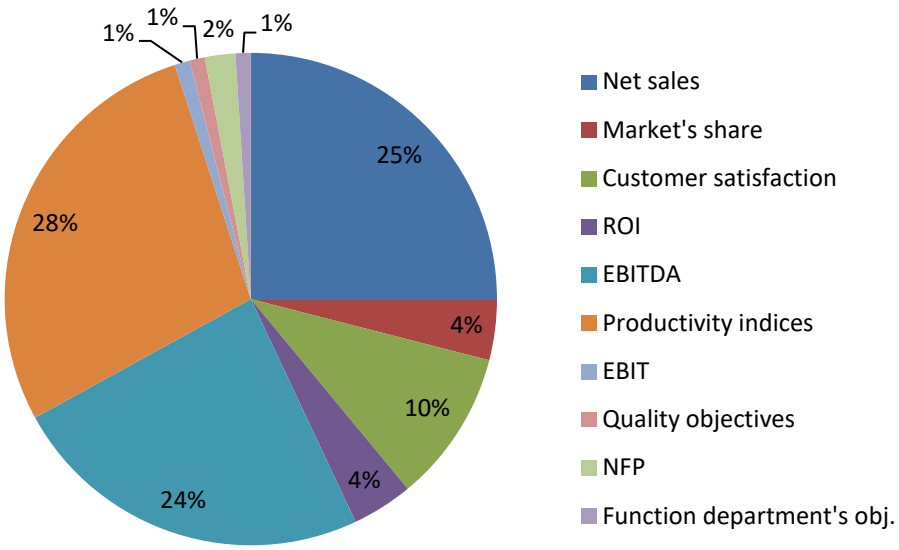


Besides the communication, in the second chapter we also cited literature's contribute about how to implement the plan, by opposing two approaches: on one side by clarifying everybody's role importance to reach the objectives, that creates an organizational spirit to work hardly for a common goal, on the other side a more "directive" approach, based on frequent evaluations of intermediate results in order to preserve the attention towards the objectives' achievement.

Also in this case, we do not register significant results, also because many respondents filled both the options.

Finally, we considered the presence of a management's incentive system within the strategic planning process, advocated by Lorange as an integral stage of the corporate planning system (1980: 53). Most of firms declared to have this incentive system in place (34 "Yes", 19 "No", 7 "Don't know") and bases for incentives are the following:

Fig. 19 - Incentive's based results



From the graph is evident that, except for "Productivity indices", companies base their incentive's system mostly on financial results achieved at the corporate level: in fact, only a respondent, at the option "Other", declared to assign incentives based on functional department's objectives' achievement.

4 The designed approach to analyse data

4.1 Preliminary considerations

In statistically analysing answers to the questionnaire, the collection of data has lead to consider the exclusion of three variables, namely the "Activity sector", the "Vulnerability of technology" and the presence of the "Organizational culture" within the company.

On 102 firms, the activity sectors represented by the sample are 24, then a quite variegated representation that would have not returned statistically significant results.

Nevertheless, the activity sector has still been considered in order to classify the level of complexity and instability faced by the firms in the sector they belong to, using data provided by Istat and explained in the second chapter; among this data we excluded the vulnerability of core technology.

In the second chapter we assumed to assess the vulnerability of core technology through the "Investment in fixed assets" available on Istat database for each sector; however following considerations have lead to not consider sufficiently explicative this value because investments in fixed assets also relate to reasons other than the inflexibility of existing ones. Then, affirm that a sector is vulnerable or not would have been based in very subjective conclusions in absence of other parameters.

The reason why also the "presence" of the organizational culture within the company has been excluded is because only 8 firms affirmed to not have (or to not know to have) top management spreading the value of it then, as for the activity sector, this variable would not have been significant to analyse. We remember here that "culture" has been included in the research because lack of it was identified by Bresser and Bishop (cited in the second chapter) as enforcing a greater adoption of a formalized and structured process of formulating and implementing strategy.

Then, we remain with the following variables:

Tab. 1 – Variables candidates as contingency factors

Structure	Size	Level of Complexity
Level of Instability	Stage of the Life Cycle	Autonomy of Top Man.
Functional Heter. Of TM	Values	Focus on Innovation
Prevalent Mgt's Behavior	Centralization of Decision Power	Uncertainty Avoidance
Strategic Orientation	Short term Objectives	Medium-Long term Obj.
IT Role	IT Competence	Performances Level

4.2 The adoption of the strategic planning process: Chi-squared independence test

The purpose which gave rise to this study was to assess if there was any factor that could be considered as contingent upon the adoption of a strategic planning process and relative systems able to support its implementation.

This is the reason why the statistical method we thought about has been the Chi-squared test for variables' independence because it allows to put into relation categorical variable (which is our case) and, based on the decision's rule which compares the value of the statistic obtained from the data against a critical one, highlights a relation of dependence or not by refusing or not the null hypotheses of independence between the two variables put into relation.

We proceeded in the following way: the analysis has firstly been performed on the entire sample putting into relation the variables and the adoption of a formalized and structured strategic planning process and then the analysis has been restricted to the respondents that affirmed to apply completely or in part the process to identify if the same variables could explain the adoption of strategic planning systems.

Before to enter into the analysis it is important to underline that, for most of the variables, the levels they are divided on have been put together otherwise, on a sample not very large as in our case, information would have been too much "dispersive". Then, for instance, even if in the questionnaire we asked companies if they had a product/process/geographical divisional structure, in organizing data for the statistical analysis all the respondents having a divisional structure have been put in the same cluster; the level of the centralized decision power has been distinguished in low/medium-low and medium-high/high, instead of having four different levels, and so on for the other variables.

At this step, the same has been made for the adoption of the process: adoption of the process "completely" or "in part" have been summarized in a single level.

For the statistical analysis data have been organized in an Excel file and then the database has been imported in the software R, which has been used for all the following analysis.

4.3 Analysis of the adoption of the strategic planning process

We start now with the analysis of the entire sample to know more about the adoption of the strategic planning process.

At this point, taking for a moment apart the statistical test, we just want to see if, on average, companies achieved different performances depending on the fact that they adopt (and in which part) or not the strategic planning process.

Tab. 2 – Comparison of performance

	Str. planning "NO"	Str. planning "In part"	Str. planning "YES"
ROA (%)	4,84	4,65	3,06
ROS (%)	4,87	5,03	2,43
Gearing Ratio	1,83	1,30	0,87

Better performers seems to be those companies that implement "In part" the process, even if "NO-planners" slightly performed more in terms of ROA. Performance of companies implementing completely the process are, on average, much lower than the other but, conversely, they result to be those with a lower incidence of debt in respect to their equity.

To conduct the Chi-square test, first of all data have been imported in R, then we built a so-called *contingency table* to summarize the observed frequencies. In this example we find on the rows the types of structure and on the columns the adoption or not of the strategic planning process.

```
>
> Tab<-xtabs(~Struttura+Pianificazione.strategica..processo, data=database)
> Tab
                                                Pianificazione.strategica..processo
Struttura                                        NO  SI/In parte
  Divisionale (per prodotto/area geo/merc.-clienti)   1          9
  Funzionale                                         27         41
  Matriciale/Orizzontale/Per processi                 3         12
  MISTA/Altro                                         2          7
>
```

With the command "chisq.test (Tab)" we ask R to perform the Chi-squared test. It provides the value of the statistical test, the degrees of freedom and the p-value, but the software itself is also informing us that the approximation of the Chi-squared could be inaccurate.

```
>
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 5.4307, df = 3, p-value = 0.1428

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
>
```

The Chi-squared test revealed itself as not suitable for our sample: in fact it is more accurate the larger is the sample and this rely on the method it is calculated. In fact, the estimate of the Chi-squared test uses the so-called observed and expected frequencies and statistical textbooks suggest that its application is possible only when not more than the 20% of the expected frequencies is lower than 5. Then, with the command "chisq.test (Tab)$expected" we verify the expected frequencies to assess if the warning message is informing us they are up to the threshold of the 20%.

```
> chisq.test(Tab)$expected
                                                    Pianificazione.strategica..processo
Struttura                                                    NO  SI/In parte
  Divisionale (per prodotto/area geo/merc.-clienti)  3.235294    6.764706
  Funzionale                                        22.000000   46.000000
  Matriciale/Orizzontale/Per processi                4.852941   10.147059
  MISTA/Altro                                        2.911765    6.088235
```

As we can see from the picture in three out of eight cells (so more than the tolerable 20%) we have expected frequencies lower than 5; when this happens, the Chi-squared test should be substituted with the so-called Fisher's Exact Test, i.e. how we proceeded, as the picture below shows.

```
>
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.1663
alternative hypothesis: two.sided
```

In order to make our decision, we look at the p-value: it is higher than any level of significance (α) acceptable (α is usually fixed at 0.05, 0.01 or 0.001 level).

Then we should conclude that the test is not statistical significant and it is not possible to refuse the null hypothesis according to which the variables (in this case the structure and the adoption or not of the strategic planning process) are independent.

The Chi-squared test has been substituted by the Fisher's Exact one also for testing other variables (when required);[1] however we obtained high p-value also for the following tests, but this should not represent a discouraging result for the research. Statistical tests are very affected by the sample size, then we cannot exclude that having a greater number of respondents, and so of information, could allow to highlight dependence relations. In fact, "not refuse" the null hypothesis does not mean "to accept" it: it simply stays for the fact that we do not have enough empirical evidence against the hypothesis of independence.

At this point we could have decided to stop here our quantitative analysis, but because we are interested in highlighting some form of relationship we decided to go further looking for other statistical methods.

5 Failure of the Chi-squared test: an alternative approach

Since the Chi-squared independence test has not produced significant results, an alternative it has been thought about in order to identify if any relationship was in place is the Logistic regression. The idea to apply this model relied on the fact that it is applicable when the dependent variable is categorical and could assume two values (in our case a value equal to 1 if the strategic planning process was in place completely or in part, 0 in the other case).

The Logistic regression allows to estimate the probability of an event to occur given a certain value of the independent variable through a *logistic function.*[2] Then, in our study, we would have been able to model the probability of a firm adopting the strategic planning process given its values of the independent variables, for example having a divisional structure and a high level of complexity.

We do not enter into statistical details, but using the software R we provide an example of the logistic regression model that predicts the probability of the dependent variable using the

[1] The Fisher's Exact test should give back "exact" results, however it is (theoretically) usually suggested to use for 2x2 contingency tables (practically, the statistical applications can run the calculus also on larger tables). When tables have more than two levels (as in most of our cases) is likely that some cells have lower values that could result in lower expected frequencies; we could presume that in all these cases the Fisher's Exact test would result in "too conservative" results. Moreover, checking for the expected frequencies tables, we noted that R (in some cases) gives back the message of inappropriateness of the Chi-squared test also when expected frequencies are lower than 5 in less than 20% of the cases. Results of the tests are available in Appendix 2.

[2] The logistic function is the following $p(X) = \frac{e^{\beta 0+\beta 1x}}{1+e^{\beta 0+\beta 1x}}$

independent variable “structure” that, being a categorical explanatory variable, is directly coded by the software as a dummy variable.

```
>
>
> library(MASS)
> model<-glm(Pianificazione.strategica..processo~Struttura, data=database, family=binomi
> summary(model1)

Call:
glm(formula = Pianificazione.strategica..processo ~ Struttura,
    family = binomial, data = database)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-2.1460  -1.3592   0.6681   1.0059   1.0059

Coefficients:
                                          Estimate Std. Error z value Pr(>|z|)
(Intercept)                                2.1972     1.0540   2.085   0.0371 *
StrutturaFunzionale                       -1.7795     1.0828  -1.643   0.1003
StrutturaMatriciale/Orizzontale/Per processi -0.8109     1.2360  -0.656   0.5118
StrutturaMISTA/Altro                      -0.9445     1.3243  -0.713   0.4757
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 128.42  on 101  degrees of freedom
Residual deviance: 122.41  on  98  degrees of freedom
AIC: 130.41

Number of Fisher Scoring iterations: 4
```

The column “Estimate” returns the values for the intercept and the coefficients ß$_1$, ß$_2$ and ß$_3$ and the interpretation is the following: if we consider the functional structure (which has the lowest p-value), its negative coefficient means that if the firm has such a structure it will have a lower probability to adopt the planning process. The value -1.7795 is not referred directly to the probability of a functional firm to adopt the process, but to a quantity called *log-odds* (or *logit*), that transforms the non linear combination between Y and X in a linear one; at this point we are simply saying that being a functional firm decreases the log odds by -1.7795.

If we want to know the exact probability we substitute the values of the intercept and the coefficients directly in the logistic function.

However a p-value=0.1003 is still large, then we cannot presume a relationship between the functional structure and the implementation of a strategic planning system.

Then also the logistic regression is not suitable for our research: the univariate logistic regression model would not provide any statistical significant difference in respect to the Chi-

squared test and a multivariate model presumes to include as candidates only those variables that, preliminarily analysed at the univariate level (in our case with the Chi-squared test since we have only qualitative independent variables), would have scored a p-value lower than 0.25.

6 Classification and prediction: the Linear Discriminant Analysis

In absence of empirical evidence to prove any dependence relationship (we stated that the null hypothesis is not rejected), we propose now the implementation of the Linear Discriminant Analysis, because it seems interesting for its purpose to be both an exploratory and predictive model.

The Linear Discriminant Analysis is part of the "Classification methods" and its purpose is to predict group membership based on observed characteristics; this is possible through a *discriminant function* which results from the linear combination of the predictor variables and that provides the best discrimination between groups.

When we talk about "groups" we refer to the possible response classes of the dependent variable Y; as for the Logistic regression, also the LDA is applicable when the dependent variable is categorical, however, differently from the former, in the Linear Discriminant Analysis Y can take on K possible distinct values (the logistic is usually used only when Y is dichotomous).

Also in this case we do not enter in many statistical details, but some theoretical information are necessary to understand how the model works. The LDA calculates the probability that the dependent variable Y assumes a certain value *k* given the value of the predictor (which is usually written as "Pr(Y=*k*|X=*x*)") using the Bayes' Theorem. It is built using the prior probability (π) that a randomly chosen observation comes from the *k*th class and the *density function*. This latter (indicated as "$f_k(x)$") corresponds to the notation "Pr(X=*x*|Y=*k*)" and it is interpreted in the following way: it is large if there is a high probability that an observation in the *k*th class has X≃*x* and is small if it is very unlikely that an observation in the *k*th class has X≃*x*.

Then, through the Bayes' Theorem we have:

$$\Pr(Y=k|X=x) = \frac{\pi_k f_k(x)}{\sum \pi_k f_k(x)}$$

In other words, we are simply saying that we are indirectly computing Pr(Y=*k*|X=*x*) by plugging in π_k and $f_k(x)$ into the Bayes' Theorem, that in turns give us back a discriminant

function, whose value represents the decision rule. The observation will be classified to the class for which the discriminant function, i.e. $p_k(x)$, is greatest.

Nevertheless, because this is not a statistical work and estimates are done through the software R and not by hand, we leave apart other computational issues because we are more interested in the interpretation of the method.

6.1 LDA in practice: an introduction

To give a more clear explanation about how the model works, we provide here an example of the application in R in which we used the "Level of complexity" as the independent variable.

```
>
> #MODEL:COMPLEXITY LEVEL
> lda.model<-lda(PianStrat~LivCompl, data=anna)
> lda.model
Call:
lda(PianStrat ~ LivCompl, data = anna)

Prior probabilities of groups:
 In parte       NO         SI
0.4901961 0.3235294 0.1862745

Group means:
          LivComplMedia LivComplMedio-alta/Alta
In parte      0.4400000               0.1400000
NO            0.4242424               0.2424242
SI            0.4736842               0.1578947

Coefficients of linear discriminants:
                                LD1       LD2
LivComplMedia            0.6091664 2.0921436
LivComplMedio-alta/Alta 2.8288355 0.4029966

Proportion of trace:
  LD1   LD2
0.948 0.052
```

As usual, we have imported the Excel database in R and after have called the library (MASS), essential to have the function to run, in the picture is showed the output of the Linear Discriminant Analysis. The reader can note that in this example the dependent variable referred to the adoption of the strategic planning process is made of the three classes separately since this model allows to do it.

The LDA output indicates that 49.02% of the observations correspond to the process implemented in part, and so on for the other; these are the *prior probabilities* that in the

previous paragraph we explained as being simply the proportion of the observations that belong to the *k*-th class.

Then we have the *group means*, which are the averages of each predictor within each class and are used by LDA in the calculation of the density function. In this example, since we have a categorical independent variable, the averages refer to the levels of this variable, i.e. transformed as a dummy directly from the software (it is not visible in the picture but, for difference, it is possible to know the averages for the level that has been taken by R as reference, i.e. "LivComplBasso/Medio-basso).

If we look at the column "LivComplMedio-alta/Alta" these averages show that there is a tendency for companies that belong to sectors classified (in our opinion according to the Istat parameters) as having a medium-high/high level of complexity to not adopt the process.

Then the output shows the *coefficients of linear discriminants* which form the linear discriminant function i.e. used for the decision rule.

Having three possible classes of the dependent variable, the output provides two possible and distinct functions (indicated with LD1 and LD2) to separate the observations in the different classes; however the last row "Proportion of trace" tells us that LD1 discriminates groups better than LD2. In particular, the proportion of trace gives us information about the proportion of variance between groups provided by the discriminant functions.

At this point we could affirm that the linear discriminant function which allows us to discriminate a whatever firm in one of the three possible classes of Y depending of its sector's complexity level is given by:

$$D = 0{,}6092*\text{LivComplMedio} + 2{,}8288*\text{LivComplMedio-alto/Alto}$$

Then, taken a whatever observation *x* (namely a firm), through the function, we would be able to assess if it adopts completely, in part or not at all the strategic planning process.

What has been stated until this point is perfectly valid, however problems arise when we want to go deeper into the interpretation of the discriminant function and how it allocates observations to groups.

The way the Linear Discriminant Analysis works is more intuitive for quantitative independent variables: the discriminant function could become larger or smaller depending on the values of the observations *x* and, according to the final score of the function, assigns them to a class. When we have qualitative predictors the function has not such a pattern given that

we are dealing with dummy variables, that could take on only a value of 1 or 0, one at the time (put more simply, a whatever firm will have a level of complexity that could be just medium or medium-high/high, not both, then one level will assume the value of 1 and the other the value of 0, then we do not have an increasing or decreasing discriminant function).

We approached the model with the variable as qualitative because it was the original way it was arranged and just to understand how it works; now we provide an example with quantitative predictors. In particular, we will use more than one predictor to highlight the exploratory nature of LDA, which will allow us to have an idea about how to understand which are the independent variables having a major weight on the dependent one (i.e. what we are interested more).

6.2 LDA in practice: understand the descriptive role

We provide now an example of implementation of the Linear Discriminant Analysis using as quantitative predictors the parameters available on Istat database and through which a level for the complexity of the sectors has been assigned from low/medium-low to medium-high/high.

To facilitate the interpretation of the linear discriminant function, the class Y has been reported to two: then the observation could fall just in one or the other class.

Practically speaking, a new Excel database has been created in which we stored only the data of interest; the independent variables used are the Concentration Ratio, the Technical Intricacy, the Product Diversification (i.e. expression of the Specialization Ratio) and the Geographical Diversification. For this latter only the Import Intensity has been considered since the Export Sales are not available for all the sectors.

```
> lda.model<-lda(PianStrat~., data=database)
> lda.model
Call:
lda(PianStrat ~ ., data = database)

Prior probabilities of groups:
       NO  SI/In parte
  0.3402062   0.6597938

Group means:
           Complessità..Concentration.Ratio Comp...Technical.Intricacy Comp...Product.Diversification Comp...Geographical.divers.
NO                                 12.62424                  2.227788                      87.44848                    26.17879
SI/In parte                        11.60469                  1.731562                      87.51562                    21.40625

Coefficients of linear discriminants:
                                          LD1
Complessità..Concentration.Ratio  0.0009280964
Comp...Technical.Intricacy       -0.3086624032
Comp...Product.Diversification   -0.0601771818
Comp...Geographical.divers.      -0.0504942474
>
```

The interpretation of this part is not different from the previous one: we have prior probabilities and group means; in particular, in this case the group means are referred explicitly to the predictors and then, for example we can see that there is higher tendency to not adopt the process by firms belonging to sector with higher concentration ratio.

In this case, having only two possible response groups, R gives back only one discriminant function; usually it is written starting from the higher coefficients then we have:

$$D = -0{,}3087*TI\ -0{,}0602*PD - 0{,}0505*GD + 0{,}0009*CR$$

R provides coefficients that are already standardized, meaning they have been transformed in *z* scores (with m=0 and sd=1) otherwise a comparison of un-standardized coefficients would have distorted the contribution of the variables. Then, the size of the coefficient is a measure of how much the discriminator variable contributes to group discrimination, whereas the sign gives information about the direction of the function and, in particular, it contributes towards alternative group membership. A comparison with the group means on the discriminant function indicates in what way the variates discriminate among the groups.[3]

As an example, let's consider the predictor "Technical Intricacy" (i.e. the one which exercises the greater influence on Y): it has a higher group mean for "NO"; because of its negative sign, the higher the value of technical intricacy for any new given observation that we want to classify, the lower the value of the discriminant function and then more likely will be "SI/In parte".

[3] Gatignon H., Statistical analysis of management data, pp. 256-257

The observation will be assigned to the class for which the difference between the function's score and the group mean (technically called *centroid*) of that class is lower.

Although LDA is usually used to predict the "behaviour" of unknown observations with the help of the discriminant function calculated through the observed data, this is not our purpose.

We want to underline the descriptive role we could assign to LDA, because it allows us to build a classification rule and identify those variables (then characteristics) that better allows to discriminate among groups and, consequently, show some form of relationship with the dependent variable.

We precise here that this method works also for qualitative independent variables however, not being statistician, the interpretation would have been more tricky then, just to be sure to explain correctly how it functions, it has been preferred to use quantitative ones.

In order to provide an overall mechanisms of the model, we show the output that R provides for the prediction, especially because it gives a measure of the accuracy of the model.

```
> lda.pred=predict(lda.model, database)
> lda.class=lda.pred$class
> table(lda.class, PianStrat)
             PianStrat
lda.class     NO  SI/In parte
  NO            2           0
  SI/In parte  31          64
>
> mean(lda.class==PianStrat)
[1] 0.6804124
```

The table in the picture is called *confusion matrix* and tell us about how many observations are correctly classified (on the diagonal) and which are not. The output of the function "mean", i.e. 68.04%, measures the accuracy of our model; the error rate is calculated as the ratio between the misclassified observation and the total ones. It is a quite high ratio (31.63%) but again, this is due to the restricted sample size, which has not allowed to divide the dataset in a so-called *training set* on which calculate the function and a *test set* on which validate the results.[4]

[4] https://cran.r-project.org/doc/contrib/DellOmodarme-esercitazioni-R.pdf, p. 172

The error rate is an important measure, for instance, for banks when they have to decide if individuals will default or not however, we remember here that prevision is not the primary purpose why LDA has been proposed, then this predictive part has exclusively an explicative nature of how the model works.

7 The previous approach applied to the adoption of planning systems

We now turn to the part dedicated to the adoption of the strategic planning systems; as said at the beginning of the chapter, at this point we test only those respondents who adopt completely or in part the process. Just to have an idea, let's compare also in this case if firms that adopt systems and those which do not, on average, differently performed in the last years.

Tab.3 – Comparison of performance

	SP Systems "YES"	SP Systems "NO"
ROA (%)	3,93	4,54
ROS (%)	3,43	4,79
Gearing ratio	0,82	1,56

Firms which do not adopt any system seem to have performed better, even if they present an higher incidence of debt. Anyway (and this is valid also for results in Tab. 1), these results should not lead the reader think that not having systems is more performing than the other situation, since the average could be influenced from few values but of big entity. Then, just to be clearer we report also median values:

Tab. 4 – Comparison of performance in median values

	SP Systems "YES"	SP Systems "NO"
ROA (%)	3,23	4
ROS (%)	3,77	3,84
Gearing ratio	0,54	1,56

Also in this case, the approach which initially has been thought about was the Chi-squared test of variables' independence. In fact the aim of the analysis was exactly the same as before: put into relation the characteristics firms highlighted through the questionnaire and the use of systems to assess if any dependence/independence relationship was in place.
However also in this case the test does not give back significant results, except for one case, i.e. the following:

```
                          Pian..Str...SISTEMI
Obiettivi.M.LT             NO/Non so SI
  Focus su ob. Economici           7  0
  Focus su ob. Strategici          8  5
  MIX                             29 18
  Non esplicitati                  0  2
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.04736
alternative hypothesis: two.sided
```

With the variable "Medium-Long term Objectives" we obtain a significant p-value at the confidence level of 95%.
We can reject the null hypotheses of independence and with the Cramer's V (it variates between 0 and 1) we check the value of this relationship:

```
> library(lsr)
> cramersV(Tab)
[1] 0.3321444
Warning message:
In chisq.test(...) : Chi-squared approximation may be incorrect
>
```

The dependence however is weak: 0.3321.

At this point the reader could think if, since we have obtained in this case a significant result, other results do not depend on the limited sample size, but it is just that the null hypotheses of independence is true. At this stage we could not provide an answer: as stated for the analysis of the adoption of the process, the null hypotheses of independence is not "accepted", it is simply "not refused". Future researches should aim to collect a greater number of respondents however, also in this case, there is need to be cautious in the interpretation because, as in this research the level of significance could be influenced by the limited number of observations, in the opposite case we could get significant results just for

effect of a larger sample size. Nevertheless, in this latter case, other statistical methods could be used to identify which are the variables that would better explain the data, for example we have proposed the logistic regression, because it allows for categorical independent and dependent variables. We suggested to select as candidates for the multivariate logistic regression only those predictors whose univariate tests score a p-value < 0.25, but also other approaches are feasible and easily applicable with statistical softwares, like the stepwise approach (forward selection or backward selection) and the best subsets selection.

As for the previous analysis, we propose here an example of application of Linear Discriminant Analysis; for example let's assume that we want to assess if the classification rule is more influenced from characteristics of the sectors or from those of the firms. The predictors included are the following:

```
> database<-read.csv2("database LDA.csv")
> str (database)
'data.frame':   54 obs. of  13 variables:
 $ Complessità..Concentration.Ratio : num  13 14 13.5 9.3 9.3 10.4 7.6 7.6 7.8 13 ...
 $ Comp...Technical.Intricacy       : num  2.1 0.069 2.76 1.09 1.09 5.89 1.56 0.96 0.15 2.1 ...
 $ Comp...Product.Diversification   : num  81.1 94.4 83.9 96.3 96.3 79.7 83.5 86.7 85 81.1 ...
 $ Comp...Geographical.divers.      : num  39.9 11.7 33 31 31 24.4 21.5 4.2 8.4 39.9 ...
 $ Instability..birth.rate          : num  3.6 5.3 3.8 4.8 4.8 2.8 3.3 5 6.7 3.6 ...
 $ Instability..death.rate          : num  5.9 7.5 4.7 5.1 5.1 4 6.5 4.5 8.9 5.9 ...
 $ Inst.....level.of.innovation     : num  13 1.5 9.2 2.4 2.4 8.4 4.6 2.7 3.1 13 ...
 $ Inst...number.of.innovative.firms: num  52.5 20.5 48 43.1 43.1 50.7 29.4 30.4 23.4 52.5 ...
 $ ROA....                          : num  4.67 1.78 3.23 0.2 2.42 1.81 -1.32 4.6 1.21 3.66 ...
 $ ROS....                          : num  5.55 3.22 2.38 0.15 2.8 ...
 $ Gearing.Ratio                    : num  0.49 0.78 1.13 0 4.74 0.15 0.53 4.1 8.86 4.45 ...
 $ Autonomia.vertice                : int  5 5 5 5 5 5 3 5 5 5 ...
 $ Pian..Str...SISTEMI              : Factor w/ 2 levels "NO/Non so","SI": 2 1 2 1 1 1 2 1 1 1 ...
>
> CR<-as.factor(database$Complessità..Concentration.Ratio)
> TI<-as.factor(database$Comp...Technical.Intricacy)
>  PD<-as.factor(database$Comp...Product.Diversification)
>  GD<-as.factor(database$Comp...Geographical.divers.)
>  BR<-as.factor(database$Instability..birth.rate)
>  DR<-as.factor(database$Instability..death.rate)
>  INN<-as.factor(database$Inst.....level.of.innovation)
>  INNfirms<-as.factor(database$Inst...number.of.innovative.firms)
>  ROA<-as.factor(database$IROA.... )
>  ROS<-as.factor(database$ROS....)
>  Gearing<-as.factor(database$Gearing.Ratio)
>  Auto<-as.factor(database$Autonomia.vertice)
> Sistemi<-as.factor(database$Pian..Str...SISTEMI )
>
> colnames(database)<-c("CR","TI","PD","GD","BR","DR","INN","INNfirms","ROA", "ROS","Gearing","Auto","Sistemi")
>
```

The model gives back the following output:

```
>
> #LDA MODEL
>
> library(MASS)
>
> lda.model<-lda(Sistemi~., data=database)
> lda.model
Call:
lda(Sistemi ~ ., data = database)

Prior probabilities of groups:
NO/Non so        SI
0.6792453 0.3207547

Group means:
                CR       TI       PD       GD       BR       DR       INN INNfirms      ROA      ROS   Gearing     Auto
NO/Non so 13.06944 1.737139 88.02500 21.82500 4.541667 5.905556 4.525000 36.97778 3.854444 4.562222 1.3694444 4.722222
SI        11.98824 1.872294 84.37059 22.14706 4.929412 6.894118 6.641176 35.42941 4.395294 3.707647 0.9170588 4.411765

Coefficients of linear discriminants:
                LD1
CR       -0.01174032
TI       -0.11399644
PD       -0.08765551
GD        0.03795384
BR        0.87334638
DR       -0.19165367
INN       0.26828061
INNfirms -0.06691695
ROA       0.04330214
ROS      -0.04184274
Gearing  -0.29476537
Auto     -0.49707316
>
```

The highest coefficient is represented by the “Firms’ birth rate”, followed by the “Autonomy of Top Management”, the “Gearing Ratio”, the “Level of Innovation” and the “Firm’s death rate”. Then, both characteristics of the firms themselves and the sectors they belong to contribute to the decision rule.

Again, this is just an example of application of a model that has been proposed to highlight some form of relationship of the predictors on the dependent variable in order to not stop the analysis just to the Chi-squared independence test. To complete the description of the model we precise that, to assess the significance of variables, a MANOVA (Multivariate Analysis of Variance) test could be run in order to verify if there are significant differences of the independent variables between the different levels of the dependent one. However MANOVA results are likely to not be significant when the sample size is small, even when the discriminant function is able to separate (in a good way) between groups.

The reader could be interested in knowing why no categorical variables have been included into the model; we do not enter deeply in the topic of dealing with categorical variables, but just to have an example of the challenges, it is possible to think that, if one of the variable’s levels is repeated for most of the observation (in our data set it is the case of the functional structure), it adds little value to the model because of low variation. This mean that

deal with qualitative predictors is often tricky for those who do not have a strong statistical background. In our case, the difficulty to include categorical variables into the model would have been the need to encode them through a so-called *numerical encoding*, namely assign scores to each of the level. Although one could think the easiest way would have been to assign an arbitrary score, in the reality there are statistical methods to do it, obviously facilitated by applications. This would have required deeper knowledge of statistical theory and R software too, that's why the model should be intended as a proposal for future studies: if it is considered as interesting, with more statistical knowledge, it can be enriched with other variables, assess how it changes for possible interaction effects and decide if eliminating variables that seem to not add any value in the prediction.

8 Conclusions and future directions

It is obvious that we did not expect to obtain not significant results for all variables except one; anyway this variable (namely the medium-long term objectives) could represent a "little" interesting result. The strategic planning process is oriented to the definition of strategic long-term objectives and, as a sub-process, intermediate financial ones. Taking for granted the value of tools as the Strategy Map that we have underlined through the work, we could deduce that those companies which strategically plan and are aware about the integration between financial and strategic objectives are also those aware of the added value that support systems could bring in managing this integration.

Despite the not "encouraging" results obtained in this work, it is believed that the research should continue and aim to collect a greater number of information; based on the total population there are tables which indicate what could be the "right" size of the sample and maybe future researches should aim to round that value.

The advantage of having a larger sample would rely also in the fact that, in this way, there would not be the need to put together more levels of the same variable; if we had collected significant results the information power would have, in some way, however reduced.

An aspect that could represent an extension of this research is to investigate the impact that the implementation of the strategic planning process and the adoption of support systems have on performances. Indeed, what results from our collection of data, it is that companies which do not plan have, on average, better (or just little lower) performances in respect to the

other and, among companies which plan, those which do not adopt systems got, in the last three years, higher ROA and ROS in respect to the counterpart. Conversely, the gearing ratio is lower among companies which completely plan and adopt strategic planning systems.

Then, future researches could be addressed in understand more of this impact and identify the measures that are mostly (both in a “good” and “bad” way) affected.

CONCLUSIONS

This work has mostly concerned a review of the literature through which, first of all, we identified what is the strategic planning process and also what is not.

Principal critics against this approach rely on the consideration of it as something "rigid" and that could prevent an active *learning by doing*. But strategic planning is everything other than this; indeed, since early contributions published during Seventies, advocates of the planning school stated its flexible nature and the need to review it regularly.

Beyond the analysis of the evolutionary role of the content of the strategic planning, a considerable part of the literature review focused on the impact that the implementation of this process has on performances. We could not generalize results because most of the studies differ in type of performances measured, activity sectors and firms' characteristics, but in concluding this work it seems important to highlight that some studies have shown how strategic planning has been the driver for better performances in complex and turbulent environmental surroundings. We could presume that reasons for these results should be found in the nature of the strategic planning itself because it allows for a greater understanding of the external environments, implies benchmarking against competitors and the definition of scenarios, it tries to identify in advance alternative solutions in case of misalignments in respect to desired objectives are registered. All these activities (and the other described through the rest of the work) create the bases for a process of strategy formulation that follows precise logical steps and, through continuously monitor the process, allows to respond to negative effects more easily of how could be able to do an organization that does not constantly compare if the pattern towards the objective achievement is following the right pre-determined route.

Nevertheless, as stated at the end of the third chapter, in this research we have observed that companies which do not plan at all realized, on average, comparable performances in terms of profitability ratios in respect to those which declared to do it only in part, and the same ratios were much higher in respect to those companies that plan completely. Similarly, among companies which plan, those which do not adopt any system realized higher profitability ratios. The situation is completely reverse when we turn on the debt ratio.

To investigate the relationship between planning and performances was not the purpose of this work, then these information could just raise the interest for future researches, they should not represent the base to affirm that the strategic planning is cause of lower

performances; the reader should also consider that environmental and organizational characteristics could influence this pattern, as stated by several Authors cited in the first chapter.

Coming back to the focus of this work, we could affirm that, maybe, the Strategy Map is one of the most powerful frameworks introduced in the last years because in a page, let's say in a picture, is able to describe in a clear and easy manner the entire process of planning a strategy.
Taken for grant the "strength" of this system, it surprises how organizations have revealed themselves as so little reactive in opting for its implementation.

In this research, taking apart the statistical analysis which has not produced results that we could have considered important in being able to explain this scarce reaction, the phenomenon is evident. A quite high percentage of the sample does not implement the strategic planning process at all, but among those which do it only 24 firms declared to adopt support systems. We also noted that, filling the questionnaire, many of these 24 firms did not filled the open space to indicate which systems are in place, so letting to presume that in some cases there is even not the clarity about what is really a strategic planning system.

Obviously a so restricted sample could not reproduce the entire population but, based on data available at this moment, we could stress that the picture this research gives back is not positive for Italian firms, because they have shown to not be ready to catch an opportunity that could represent significant improvements. In particular, we find in Cugini et al. (2016) that major improvements appreciated by managers of firms where the Strategy Map has been implemented related to the integration of processes at the business unit levels and their alignment in respect to corporate objectives.

To adopt these systems, obviously, comes at the expense of investments to sustain in terms of resources, time, people but, if well implemented, they could largely increase the efficacy and efficiency levels of the strategy management process.

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APPENDIX – The Questionnaire

Gentilissimo/a,

il mio nome è Scalzitti Anna e sono una studentessa iscritta al Corso di Laurea Magistrale in Business Administration presso l'Università di Padova.

Nell'ambito del mio progetto di tesi, in cui sono seguita dalla Prof.ssa Cugini Antonella, chiedo la Vostra preziosa collaborazione attraverso la compilazione del presente questionario.

Il progetto di tesi si propone di indagare il fenomeno dell'utilizzo dei sistemi di pianificazione strategica nelle medie e grandi aziende italiane. Le domande del questionario sono frutto di un'accurata analisi bibliografica dell'argomento, attraverso cui i fattori che potrebbero influenzare le organizzazioni nell'utilizzo di tali strumenti sono stati identificati. Le risposte collezionate, nel completo rispetto della privacy, verranno poi analizzate con strumenti statistici al fine di identificare i fattori rilevanti.

Come anticipato, il target della mia ricerca è rappresentato da aziende di media e grande dimensione, senza alcuna discriminazione per il settore di appartenenza. Dovendo rivolgermi a una popolazione aziendale così variegata, mi perdonerete se alcune domande saranno formulate in maniera generica e magari non completamente pertinente alla Vostra Azienda.

Il questionario consta di 40 domande, la maggior parte delle quali richiedono di contrassegnare una delle alternative proposte (ove non indicato diversamente). Le domande vertono sulle caratteristiche dell'azienda e del vertice, la strategia e, ove adottati, le caratteristiche dei sistemi di pianificazione.

Una volta compilato, potrete inviarlo all'indirizzo e-mail: anna.scalzitti@studenti.unipd.it

Resto a disposizione per qualsiasi ulteriore chiarimento e ringrazio anticipatamente per l'attenzione.

Confidando nella Vostra collaborazione, indispensabile per la buona riuscita del lavoro, porgo

Distinti saluti,

Anna Scalzitti

Dati Anagrafici dell'Azienda
Ragione sociale

Dati relativi al compilatore del questionario
Cognome e nome Posizione Organizzativa
Email N. di telefono

SEZIONE 1 – CARATTERISTICHE DELL'AZIENDA
1) Qual è il tipo di **struttura organizzativa** adottato dall'Azienda?

☐Funzionale ☐Informale ☐Matriciale/Orizzontale/Per processi ☐A rete

Divisionale per: ☐Prodotto ☐Area geografica ☐Altro ☐Altro

2) Si indichino i parametri richiesti (ultimo esercizio disponibile):

Numero Dipendenti	Fatturato (in mln di €)	Tot. Attivo di bilancio (in mln di €)
☐<10	☐<10	☐<10
☐10 - 49	☐10 - 50	☐10 – 43
☐50 – 249	☐50 – 100	☐43 -100
☐250 – 500	☐100 – 250	☐100 – 250
☐>500	☐>250	☐>250

3) Da questo punto in poi, oggetto della compilazione del questionario è:
☐L'azienda nel suo complesso ☐Una sua divisione/Business unit (indicare quale)

SEZIONE 2 – AMBIENTE DI RIFERIMENTO
4) In quale dei seguenti **settori** l'Azienda svolge la propria attività?
☐Attività manifatturiere ☐Istruzione
☐Fornitura di energia elettrica, gas, vapore e aria condizionata
☐Fornitura di acqua; reti fognarie, attività di gestione dei rifiuti e risanamento
☐Costruzioni ☐Attività finanziare e assicurative
☐Commercio all'ingrosso e al dettaglio; riparazione di autoveicoli e motocicli
☐Attività dei servizi di alloggio e di ristorazione ☐Servizi di informazione e comunicazione
☐Attività immobiliari ☐Attività professionali, scientifiche e tecniche
☐Noleggio, agenzie di viaggio, servizi di supporto alle imprese
☐Attività artistiche, sportive, di intrattenimento e divertimento ☐ Altro

5) Se ha selezionato "Attività manifatturiere" indichi quale: (classificazione ATECO 2007)
☐Alimentare; ☐Bevande; ☐Tessile; ☐Metallurgia; ☐Mobili; ☐Prodotti Chimici; ☐Carta; ☐ Legno
☐Prodotti farmaceutici; ☐Prodotti in metallo; ☐Computer e prodotti di elettronica; ☐Altro

6) Da quanti anni l'Azienda opera **nel settore**?
☐Meno di 5 ☐Da 6 a 10 ☐Oltre 10
7) Rispetto ai competitors del settore, in quale **fase del ciclo di vita** collocherebbe l'Azienda?
☐"Nascita" ☐"Espansione" ☐"Maturità" ☐"Declino" ☐Non so

SEZIONE 3 – GOVERNANCE E CARATTERISTICHE DEL VERTICE
8) L'Azienda **appartiene a un Gruppo**? ☐SI ☐NO

9) Se SI, l'Azienda è: ☐Una controllata ☐La controllante ☐Altro

10) Da 1 a 5 qual è il **livello d'autonomia** della/e controllata/e nel formulare la strategia?

Nessuna autonomia 1 2 3 4 5 Completa autonomia

☐ ☐ ☐ ☐ ☐

11) Il **vertice** dell'Azienda (CdA, AD, DG) è composto da: (Più risposte possibili)

☐Imprenditore/Soci; ☐Famigliari dei soci; ☐Manager esterni; ☐Altro

12) Quali sono le **funzioni da cui provengono i membri del vertice** dell'Azienda? (Più risposte possibili)

☐Acquisti ☐Produzione/logistica ☐Marketing ☐R&S ☐Risorse Umane ☐Vendite ☐Finanza ☐Amministrazione ☐Altro

13) Quali sono i **valori** di cui il vertice è portavoce? (Più risposte possibili)

☐Innovazione, rinnovamento ☐Etica ☐Ambiente e green economy
☐Storia e tradizione ☐Attenzione al cliente ☐Crescita e sviluppo
☐Risultati economici ☐Efficienza e costi ☐Lavoratori e ambiente di lavoro
☐Altro

14) Il vertice ricerca la **coesione** e la **diffusione di una cultura organizzativa** tra i membri dell'Azienda?

☐SI ☐NO ☐Non so

15) Se SI, cerca di favorirla attraverso: (Più risposte possibili)

☐Cerimonie per la premiazione dei risultati raggiunti;
☐Diffusione di un linguaggio comune ai membri dell'Azienda;
☐Ambiente di lavoro che favorisce l'interazione;
☐Altro

16) Indichi il suo grado di condivisione (1=poco d'accordo, 5=completamente) in riferimento alle seguenti affermazioni.

I membri del vertice:

		1	2	3	4	5	Non so
a)	Promuovono lo sviluppo personale e professionale dei membri dell'Azienda	☐	☐	☐	☐	☐	☐
b)	Creano un clima favorevole alla condivisione di idee da parte dei membri	☐	☐	☐	☐	☐	☐
c)	Definiscono in modo chiaro e preciso ciò che si si aspettano dai membri	☐	☐	☐	☐	☐	☐
d)	Hanno come priorità il risultato finale	☐	☐	☐	☐	☐	☐

17) Indichi **chi assume le seguenti decisioni**:

	Vertice aziendale	**Quadri/Dirigenti con autorizzazione**	**Quadri/Dirigenti senza autorizzazione**
a) Strategie di prezzo	☐	☐	☐
b) Adeguamento delle campagne di marketing alla cultura locale	☐	☐	☐
c) Entrata/uscita da mercati/linee di prodotto	☐	☐	☐
d) Assunzione, licenziamento del personale	☐	☐	☐
e) Adeguamento del prodotto/servizio ai gusti locali	☐	☐	☐
f) Scelte relative agli acquisti (es.: scelta dei fornitori)	☐	☐	☐

18) Indichi il suo grado di condivisione in riferimento alle seguenti affermazioni (1=per niente d'accordo; 5= totalmente d'accordo):

	1	2	3	4	5
a) Il rispetto di regole e procedure da parte dei dipendenti è fondamentale tuttavia, se necessario, il singolo dipendente può agire autonomamente.	☐	☐	☐	☐	☐
b) Viene promosso il lavoro di squadra piuttosto che la competizione.	☐	☐	☐	☐	☐
c) I dipendenti sono fedeli all'Azienda, per cui si registra un basso ricambio del personale.	☐	☐	☐	☐	☐
d) Generalmente, si tengono conto di criteri diversi dall'età per assegnare promozioni.	☐	☐	☐	☐	☐
e) Differenze culturali, anche se a livello manageriale, vengono considerate sinergiche.	☐	☐	☐	☐	☐

SEZIONE 4 - STRATEGIA COMPETITIVA E OBIETTIVI DI BREVE E MEDIO-LUNGO PERIODO

19) Quali delle seguenti **iniziative/azioni sono state già intraprese** dall'Azienda? (Più risposte possibili)

☐ Ottenuto la certificazione ISO 9001.
☐ Utilizziamo materie prime certificate dal punto di vista della sostenibilità ambientale.
☐ De-localizzato all'estero (interamente o in parte) la produzione.
☐ Esternalizzato lo svolgimento di alcune fasi del processo produttivo per ridurre i costi.
☐ Integrazione a monte per assicurare la qualità degli input.
☐ Integrazione a valle per avere un contatto più diretto con il mercato.
☐ Rinnovato il nostro sito web rendendolo più interattivo e ricco di contenuti.
☐ Attivato pagine sui social network che sono costantemente aggiornate con le nostre attività.
☐ Siamo stati in grado di individuare bisogni latenti dei consumatori.
☐ Adottato una logica "Just in Time" per migliorare l'efficienza della supply chain.
☐ Introdotto innovazioni di prodotto che hanno creato per l'Azienda nuovi spazi di mercato mai esplorati dalla concorrenza.

20) Indicare da 1 (poco importante) a 5 (molto importante) il focus posto dall'Azienda al raggiungimento dei seguenti **obiettivi** nel breve e/o medio lungo termine:

	BT (1-2 anni)					M-LT (oltre 2 anni)				
	1	2	3	4	5	1	2	3	4	5
a) Risultati economici (es.: ricavi, profitto, dividendi,…)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b) Aumento della quota di mercato	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c) Rafforzare la brand image	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d) Eccellere sui concorrenti	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e) Miglioramento della sostenibilità ambientale	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

SEZIONE 5 – INFORMATION TECHNOLOGY

21) In Azienda esiste una **funzione Information Technology**? ☐ SI ☐ NO

22) Se SI, come descriverebbe il **rapporto tra la funzione IT e il resto dell'Azienda**?

☐ I manager individuano le esigenze informative e l'IT individua le soluzioni per gestire i dati.
☐ L'IT è pro-attivo e propone spesso nuove soluzioni per l'analisi e la gestione dei dati.
☐ L'Azienda fa un uso limitato delle risorse informatiche.

☐ Altro

23) Quali **iniziative** sono state o saranno **intraprese in merito all'IT**?

	Già implementate	Da implementare
a) Adeguamento hardware	☐	☐
b) Acquisizione di nuove licenze software	☐	☐
c) Formazione del personale nell'utilizzo di nuovi software	☐	☐
d) Acquisizione di servizi esterni (es.: consulenza)	☐	☐
e) Assunzione di personale specializzato (es.: data scientists)	☐	☐
f) Investimenti in Big Data, Analytics, Business Intelligence	☐	☐
g) Altro	☐	☐

SEZIONE 6 – PIANIFICAZIONE STRATEGICA

24) La formulazione della strategia segue un processo solitamente articolato in diversi fasi: per ognuna delle seguenti fasi, se svolte dall'Azienda, indicarne l'**importanza** da 1 (molto bassa) a 5 (molto alta). (Più risposte possibili)

	1 2 3 4 5
a) Identifichiamo opportunità e minacce derivanti dall'ambiente esterno.	☐☐☐☐☐
b) Valutiamo le nostre performance economiche rispetto ai concorrenti.	☐☐☐☐☐
c) Definiamo obiettivi strategici dettagliati per il medio - lungo termine (oltre 3 anni).	☐☐☐☐☐
d) Definiamo gli obiettivi strategici tenendo conto dei nostri punti di forza/ debolezza.	☐☐☐☐☐
e) Per ciascun obiettivo strategico identifichiamo obiettivi intermedi di breve periodo.	☐☐☐☐☐
f) Definiamo diversi scenari strategici per tener conto dei cambiamenti ambientali.	☐☐☐☐☐
g) Altro	☐☐☐☐☐

25) Al fine di assicurare una più accurata formulazione della strategia, l'Azienda si serve di un "**processo di pianificazione strategica strutturato e formalizzato**" per integrare e coordinare le varie fasi della pianificazione strategica? ☐SI ☐NO ☐In parte

SEZIONE 7 – CARATTERISTICHE DELLA PIANIFICAZIONE STRATEGICA

(Da qui in poi, completare solo se la risposta al quesito 25 è "SI" o "In parte")

26) L'Azienda usa **sistemi e strumenti** di supporto alla pianificazione strategica? (es.: mappa strategica, mappa delle sinergie, SWOT analisi, TOWS analisi, strumenti di "Management Science", etc)

☐SI ☐NO ☐Non so

27) Se SI, quali?

28) E' presente uno **staff/figura di supporto al processo di pianificazione**? ☐SI ☐NO ☐ Non so

29) Se SI, è presente: (più risposte possibili)

☐un'unità organizzativa permanente di pianificazione;

☐una figura permanente del tipo "Corporate/Strategic planner" (Responsabile della pianificazione);

☐specifici project team; ☐altro

30) Se SI, quali sono le **funzioni da cui provengono i membri dell'unità organizzativa** (o altre figure previste)?

☐Acquisti ☐Produzione/logistica ☐Marketing
☐Vendite ☐R&S ☐Amministrazione
☐Risorse Umane ☐Finanza ☐Altro

31) Qual è la **posizione** del "Responsabile della pianificazione strategica" nella struttura organizzativa aziendale (es.: dirigente, quadro, etc)?

32) Da chi dipende gerarchicamente?

33) Per la pianificazione strategica, l'Azienda si avvale di **consulenti esterni**? ☐SI ☐NO ☐Non so

34) Se SI, per:

☐sopperire alla mancanza di figure dedicate all'interno dell'Azienda;
☐sopperire alla mancanza di tempo da parte dello staff dedicato dell'Azienda;
☐affiancare lo staff dedicato dell'Azienda per esigenze specifiche;
☐altro

SEZIONE 8 – EFFICACIA DELLA PIANIFICAZIONE STRATEGICA

35) Sono previsti **incentivi** ai manager per il raggiungimento degli obiettivi contenuti nel piano strategico?

☐SI ☐NO ☐Non so

36) Se SI, quali risultati rappresentano la **base per l'attribuzione degli incentivi**? (Più risposte possibili)

☐Fatturato ☐Quota di mercato ☐Customer satisfaction

☐ROI ☐Margine Operativo Lordo ☐Indicatori di produttività

☐Altro

37) Qual è il **ruolo della funzione Risorse Umane** in merito alla formulazione/implementazione della strategia?

☐Ruolo "reattivo": sviluppa sistemi/programmi per l'implementazione degli obiettivi aziendali.
☐Ruolo "proattivo": partecipa, attraverso il proprio management, al processo di formulazione della strategia

38) Ritiene che il **contenuto del piano strategico** sia **adeguatamente comunicato**? ☐SI ☐NO ☐ Non so

39) Se SI, attraverso (più risposte possibili):

☐sistemi informativi e strumenti del Web 2.0 accessibili a tutti i membri dell'organizzazione;
☐eventi ad hoc;
☐rappresentazione del piano attraverso visualizzazioni interattive utilizzabili dal personale (es.: Balanced Scorecard tree);
☐altro

40) Per favorire l'**implementazione del piano strategico** l'Azienda:

☐ Chiarisce il ruolo di ciascun membro, affinché siano in grado di capire l'importanza del proprio impegno per il raggiungimento degli obiettivi.

☐ Effettua frequenti valutazioni delle performance (di team, funzioni, divisioni, ecc.), per mantenere alta l'attenzione verso il raggiungimento degli obiettivi.

☐ Nessuno di questi.

☐ Altro

APPENDIX 2 – Results of Chi-squared Test

The Strategic Planning Process

```
>
> Tab<-xtabs(~Grandezza+Pianificazione.strategica..processo, data=database)
> Tab
         Pianificazione.strategica..processo
Grandezza NO  SI/In parte
   Grande  15          33
   Media   18          36
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 0.00015554, df = 1, p-value = 0.99


> Tab<-xtabs(~Livello.di.complessità+Pianificazione.strategica..processo, data=database)
> Tab
                     Pianificazione.strategica..processo
Livello.di.complessità NO  SI/In parte
     Bassa/Medio-bassa  11          28
     Media              14          31
     Medio-alta/Alta     8          10
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 1.5407, df = 2, p-value = 0.4628


> Tab<-xtabs(~Livello.di.instabilità+Pianificazione.strategica..processo, data=database)
> Tab
                     Pianificazione.strategica..processo
Livello.di.instabilità NO  SI/In parte
     Bassa/Medio-bassa   1           4
     Media              25          50
     Medio-alta/Alta     7          15
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 0.38443, df = 2, p-value = 0.8251

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                     Pianificazione.strategica..processo
Livello.di.instabilità       NO  SI/In parte
     Bassa/Medio-bassa  1.617647    3.382353
     Media             24.264706   50.735294
     Medio-alta/Alta    7.117647   14.882353
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 1
```

```
> Tab<-xtabs(~Fase.del.ciclo.di.vita+Pianificazione.strategica..processo, data=database)
> Tab
                     Pianificazione.strategica..processo
Fase.del.ciclo.di.vita NO  SI/In parte
            Declino     2           3
            Espansione 16          41
            Maturità   15          25
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 1.0955, df = 2, p-value = 0.5783

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                     Pianificazione.strategica..processo
Fase.del.ciclo.di.vita       NO  SI/In parte
            Declino     1.617647    3.382353
            Espansione 18.441176   38.558824
            Maturità   12.941176   27.058824
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.5453
```

```
> Tab<-xtabs(~ Autonomia.vertice+Pianificazione.strategica..processo, data=database)
> Tab
                                                                 Pianificazione.strategica..processc
Autonomia.vertice                                                 NO
  Completa (azienda che non appartiene a gruppo)                   13
  Completa (controllante) con aut. Controllata Media/Medio-alta     3
  Completa (controllante) con completa aut. Controllata             2
  Completa (controllante) con nessuna/bassa autonomia controllata   3
  Completa (controllata)                                            6
  Media/Medio-Alta                                                  4
  Nessuna/Bassa autonomia                                           2
                                                                 Pianificazione.strategica..processc
Autonomia.vertice                                                 SI/In parte
  Completa (azienda che non appartiene a gruppo)                           33
  Completa (controllante) con aut. Controllata Media/Medio-alta             7
  Completa (controllante) con completa aut. Controllata                     1
  Completa (controllante) con nessuna/bassa autonomia controllata           9
  Completa (controllata)                                                    6
  Media/Medio-Alta                                                         11
  Nessuna/Bassa autonomia                                                   2
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 4.7859, df = 6, p-value = 0.5715

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta

> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.5518
```

```
> Tab<-xtabs(~Eterogeneità.Funzionale.dei.membri.del.vertice+Pianificazione.strategica..processo, data=database)
> Tab
                                          Pianificazione.strategica..processo
Eterogeneità.Funzionale.dei.membri.del.vertice NO  SI/In parte
                        Media/Alta             17          32
                        No/Bassa eterogeneità  16          37
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 0.075137, df = 1, p-value = 0.784

> Tab<-xtabs(~Valori+Pianificazione.strategica..processo, data=database)
> Tab
                                        Pianificazione.strategica..processo
Valori                                   NO  SI/In parte
  Focus su valori legati alla sfera economica   4          13
  Focus su valori legati alla sfera sociale    11          26
  Mix                                          18          30
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 1.3021, df = 2, p-value = 0.5215


> Tab<-xtabs(~Focus.innovazione+Pianificazione.strategica..processo, data=database)
> Tab
                 Pianificazione.strategica..processo
Focus.innovazione NO  SI/In parte
               NO  11          30
               SI  22          39
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 0.58032, df = 1, p-value = 0.4462

> Tab<-xtabs(~Prevalent.mgt.s.behavior+Pianificazione.strategica..processo, data=database)
> Tab
                       Pianificazione.strategica..processo
Prevalent.mgt.s.behavior NO  SI/In parte
  "Consideration"           5          14
  "Initiating structure"   14          25
  MIX                      14          30
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 0.54604, df = 2, p-value = 0.7611



>
> Tab<-xtabs(~Uncertainty.avoidance+Pianificazione.strategica..processo, data=database)
> Tab
                     Pianificazione.strategica..processo
Uncertainty.avoidance NO  SI/In parte
    Medio-Alta/Alta    23          41
    Medio-Bassa/Bassa  10          28
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 0.61684, df = 1, p-value = 0.4322
```

```
> Tab<-xtabs(~Centralizzazione+Pianificazione.strategica..processo, data=databas
> Tab
                     Pianificazione.strategica..processo
Centralizzazione      NO  SI/In parte
  Alta/Medio-Alta     26          61
  Bassa/Medio - Bassa  7           8
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 0.96882, df = 1, p-value = 0.325

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.2369
alternative hypothesis: true odds ratio is not equal to 1
95 percent confidence interval:
 0.1387821 1.7692068
sample estimates:
odds ratio
 0.4908481

> chisq.test(Tab)$expected
                     Pianificazione.strategica..processo
Centralizzazione            NO  SI/In parte
  Alta/Medio-Alta     28.147059    58.85294
  Bassa/Medio - Bassa  4.852941    10.14706
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
>
```

If what we presume at page "74" was true, since in this case we have a perfect 2x2 contingency table we could presume the independence of the two variables.

```
>
> Tab<-xtabs(~Competenza.IT+Pianificazione.strategica..processo, data=database)
> Tab
             Pianificazione.strategica..processo
Competenza.IT NO  SI/In parte
  NO          10          17
  SI/In parte 23          52
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 0.13459, df = 1, p-value = 0.7137
```

```
> Tab<-xtabs(~Orientamento.strategico+Pianificazione.strategica..processo, data=database)
> Tab
                                Pianificazione.strategica..processo
Orientamento.strategico          NO  SI/In parte
  Best Cost Provider              5          12
  Best Cost Provider + Blue Ocean 7          11
  Diff + Blue Ocean               5          18
  Focus su differenziazione      11          20
  Focus su vantaggio di costo     5           4
  Vant. Costo + Blue Ocean        0           4
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 5.8682, df = 5, p-value = 0.3193

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                                Pianificazione.strategica..processo
Orientamento.strategico                NO  SI/In parte
  Best Cost Provider             5.500000   11.500000
  Best Cost Provider + Blue Ocean 5.823529  12.176471
  Diff + Blue Ocean              7.441176   15.558824
  Focus su differenziazione     10.029412   20.970588
  Focus su vantaggio di costo    2.911765    6.088235
  Vant. Costo + Blue Ocean       1.294118    2.705882
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.3617
```

```
> Tab<-xtabs(~Obiettivi.BT+Pianificazione.strategica..processo, data=database)
> Tab
                        Pianificazione.strategica..processo
Obiettivi.BT             NO  SI/In parte
  Focus su ob. Economici  4          11
  Focus su ob. Strategici 5          16
  Mix                    24          40
  Non esplicitati         0           2
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 2.6532, df = 3, p-value = 0.4482

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                        Pianificazione.strategica..processo
Obiettivi.BT                   NO  SI/In parte
  Focus su ob. Economici   4.8529412   10.147059
  Focus su ob. Strategici  6.7941176   14.205882
  Mix                     20.7058824   43.294118
  Non esplicitati          0.6470588    1.352941
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.5173
alternative hypothesis: two.sided
```

```
> Tab<-xtabs(~Obiettivi.M.LT+Pianificazione.strategica..processo, data=database)
> Tab
                         Pianificazione.strategica..processo
Obiettivi.M.LT            NO  SI/In parte
  Focus su ob. Economici    2           7
  Focus su ob. Strategici   5          13
  MIX                      23          47
  Non esplicitati           3           2
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 2.3486, df = 3, p-value = 0.5033

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                         Pianificazione.strategica..processo
Obiettivi.M.LT                 NO  SI/In parte
  Focus su ob. Economici   2.911765    6.088235
  Focus su ob. Strategici  5.823529   12.176471
  MIX                     22.647059   47.352941
  Non esplicitati          1.617647    3.382353
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.559

> Tab<-xtabs(~Ruolo.IT+Pianificazione.strategica..processo, data=database)
> Tab
                                  Pianificazione.strategica..processo
Ruolo.IT                           NO  SI/In parte
  Pro-attivo                       11          26
  Reattivo                         15          35
  Uso limitato/Funzione non presente  7           8
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 1.647, df = 2, p-value = 0.4389

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                                  Pianificazione.strategica..processo
Ruolo.IT                                 NO  SI/In parte
  Pro-attivo                       11.970588    25.02941
  Reattivo                         16.176471    33.82353
  Uso limitato/Funzione non presente  4.852941    10.14706
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.4797
```

This is one of the cases we addressed in the third chapter where R gives back a warning message even if expected frequencies lower than 5 occur in less than 20% of the cases.

```
> Tab<-xtabs(~Livello.performance+Pianificazione.strategica..processo, data=database)
> Tab
                  Pianificazione.strategica..processo
Livello.performance NO  SI/In parte
  Basso/Medio-basso  13          40
  Medio-alto/Alto    16          25
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 1.6483, df = 1, p-value = 0.1992
```

The Strategic Planning Systems

```
> Tab<-xtabs(~Struttura+Pian..Str...SISTEMI, data=database)
> Tab
                                                    Pian..Str...SISTEMI
Struttura                                            NO/Non so SI
  Divisionale (per prodotto/area geo/merc.-clienti)         7  2
  Funzionale                                               24 17
  Matriciale/Orizzontale/Per processi                       9  3
  MISTA/Altro                                               4  3
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 2.0384, df = 3, p-value = 0.5645

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                                                    Pian..Str...SISTEMI
Struttura                                            NO/Non so        SI
  Divisionale (per prodotto/area geo/merc.-clienti)  5.739130  3.260870
  Funzionale                                        26.144928 14.855072
  Matriciale/Orizzontale/Per processi                7.652174  4.347826
  MISTA/Altro                                        4.463768  2.536232
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.6113



> Tab<-xtabs(~Grandezza+Pian..Str...SISTEMI, data=database)
> Tab
         Pian..Str...SISTEMI
Grandezza NO/Non so SI
   Grande        21 12
   Media         23 13
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 2.874e-31, df = 1, p-value = 1
```

```
> Tab<-xtabs(~Livello.di.complessità+Pian..Str...SISTEMI, data=database)
> Tab
                      Pian..Str...SISTEMI
Livello.di.complessità NO/Non so SI
     Bassa/Medio-bassa        19  9
     Media                    19 12
     Medio-alta/Alta           6  4
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 0.34646, df = 2, p-value = 0.8409

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                      Pian..Str...SISTEMI
Livello.di.complessità NO/Non so        SI
     Bassa/Medio-bassa 17.855072 10.144928
     Media             19.768116 11.231884
     Medio-alta/Alta    6.376812  3.623188
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.8377
```

Also in this case expected frequencies lower than 5 occur less than 20% of the cases.

```
> Tab<-xtabs(~Livello.di.instabilità+Pian..Str...SISTEMI, data=database)
> Tab
                       Pian..Str...SISTEMI
Livello.di.instabilità NO/Non so SI
     Bassa/Medio-bassa          3  1
     Media                     34 16
     Medio-alta/Alta            7  8
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 2.5047, df = 2, p-value = 0.2858

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                       Pian..Str...SISTEMI
Livello.di.instabilità NO/Non so        SI
     Bassa/Medio-bassa  2.550725  1.449275
     Media             31.884058 18.115942
     Medio-alta/Alta    9.565217  5.434783
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.3446
```

```
> Tab<-xtabs(~Fase.del.ciclo.di.vita+Pian..Str...SISTEMI, data=database)
> Tab
                      Pian..Str...SISTEMI
Fase.del.ciclo.di.vita NO/Non so SI
            Declino             3  0
            Espansione         24 17
            Maturità           17  8
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 2.384, df = 2, p-value = 0.3036

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                      Pian..Str...SISTEMI
Fase.del.ciclo.di.vita NO/Non so        SI
            Declino     1.913043  1.086957
            Espansione 26.144928 14.855072
            Maturità   15.942029  9.057971
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.389
```

```
> Tab<-xtabs(~Autonomia.vertice+Pian..Str...SISTEMI, data=database)
> Tab
                                                                  Pian..Str...SISTEMI
Autonomia.vertice                                                  NO/Non so SI
  Completa (azienda che non appartiene a gruppo)                          21 12
  Completa (controllante) con aut. Controllata Media/Medio-alta            4  3
  Completa (controllante) con completa aut. Controllata                    1  0
  Completa (controllante) con nessuna/bassa autonomia controllata          5  4
  Completa (controllata)                                                   5  1
  Media/Medio-Alta                                                         7  4
  Nessuna/Bassa autonomia                                                  1  1
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 2.1224, df = 6, p-value = 0.9081

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.947
```

```
> Tab<-xtabs(~Eterogeneità.Funzionale.dei.membri.del.vertice+Pian..Str...SISTEMI, data=database)
> Tab
                                          Pian..Str...SISTEMI
Eterogeneità.Funzionale.dei.membri.del.vertice NO/Non so SI
                        Media/Alta                    17 15
                        No/Bassa eterogeneità         27 10
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 2.1298, df = 1, p-value = 0.1445
```

```
> Tab<-xtabs(~Valori+Pian..Str...SISTEMI, data=database)
> Tab
                                                  Pian..Str...SISTEMI
Valori                                             NO/Non so SI
  Focus su valori legati alla sfera economica              8  5
  Focus su valori legati alla sfera sociale               17  9
  Mix                                                     19 11
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 0.059832, df = 2, p-value = 0.9705

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                                                  Pian..Str...SISTEMI
Valori                                             NO/Non so        SI
  Focus su valori legati alla sfera economica  8.289855  4.710145
  Focus su valori legati alla sfera sociale   16.579710  9.420290
  Mix                                         19.130435 10.869565
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 1
```

Also in this case expected frequencies lower than 5 occur less than 20% of the cases.

```
> Tab<-xtabs(~Focus.innovazione+Pian..Str...SISTEMI, data=database)
> Tab
                  Pian..Str...SISTEMI
Focus.innovazione NO/Non so SI
               NO        21  9
               SI        23 16
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 0.47878, df = 1, p-value = 0.489

> Tab<-xtabs(~Prevalent.mgt.s.behavior+Pian..Str...SISTEMI, data=database)
> Tab
                         Pian..Str...SISTEMI
Prevalent.mgt.s.behavior NO/Non so SI
  "Consideration"                 7  7
  "Initiating structure"         14 11
  MIX                            23  7
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 3.9619, df = 2, p-value = 0.1379

> Tab<-xtabs(~Centralizzazione+Pian..Str...SISTEMI, data=database)
> Tab
                     Pian..Str...SISTEMI
Centralizzazione      NO/Non so SI
  Alta/Medio-Alta            39 22
  Bassa/Medio - Bassa         5  3
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 2.9193e-31, df = 1, p-value = 1

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                     Pian..Str...SISTEMI
Centralizzazione      NO/Non so        SI
  Alta/Medio-Alta     38.898551 22.101449
  Bassa/Medio - Bassa  5.101449  2.898551
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 1
```

For the “Centralization” same consideration of before; we should rely on the exact results of the Fisher test and state that the two variables are independent.

```
> Tab<-xtabs(~Uncertainty.avoidance+Pian..Str...SISTEMI, data=database)
> Tab
                      Pian..Str...SISTEMI
Uncertainty.avoidance NO/Non so SI
    Medio-Alta/Alta          28 13
    Medio-Bassa/Bassa        16 12
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 0.47768, df = 1, p-value = 0.4895
```

```
> Tab<-xtabs(~Orientamento.strategico+Pian..Str...SISTEMI, data=database)
> Tab
                                Pian..Str...SISTEMI
Orientamento.strategico          NO/Non so SI
  Best Cost Provider                    11  2
  Best Cost Provider e Blue Ocean        5  5
  Diff e Blue Ocean                     10  8
  Focus su differenziazione             12  8
  Focus su vantaggio di costo            3  1
  Vant. Costo e Blue Ocean               3  1
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 4.351, df = 5, p-value = 0.5001

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.5091
```

```
> Tab<-xtabs(~Competenza.IT+Pian..Str...SISTEMI, data=database)
> Tab
            Pian..Str...SISTEMI
Competenza.IT NO/Non so SI
  NO                14  3
  SI/In parte       30 22
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 2.3893, df = 1, p-value = 0.1222

> database<-read.csv2("livello perf.csv")
> str(database)
'data.frame':   65 obs. of  2 variables:
 $ Livello.performance: Factor w/ 2 levels "Basso/Medio-basso",..: 1 1 1 1 1 1 1 1 2 2 ...
 $ Pian..Str...SISTEMI: Factor w/ 2 levels "NO/Non so","SI": 2 1 1 2 1 1 1 2 1 1 ...
> Tab<-xtabs(~Livello.performance+Pian..Str...SISTEMI, data=database)
> Tab
                   Pian..Str...SISTEMI
Livello.performance NO/Non so SI
  Basso/Medio-basso        22 18
  Medio-alto/Alto          19  6
> chisq.test(Tab)

        Pearson's Chi-squared test with Yates' continuity correction

data:  Tab
X-squared = 2.0812, df = 1, p-value = 0.1491
```

```
> Tab<-xtabs(~Obiettivi.BT+Pian..Str...SISTEMI, data=database)
> Tab
                          Pian..Str...SISTEMI
Obiettivi.BT               NO/Non so SI
  Focus su ob. Economici           9  2
  Focus su ob. Strategici          9  7
  Mix                             24 16
  Non esplicitati                  2  0
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 3.3248, df = 3, p-value = 0.3442

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                          Pian..Str...SISTEMI
Obiettivi.BT               NO/Non so         SI
  Focus su ob. Economici    7.014493  3.9855072
  Focus su ob. Strategici  10.202899  5.7971014
  Mix                      25.507246 14.4927536
  Non esplicitati           1.275362  0.7246377
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.4156


> Tab<-xtabs(~Ruolo.IT+Pian..Str...SISTEMI, data=database)
> Tab
                                     Pian..Str...SISTEMI
Ruolo.IT                              NO/Non so SI
  Pro-attivo                                 17  9
  Reattivo                                   20 15
  Uso limitato/Funzione non presente          7  1
> chisq.test(Tab)

        Pearson's Chi-squared test

data:  Tab
X-squared = 2.6445, df = 2, p-value = 0.2665

Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> chisq.test(Tab)$expected
                                     Pian..Str...SISTEMI
Ruolo.IT                              NO/Non so        SI
  Pro-attivo                          16.579710  9.420290
  Reattivo                            22.318841 12.681159
  Uso limitato/Funzione non presente   5.101449  2.898551
Warning message:
In chisq.test(Tab) :
  L'approssimazione al Chi-quadrato potrebbe essere inesatta
> fisher.test(Tab)

        Fisher's Exact Test for Count Data

data:  Tab
p-value = 0.3104
```