



Original article

A glance at the competing values framework of Quinn and the Miles & Snow strategic models: Case studies in health organizations

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ABSTRACT

The present research seeks to describe and understand how strategy influences leadership and how this in turn interacts in the process of innovation and change in health organizations.

This is an exploratory and descriptive study that involved five health organizations: four Portuguese and one Spanish. We used a mixed approach of research (qualitative and quantitative), which enabled us to understand, through case study, how strategy and leadership were articulated with innovation in these five health organizations.

Despite their complexity and specificity, both the model of Miles & Snow (organizational strategy) and the model of the Competing Values Framework of Quinn (organizational culture and leadership), suitably adapted, have proven heuristic power and are able to be applied to healthcare organizations.

Public and private healthcare organizations, as well as public-private partnerships, can be tracked and monitored in their processes of innovation and change in order to understand its kind of culture, leadership or organizational strategy adopted.

Health organizations coexist in a *continuum*, where the environment (internal and external) and time are key factors which determine the strategy to be adopted. Here too depending on the dynamic and complex reality where the organization moves, there are no pure types. There is indeed a great organizational plasticity and flexibility.

Leaders usually carry the formal authority by circular normative. They are not pairs (or *primi inter pares*). Instead they are, sometimes, in a position of superiority, when the best thing is partnership, collaboration, cooperation, building consensus and cooperation with all stakeholders, in order that they are the real protagonists and facilitators of change and innovation.

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Estratégia, liderança e inovação à luz dos modelos de estratégia de Quinn e de Miles & Snow: estudos de casos nas organizações de saúde

R E S U M O

Palavras-chave:

Estratégia

Liderança

Inovação

Mudança

Organizações de Saúde

Estudo de caso

A presente investigação procura descrever e compreender como a estratégia influencia a liderança e como esta, por sua vez, interage nos processos de inovação e mudança em organizações de saúde.

Trata-se de um estudo exploratório e descritivo que envolveu cinco organizações de saúde, quatro portuguesas e uma espanhola. Utilizou-se uma abordagem mista de investigação (qualitativa e quantitativa), que permitiu compreender, através do estudo de caso, como se articulam a estratégia, a liderança e a inovação nessas cinco organizações de saúde.

Tanto o modelo de Miles & Snow (estratégia organizacional) como o modelo dos valores contrastantes de Quinn (cultura organizacional e liderança), devidamente adaptados, mostram-se heurísticos e provam poder aplicar-se às organizações de saúde, apesar a sua complexidade e especificidade.

As organizações do setor público como do setor privado e organizações públicas concessionadas (parcerias-público privadas) podem ser acompanhadas e monitorizadas nos seus processos de inovação e mudança, associados aos tipos de cultura, liderança ou estratégia organizacionais adotados.

As organizações de saúde coabitam num *continuum*, onde o ambiente (quer interno quer externo) e o tempo são fatores decisivos que condicionam a estratégia a adotar. Também aqui, em função da realidade dinâmica e complexa onde a organização se move, não há tipologias puras. Há, sim, uma grande plasticidade e flexibilidade organizacionais.

Quanto aos líderes exercem, habitualmente, a autoridade formal pela via da circular normativa. Não são pares (*nem primi inter pares*). Colocam-se por vezes numa posição de superioridade, quando o mais adequado seria a relação de parceria, cooperação e procura de consensos, com todos os colaboradores, a fim de serem eles os verdadeiros protagonistas e facilitadores da mudança e das inovações.

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Introduction

Organizational performance is more and more based on effective knowledge management and comprehensive understanding of the economic value of human capital.¹ However, organizational culture underpins knowledge management by influencing the way members learn and share knowledge. Organizational culture has been identified as the main obstacle to knowledge management.²

There are very few responses to the crucial question about how organizational culture enables or obstructs knowledge management. A great challenge in the research literature is to find models and/or typologies giving the characteristics of organizational culture, like, for example, the *Organizational Culture Profile*³ and the *Competing Values Framework*.⁴

Empirical research aiming to examine the relationship between leadership and organizational culture is well developed.^{5,6} In spite of this, there is a lack of sound theory to elucidate how organizational culture can impact the sustainable process of knowledge creation and transfer.

The Miles and Snow (1978) strategic choice typology is now well known. In the last 25 years this model has been widely cited in both the management and marketing strategy literatures.⁷⁻¹¹

The typology's longevity and excellence are due to its three basic features: (i) innate parsimony, (ii) industry-independent nature, and (iii) correspondence with the trends in business and management across different sectors and countries.⁹

According to Miles and Snow (1978), strategy is nothing but a set of decisions by which a crucial business unit aligns its managerial processes with its pertinent environment. Organizations are then classified on the basis of their decisional patterns into the *Prospector-Analyzer-Defender-Reactor* framework. (i) *Prospectors* are technologically innovative and seek out new markets, (ii) *Analyzers* tend to prefer a 'second-but-better' strategy, (iii) *Defenders* are engineering-oriented and focus on maintaining a secure niche in relatively stable market segments, and (iv) *Reactors* lack a stable strategy and are highly responsive to short-term environmental exigencies.

Theoretical background

The Competing Values Framework

The Competing Values Framework (CVF) has been widely used in health organizations studies and research to evaluate their culture, being a predictor of such outcomes like quality improvement, team building, or patient and professional satisfaction.

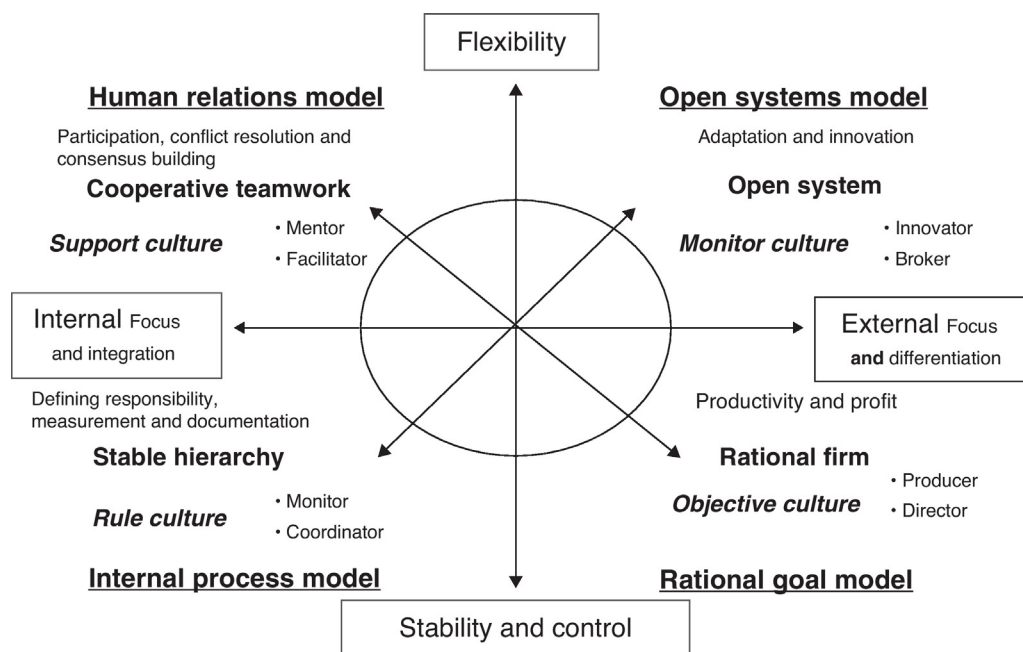


Fig. 1 – Competing Values Framework of Quinn (1988).
Source: Refs. 12,13. Adaptation from Ref. 4.

CVF is one of the most popular and heuristic conceptual frameworks developed in the early 1980s, to integrate the main dimensions of organizational “effectiveness”.^{5,6} “It was developed in response to the need for a broadly applicable model that would foster successful leadership, improve organizational effectiveness, and promote value creation”.^{5,6}

It is a synthesis of organizational theories, which characterize organizations in two dimensions (1. flexibility – stability and control; 2. internal environment – external environment), each representing alternative approaches to basic challenges that must resolve in order to function.⁵

The first dimension of CVF is the degree to which an organization emphasizes decentralization and flexibility versus centralization and control over organizational processes. The second dimension of CVF is the degree to which the organization is oriented towards the external environment and relationships with outside stakeholders, such as regulators, suppliers, competitors, partners and customers, versus its own internal environment and processes. Cross-classifying organizations on these two value dimensions result in four archetypes, referred to as *hierarchical*, *rational*, *entrepreneurial*, and *team* cultures (Fig. 1).

In the CVF, organizations with an internal focus and emphasis on control, labelled *hierarchical* cultures (also sometimes referred to as *bureaucratic* cultures), adopt centralized authority over organizational processes; respect formal hierarchy; and adhere to rules. They focus on stability and predictability. Organizations with an internal focus and emphasis on flexibility, labelled *team* cultures, encourage broad participation by employees, emphasize teamwork and empowerment, and make human resource development a priority.

Organizations with an external focus and emphasis on flexibility, labelled *entrepreneurial* cultures, exhibit creativity and innovativeness; they focus on growth and expanding

resources. Finally, organizations with an external focus and an emphasis on control, labelled *rational* cultures, are characterized by clarity of tasks and goals. They focus on efficiency and measurable outcomes.

These four cultures are proposed as archetypes. In reality, organizations are expected to reflect all four cultures to some degree. According to CVF, there is a dominant culture (manifesting itself in the views of employees at all levels of the organization), but there is not one best organizational culture: all four cultures can operate in a given organization and with relative stability over time.

Leadership is another key concept in the framework. Eight categories of leader behaviour emerge from Quinn’s review of the literature. Table 1 summarizes their characteristics. “The process of differentiation and integration is also typical of research on leadership”.^{5,4} “Another key finding in organizational studies is that more successful companies are more differentiated as well as more integrated than less successful companies”.^{5,4}

The Miles and Snow typology

Miles and Snow have had pioneering efforts at linking strategy, structure, process and management mindset. It is a model for today’s researchers who seek to be both academically respectable yet managerially relevant.

Based on empirical research conducted in four industries (textbook publishing, electronics, food processing, and health care), Miles and Snow¹⁴ proposed a strategic typology classifying companies into four distinct groups: *Prospectors*, *Analyzers*, *Defenders*, and *Reactors* (Table 2).

Prospectors lead change in their industries (e.g. launching new products, identifying new marketplace opportunities). *Defenders* are more engaged to maintain a secure market niche,

Table 1 – Competing Values Framework: Leading behaviour characteristics.

Leadership paper	Evaluation questions	Behaviours associated	External/internal	Flexibility/control
Mentor	Shows empathy and interest in the behaviour with subordinates; treats each person sensitive and attentive	Person committed by worry in the development of people and its orientation	Internal	Flexibility
Facilitator	Fades key differences between group members; encourages the participative decision-making in the group	Person who develops collective effects, teamwork, generate interpersonal conflicts and build cohesion	Internal	Flexibility
Innovator	Implement new concepts and new ideas	Person who expected a facilitator of change	External	Flexibility
Broker	Influences organization; influences decisions	Person who is particularly concerned in maintaining external legitimacy as well as in obtaining external resources	External	Flexibility
Producer	Moves the service in accordance with the proposed objectives	Task-oriented Person, focused on high interest: motivation, energy, and conducting Human Resources	External	Control
Director	Makes the role of service very clear; clarifies the priorities and directions of service	Person lasts in its attitude of leadership and known by its utility and absence of fake trials	External	Control
Monitor	Maintains a tight control logistic; compares records, reports and other relevant information to detect discrepancies	Person who knows what is happening in the unit and see if contributors abide by the rules and objectives of the same	Internal	Control
Coordinator	Anticipates the problems of work before crisis began	Person who maintain the structure and flow of the system	Internal	Control

Source: Refs. 12,13. Adaptation from Ref. 4.

offering a stable product or service. *Defenders* focus more on efficiency, and manufacturing costs, working within a limited range of products. *Analyzers* share traits of both *Prospectors* and *Defenders*.

Analyzers are more likely to follow a second-but-better strategy. In the world of business, an *Analyzer* strategy competes sometimes as a *Defender*, and other times as a *Prospector*, since it requires substantial resources to be able to do both

Table 2 – Miles and Snow's typology.

Orientation	Description
Defender	Organizations with this orientation tend to have a narrow product/market domain. They will try to create and maintain a niche with a limited range of products or services. It also has a narrow technological base (because of its narrow domain). It does not attempt to search outside its domain for new opportunities. Hence, it becomes highly dependent on its narrow product/market area. As a result, it tries to protect its domain through lower prices, higher quality, superior delivery, and so forth. The structure of a defender firm is characterized by an elaborate formal hierarchy and high degree of centralisation.
Prospector	A prospector organization continually searches for new opportunities. It has a broad and flexible product/market domain and hence a broad technological base. They usually create change and uncertainty in the environment. Its structure is characterized by a low degree of formalization and routinization, decentralization, and lateral as well as vertical communication. Such a firm responds quickly to early signals of opportunities and is usually the first to enter a new product/market area. It is not necessarily successful in all of its endeavours, nor is it very efficient since product/market innovation is a major concern of such an organization.
Analyzer	An organization with this orientation has characteristics of both the defender and prospector orientations. It tends to maintain a stable and limited domain, while at the same time cautiously moving into a new domain only after its viability has been proven by prospectors. Analyzers are imitators in such a way that they take the promising ideas of prospectors and successfully market them. They seek flexibility as well as stability. They adopt structures that can accommodate both stable and changing domains.
Reactor	This organization does not have long term goals or articulated strategies, and hence no consistent pattern of behaviour. The organization is passive in dealing with various issues. It does not attempt to maintain a defined product/market domain, nor does it try to capitalize on viable environmental opportunities.

Source: Refs. 12,13. Adaptation from Ref. 14.

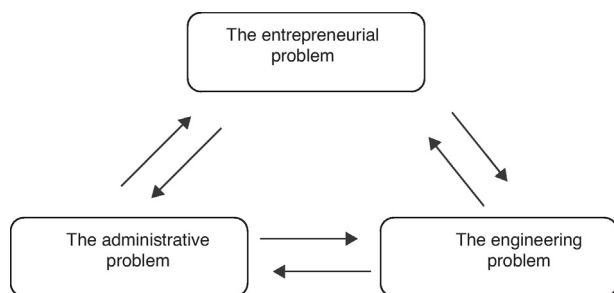


Fig. 2 – Miles and Snow's adaptive cycle.
Source: Refs. 12,13. Adaptation from Ref. 14.

simultaneously. These three strategic types (*Prospectors*, *Analyzers*, and *Defenders*) are consistent in their strategic selection, and will perform well so long as their implementation is effective.

The adaptive cycle is the core model of the Miles and Snow (Fig. 2) strategic choice typology, and defines the dynamic process in which organizations continually adjust internal interdependencies to environmental opportunities and risks. "Miles and Snow catalyzed subsequent research on the accomplishments of each strategy type by introducing the idea of the 'adaptive cycle'. This insightful metaphor portrays business as perpetually cycling through sets of decisions on three fronts".^{14,9}

They defined three major problems that organizations must continually solve in order to be effective: (i) *Entrepreneurial problem* (choice of product market domain); (ii) *Engineering problem* (how to develop the technical and organizational system in order to produce and deliver these goods); and (iii) *Administrative problem* (selection of areas for future innovation – the leading aspect; rationalization of structure and process – the lagging aspect).

Adaptation often occurs by moving sequentially through the entrepreneurial, engineering and administrative phases, but in mature organizations, each of these three management problems tends to occur more or less simultaneously.¹⁴

Materials and methods

Leadership and strategy in context of innovation in health organizations is a topical issue, and the boundaries between the phenomenon and contexts deserve scrutiny.

If we want to know the 'why' or the 'how' to relate two variables, we opt for a methodology that allows us to explain the causal links in interventions or real life situations, which are too complex for treatment through experimental strategies and data collection.¹⁵ The information and knowledge about leadership and innovation are dispersed and punctual. This study is important to patients because it allows technological sophistication and the use of innovative processes at management level.

In this research some important factors make us ponder the question 'how', as¹⁵ leads to a study that allows understand and explain phenomena. And these factors are, among others, the following: (i) the small number of health organiza-

tions, (ii) there is not a uniform group, and (iii) the complexity of the process.

So, a quantitative and qualitative, mixed, approach seemed more appropriate. That means establishing a causal relationship between leadership, strategy and innovation (socio-technical and technical-organizational). This study pretends to: (i) better understand the dynamics innovation and its dissemination and (ii) understand how leadership is exercised in the context of strategy and innovation.

Given the research model used, the complexity of the health sector, the existence of different legal status (EPE, SPA, PPP) in Portuguese hospitals, the proliferation of health innovation and the support to innovation in terms of processes and management, it is important to carefully choose the best methodology.

So, the desire to understand and investigate a complex social phenomenon, contemporary in its real context, and using multiple sources of evidence, led us to choose the case study.

Research question

The main question we want to see answered is the following one: How have the leadership and strategy in context of innovation developed in healthcare organizations?

This problem is relevant to health management and the matters taught in the postgraduate training courses for manager's health organizations.

The relevance arises because leadership and strategy in the context of innovation will have several implications: (i) *economic ones* (direct cost implications in the case of technological innovations, and more indirect cost implications, for example, with new forms of management, regardless whether we want to further improve the performance of the organization), (ii) *legal and bioethical* (these new technologies, including new therapeutic weapons, are more or less invasive), and (iii) *people's health* (these innovations can improve the quality of life of the citizen/patient).

Model analysis

In this study, it is considered that organizations and their strategy are influenced by (i) the indoor environment (staff/line – health professionals/managers; double hierarchy – medical direction/direction of nursing structure, more or less vertical; empowerment – both to patients/stakeholders as certain health professions/associations of patients), and (ii) the external environment (policies, stakeholders – professional bodies, patients' associations, unions, finally, society, the bodies that oversee/legislate/finance health organizations).

The innovation requires a strategy change. Subsequently evolves a better organizational performance by using quality tools, and focusing on values, vision, objectives and procedures of health organizations. This way, health organizations achieve a high degree of organizational performance. These organizations are complex, socio-technical systems, and so, are open to continually adjust their environment.

For the present study a large number of variables were used that, directly or indirectly, influence the strategy, innovation and leadership of health organizations.

Design of study

The case must be treated as an integrated system. This means that the data retrieved here, although constitute new forms of knowledge on the subject, are not representative of the whole issue, concerning the case study into its context.¹⁶ The case study goes beyond any form of history, description of events or circumstances, since the data are collected systematically, the relationship between variables is studied and the study is methodically planned.¹⁷

However, the case study as a research method includes several criticisms: (i) lack of accuracy, (ii) false evidence, (iii) risk of biased, subjective views of the researcher, (iv) providing little basis for generalizations and little contribution to knowledge, (v) very extensive and time consuming to complete, and (vi) useful for generating hypotheses, whereas other methods are more useful for testing hypotheses.¹⁸

We have adapted the methodology of case study, where some organizations will be studied and observed. This method is used when the focus of research is to answer the “how” and the “why”.¹⁹

The aim is to study the selected institutions through key actors. We chose a survey, because it is a suitable technique to this study. Despite being one of the most widely used techniques for empirical research in various fields of knowledge,²⁰ it should only be used to gather facts about phenomena that are not directly measurable or observable from the outside.

If we want to identify, describe or evaluate we must see: (i) the importance given to innovation, leadership and strategy by the top management, (ii) the factors (inhibitors/facilitators) that influence the process leading to innovation, and (iii) to what extent the organizational strategy affects the exercise of leadership in the context of innovation in healthcare organizations.

It is, however, a technique that has limitations regarding the degree of depth of information collected. It has certain disadvantages: (i) less spontaneity in response, (ii) less assurance of complete response to the questionnaire, (iii) failure to guarantee that the sequential order of questions is respected (as it is a self-administration or self-response), (iv) possibility of lower complete response to the questionnaire, and (v) difficulty in conception. The advantages will include: (i) increased coverage of population with a minimum cost, (ii) greater assurance of confidentiality and anonymity, (iii) greater uniformity in how the questions are put to the respondents, (iv) systematic, (v) simplicity of analysis, and (vi) faster in the selection and analysis of data.²¹

The production of knowledge results from the definition of actors, taking into account their subjectivity and their individual experience, i.e. the integration of qualitative and quantitative data in a single study.²²

Qualitative methods are better suited to exploratory research, which might give clues and generate hypothesis for research, while quantitative methods are needed for verification purposes.^{23,24} Quantitative analysis can also help to clarify and shape the findings in qualitative analysis.

The quantitative research is assumed as a systematic process of data collection (observable and measurable), and is based on the observation of objective facts, events and phenomena that exist independently of the investigator. This

approach reflects a complex process that leads to results that should contain the lowest possible bias.²⁵ In the quantitative paradigm, researchers collect data to establish relations between them (techniques which lead to quantitative findings can be generalized).²⁶

The presented problems and the theoretical basis review allow the development of a study with the following characteristics: (i) Exploratory – because it is a case study and the intention is to answer ‘how to exercise leadership and to define the strategy in the context of innovation in health care organizations’; (ii) Descriptive – since it is proposed to study leadership and strategy in a context of innovation in health care organizations.

Methods and techniques of data collection

We used intensive techniques, such as the application of structured interviews (members of the Board), document analysis, direct observation, and, in addition, the application of a questionnaire survey to administrators, clinical directors and nursing directors, Directors of Department and Service as well as chief nurses and coordinators, in order to enhance the quality and quantity of information.

A strategy was thus established which focuses on a qualitative approach which do not neglect the quantitative aspects, aiming to characterize the leadership and strategy in the context of innovation in health organizations.

Exploratory interviews

We prepared an interview guide for exploratory interviews to service directors, head nurses, administrators and some members of the board, intending to address the issues raised by the three major themes: (i) leadership, (ii) the organizational strategy, and (iii) innovation. The interviews took place between March and July 2007.

There were 33 interviews to members of the board of 18 health institutions – hospitals and holdings of two economic groups.

Direct observation

Direct observation was chosen as one of the techniques for collecting evidence. It was intended to overcome the passive role of the observer and thus enable the taking of some kind of participation in some situations, which otherwise would be inaccessible for research.

Direct observation, when compared to other methods of observation, has advantages and disadvantages. The main advantages are (the author's view of the experience): (i) allow to see the reality of organizations, (ii) facilitate quick access to data on typical situations in which members of organizations are involved, and (iii) provide access to data that the organization considers of private domain.¹⁹

The disadvantages of direct observation refer particularly to the restrictions set by the assumption of roles by the investigator as a health professional. The information collected this way reflects the perception of a reality seen ‘inside’.

Survey by questionnaire

The instrument for data collection consists in different questions, which were prepared based on different instruments published.

As such, the questionnaire survey done by Shortell and Zalac²⁷ was taken into account for the model of Miles & Snow. Issues about the dominant characteristics, the organizational leader, integration, climate, criteria and the management style of organizations were also taken into account for the model of Quinn's Competing Values.

Questions about strategy were based on the *Strategic Capability Survey Questionnaire* drawn by Malcolm MacPherson,²⁸ from which some of the questions were adapted to the case.

The Permanent Innovation Survey Questionnaire was used for innovation issues (Innovation Labs).²⁹

Finally, leadership questions were based on the Healthcare Organization for Senior Leadership Survey (RAND).³⁰

Methods and techniques of analysis

Through this analysis, where one of the approaches used is qualitative, it is necessary that the data collected can be organized in order to reach conclusions. The technique used to analyse the interview data was content analysis.

In qualitative analysis, the organization of encoding comprises: (i) the *clipping* (choice of units of analysis), (ii) the enumeration (selection of the counting rules), and (iii) the *classification and aggregation* (choice of categories).³¹

Statistical treatment

The characterization of the sample was observed through the frequency distribution (absolute and relative frequencies), and when appropriate, supplemented with their respective modes (measure of central tendency).

The answers to research questions went through a process of statistical analysis using nonparametric tests, checked for non-normality by the Kolmogorov Smirnov.

We used the Kruskal-Wallis test at a significance level of 5%, given the nature of the analysis of association between a categorical variable with more than two categories with a numeric variable or comparison groups of three or more independent compared to a variable numerical as well as for their non-normality (Kolmogorov Smirnov).

The internal consistency of the questions on strategy, innovation and leadership using the Cronbach Alpha was verified.³² Also, the homogeneity of variance was checked and guaranteed between groups: staff/line and the hospitals.³²

Population and sample

The unit of analysis is a collection of elements or individuals who share common features, defined by a set of criteria: (i) be a health organization, (ii) provide differentiated care with or without primary health care (integration care), (iii) be a legal person with administrative and financial autonomy, (iv) in the public sector or private sector, and (v) be considered an innovative organization on the management level (according to selection criteria – use tools that allow management flexibility, both in the type of care they provide) or on the level of technology.

Exploratory interviews were conducted on 13 public, 2 private, 1 PPP and 2 Holding healthcare organizations, for a total of 33 exploratory interviews. Five of them were selected for

administering the questionnaire and providing in-depth interviews.

This selection had to do with: (i) health organizations representing the sectors where they are involved (private/public), (ii) not being organizations which envisaged the change of status (if the “Hospital Fernando da Fonseca”, “Hospital Santa Maria”, “Hospital de S. João”, “Hospitais da Universidade de Coimbra”), and (iii) having experience in innovation in terms of management or technology.

As in Portugal there is no experienced PPP, we chose to study a health unit in the Health Agency of the Autonomous Region of Valencia (Spain), which is one of the few examples of innovation and leadership in management and technology.

The observation unit includes elements of the Board, Administrators, Medical Directors and Nursing Directors, Directors and Service Department, as well as head nurses and engineers from four hospitals in Portugal and one hospital in Spain, where a questionnaire was passed (applied 211 questionnaires which collected 165, with a response rate of 78.2%).

Five cases

These five cases (Health Care Unit – HCU) were selected according to: (i) the HCU2 and HCU1 being public institutions and being the first health organizations to use tools of New Public Management. The HCU1 is an ULS with a view to integrating care (primary health care/differentiated care), a model that is being multiplied in other regions of the country; (ii) the HCU3 and HCU4 are hospitals of the private sector, and belong to two private economic groups that provide Health Care in Portugal; and (iii) HCU5 is a health organization of a Spanish autonomous region (Valencia) with a PPP management model (which will be implemented in Portugal in future with the necessary changes, and therefore it is interesting to study) (Table 3).

Two health organizations belong to the public sector and with legal status of “Entidade Pública Empresarializada” (EPE).

Two of the health organizations in study are private and belong to two different economic groups: the “Grupo Espírito Santo” and “Grupo José de Mello Saúde”.

As in Portugal there are no PPP models in hospitals, it was considered HCU5 in Valencia (Spain) – the first built under this status (concession) in Spain, which has a university, integrating health care primary and differentiated care and which has a high degree of differentiation.

The first point to note is the predominance of female gender (56%). This is due to the type of organization that is being studied (health organizations) where, in fact, most employees (administrators, doctors, nurses and technicians) are female (with the exception of the HCU5).

The majority group was aged between 41 and 55 with the exception of the group aged 25 to 40 in the HCU4 and HCU5.

Limitations of the study

One of the limitations of this study was the time to perform each activity. The geographical dispersion of health units and the agenda of the respondents meant that we had to travel several days from north to south of Portugal to carry out exploratory interviews, interviews and survey in the units selected as cases. Similarly we had to go to Spain for four days

Table 3 – Data from health organization case-studies.

Indicator	Health organizations				
	HCU1 (2007)	HCU2 (2007)	HCU3 (2008)	HCU4 (2008)	HCU5 (2008)
No. beds	432	310	140	159	300
No. doctors	519	156	±200	419	317 + 231 ^c
No. nurses	745	276	^b	152	594 + 257 ^c
No. technicians	111	56	^b	56	54 + 14 ^c
Operating income	83,753 ^a	65,407 ^a	^b	81,852 ^a	114,807
Population	430.000	383.050	^b	^b	245.000
Sector	Public	Public	Private	Private	PPP
Legal status	EPE	EPE	Private	Private	Management contract

^a Million of Euro's.
^b There are no data yet.
^c Primary health care.

as part of fieldwork. The techniques for gathering data were very time consuming. The lack of funding was another embarrassment, and all costs were supported by the investigator.

Even more important than the difficulty of accessing data on innovation and leadership is the fact that there is little comparable data between the health units. There is, thus, another potential limitation to research, which is related to the degree of knowledge of different stakeholders on the operation of the organization.

Public hospitals provide services within their geographic areas of influence, while private ones have a more open market. However, to attract clients/patients, many variables are important such as: (i) the availability of multiple services, (ii) the reimbursement payment, (iii) the medical staff of hospitals and their perceived quality, (iv) accessibility to infrastructure, and (v) perception of the quality of facilities and technologies, as well as how these organizations are managed.

However, health organizations, whatever their purpose, need to know how to manage resources, seeking to satisfy their customers and getting adequate returns. It is, regardless of the importance of new health services, associated with new technologies and important to combine the different knowledge so that patients and all actors of the hospitals have an adequate level of satisfaction.

Presentation of results

Analysis of direct observation

From the analysis of field notes made during direct observation of the organizational strategy, what was most important was finding that: (i) HCU1 has integration and certification of health care services which need established protocols and processes that would otherwise be difficult to accomplish (there was no tradition in team work between CSP and the differentiated care), as well as the internalization of additional means of diagnosis and therapy, using the installed capacity of HCU1; the programme contract that was introduced by capitation payment based on number of inhabitants; (ii) in the HCU2 the cost-benefit analysis is performed to verify if it is worth betting on change; and if the answer is yes they advanced. There is a great centralization and control by top management, thus

avoiding large deviations; (iii) in the HCU3 of recent construction, the bet is in medical oncology and palliative care. There is a certain voluntarism to solve problems and seek opportunities to do better. In terms of logistics, economies of scale is one of the strategic options (in the purchase of consumable medical and other); (iv) in the HCU4, the outpatient surgery resources are used intensively, leaving great internal control and a preoccupation with the external environment (to recognize business opportunities); and (v) in the HCU5, where there are protocols of action, the Medical Link, the single electronic process for the CSP and differentiated care and the fact that there are only two inpatient services, where medical specialists intersect; all these constitute an organizational strategy; if the time for surgery exceeds more than ninety days the organization will be sanctioned. The programme contract is based in capitation payment with a base in the number of member inhabitants.

The HCU3 and HCU4 have invested heavily in new technologies. The HCU3 has invested heavily in medical oncology, intending to sell their services to the NHS. The HCU4 has invested in terms of medical specialties (allergy, otolaryngology and paediatrics) in order to have critical mass and thus be recognized as an institution of postgraduate teaching. Similarly, the HCU5 became a university. The HCU2 and HCU1 have bet on complementing their areas of influence, intending to meet the needs of the population they serve.

As for leadership, we can see that organizations in some cases were more centralized and flexible than others, which is inseparable from the organizational strategy implemented. The HCU4, HCU1 and HCU2 were more centralizers, contributing to more formal, more centralized leadership, with control and report (done mainly in the downward direction – top-down). The other two units, HCU3 and HCU5, were more flexible and decentralized. They look for employees (but also for their environment), with a predefined strategy (search for opportunities in the first case and respond to patients in the second).

Analysis of questionnaire

Questions about Miles & Snow adapted model

When we look at the answers to questions about Miles & Snow adapted model, we learn how the organizational strategy is

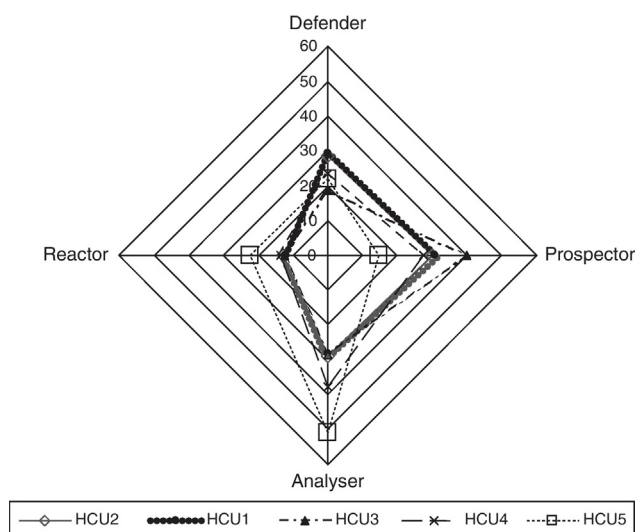


Fig. 3 – Analysis of the results of the questionnaire based on the model adapted from Miles & Snow.

developed, and what is the typology that emerges in these organizations, which are the following (Fig. 3):

HCU2 and the HCU1, although more prospective (hospitals with a rapidly growing, new paths and new innovative methods), are also analyzers (general hospitals, community oriented); the Administrators look to internal services (internal contracting) but are focused on the entire organization, in order to answer the questions which programme contracts pose (effectiveness, efficiency and quality); it has a more effectively top-down hierarchy.

HCU3 has a typology essentially prospective; this may be due to its youth. They are trying to impose themselves on the field (asserts itself as a modern, innovative), where excellence and the quality of care are of great importance, and are a cornerstone of the institution. It is intended to be a reference unit, both for the private sector where it belongs, and the public sector with whoever also wants to collaborate.

HCU4 and HCU5 were predominantly analyzers. These health units already have a story to tell. Since they are continually monitoring the market, the first is the search for new patients/customers and new business opportunities (e.g. Caesarean under spinal anaesthesia); the second is finding: (i) new patients expectations in health care services (e.g. ophthalmology), (ii) not allow its patients to seek other health units, because if so, they have to pay, and (iii) lists for surgery that do not exceed 90 days, on pain of penalization for the organization (if necessary working on Saturdays).

HCU4 being a private unit, developed in terms of obstetrics/gynaecology, allergy among others. It is therefore sometimes a unit that has traces of prospect (when sees opportunities), but it is also defensive (when it feels it has to consolidate).

Finally, HCU5, depending on management model, has become a University Hospital, a unit that presents a strategy essentially analyzer (when sees opportunities), but which is also defensive (when feels he has to consolidate).

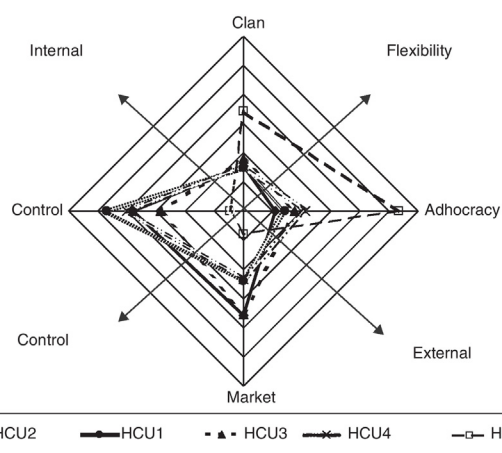


Fig. 4 – Analysis of the results of the questionnaire based on the model adapted from Contrasting Values (Organizational Culture).

Questions about the Competing Values Framework: organizational culture

In the analysis of responses to questions about organizational culture, we show how organizational culture develops according to the model, and how the typology that emerges in these organizations; then, according to Fig. 4, there are:

HCU2 has a profile that fits in characteristics of a parent organization with a control culture (the axis flexibility and control shifted to the control axis and axis internal/external shifted to the internal dimension – integration).

HCU1 presents a profile that fits the characteristics of an organization with a parent culture (the axis flexibility and control shifted to the control axis and axis internal/external shifted to the internal dimension axis – integration).

HCU3 has a profile that fits in characteristics of an organization with a competitive culture (the axis flexibility and control shifted to the control axis and axis internal/external shifted to the external part axis – differentiation).

HCU4 presents a profile with the characteristics of an organization with a parent culture (the axis flexibility and control shifted to the control axis and axis internal/external shifted to the internal dimension axis – integration).

HCU5 has a flexibility and control axis shifted to the side of flexibility, and an internal/external axis offset to the outside axis – differentiation, giving it characteristics of an organization with a creative organizational culture.

Questions about the Competing Values Framework: leadership

When we look at the answers to questions about Competing Values Framework model, we know what type of leadership it is (Fig. 5):

HCU2 has characteristics of an organization with a controller leadership (the axis of flexibility and control is shifted to the control axis; the axis internal/external is shifted to the internal dimension – integration). Leadership is monitoring and coordinating.

HCU1 presents a profile that fits the characteristics of an organization with a controller leadership (axis flexibility and

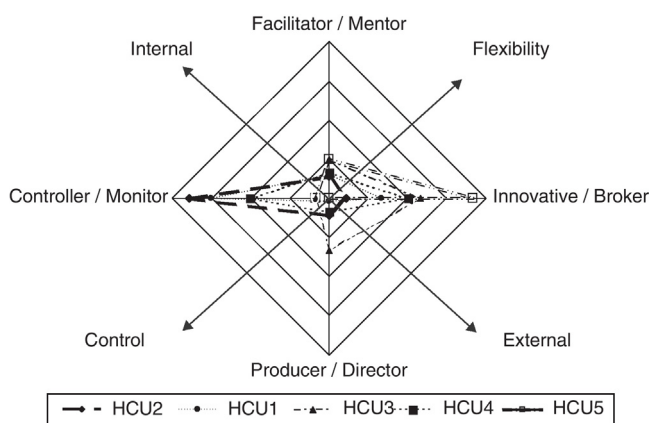


Fig. 5 – Analysis of the results of the questionnaire based on model adapted from Contrasting Values (Leadership).

control is shifted to the control axis and internal/external is shifted to the internal dimension – integration). Leadership is monitoring and coordinating.

HCU3 has a profile that fits the characteristics of an organization with creative leadership (flexibility and control axis is shifted to the more flexible shaft and internal/external is shifted to the external dimension – differentiation). Leadership is innovative and broker.

HCU4 presents a profile with the characteristics of an organization with both a parent and creative leadership. The flexibility and control axis is shifted more to control and flexibility and the internal/external axis dimension is shifted to the internal and external – differentiation and integration. Leadership is monitoring and coordinating as well as innovative and broker.

HCU5 has a flexibility and control axis shifted to the side of flexibility, and an internal/external axis to the outside – differentiation, giving it characteristics of an organization with creative leadership. Leadership is innovative and broker.

Major obstacles to innovation

When we want to know what the biggest obstacles to innovation are, the results are different.

The HCU1 considers firstly the lack of time, followed by resistance to change and too much time to react to both external and internal environment.

The HCU2 considers the resistance to change, followed by inadequate incentives and lack of coordination between departments.

The HCU3 considered first incorrect decisions and lack of coordination between departments, followed by lack of time (recent hospital, where the circuits are still being created).

The HCU4 considers the time to react to both external and internal environment, followed by lack of coordination between departments and resistance to change (probably the fact that people go there to work and have another job, does not facilitate the articulation).

The HCU5 considers firstly the lack of coordination between departments, followed by organizational structure (the fact there are only two departments – medicine and

surgery, and the beds do not belong to services, may be considered a problem) and the lack of time.

Discussion of results

Miles & Snow adapted model

This model helps to better understand the dynamics of strategy in health organizations. Prospective and analyzers health organizations are more frequent and substantial adjustments in environmental conditions and hospitals; administrators look more for employees as potential information and knowledge. They realize that in healthcare organization a great majority of these employees interfere in the decisions. These are decentralized in different sectors, following a bottom-up process. In short, they are organizations with a flatter hierarchy.

Meanwhile, in a defensive and reactive health organization few adjustments are made depending on the environment. Administrators pay attention to internal services but are focused on the entire organization. They have a top-down hierarchy more effectively.

Health Care Unit 1

HCU1 is a health unit with mixed characteristics – prospective and analyzer. Health organizations with a typology of foresight and analysis have rapid growth, tread new paths and develop innovative methods, making frequent and substantial adjustments in environmental conditions, which are monitored regularly.

The administrators of these organizations also look inside, since most of the decision-making are influenced by internal organs. There is a decentralization and a flatter organizational structure. In the case of HCU1, its structure is still quite vertical.

Moreover, there was a concern to acquire software that links the two types of health care that are provided, primary and differentiated. Telemedicine was used in this health unit to meet the needs of physicians and patients. This avoids the displacement of patients.

Sometimes these organizations have aspects that are more identified with the defensive type, i.e. make little or no adjustments in the environment. Administrators look inside the organizations; however, the decision-making is centralized, the hierarchical structure being top-down. It is more centralized in the Ministry of Health (ACSS and ARS), which came to frustrate the expectations of this health unit in decentralization and flexibility.

Health organizations have prospective complex mechanisms of coordination and communication.⁹ The same author believes that defensive organizations make efforts to rationalize production and have simple mechanisms for coordination, where decision making is centralized and influenced by production and finances. Organizations with analyzer typology have characteristics of both previous types (prospective and defensive).

Health Care Unit 2

Although it falls within a typology essentially prospective, this health unit also has characteristics or traits of an analyzer.

The HCU2 has grown fast, breaking new ground and developing innovative methods, essentially at the level of the management model, to suit the strategies of the New Public Management (NPM). It also presents a defensive aspect. This aspect might be due to the fact that after being considered an innovative hospital in the management level, it has not been replicated in other health units (not becoming a centre of irradiation was a kind of cyst or abscess of fixation).

However, flexibility for better performance, transparency and accountability for administrative acts are needed.

Such organizations make frequent and substantial adjustments in environmental conditions. The administrators of these organizations also look to its interior, since most of the decision-making are influenced by internal organs. As such, there is a decentralization and a flatter organizational structure.

These health units have complex mechanisms of coordination and communication, which come against the findings of study of Hambrick.⁹

The organizational strategy is continuous rather than categorical, since both types are present – prospective and analyzer, which is also referred in the study of the Boyne and Walker.³³ We can go further and say that the organizational strategy depends on contingency and time. This contingency is plastic and depends on the internal and external environment that will shape the organization.

Health Care Unit 3

HCU3 presents a typology essentially *prospective*. This may be due to its youth. This is a health organization that has grown rapidly, blazing new trails and developing innovative methods (e.g. Oncology service with modern radiotherapy equipment), which is consistent with the model of Miles & Snow.¹⁴ This type of organization has complex mechanisms of coordination – communication, decentralization and participation in decision making which supports the findings of Hambrick.⁹

The scanning of the market is also one of the powers of such organizations, looking for opportunities.^{8,19} The administration, however, considers its review, because it has to constantly monitor the external environment and intervene where it is necessary. The internal environment is also a concern because it may cause problems (e.g. decrease in production).

We believe that this analyzer attitude is part of a prospective policy because, despite having to respond positively to their obligations as private health organization, it does not lose sight of the market and their employees tend to be as dynamic as possible to capture new customers and to meet their expectations, both in terms of treatment and in the level of amenities.

Health Care Unit 4

This Health Unit have characteristics of (i) prospector – complex mechanisms of coordination, communication, decentralization and participation in decision making, and at the same time, (ii) defensive – efforts to rationalize production, simple mechanisms for coordination, centralized

decision making and being influenced by the production and finances (e.g. always bet the same kind of intervention – human resource contention, do not look at its potential), which comes against the study of Hambrick.⁹

Health Care Unit 5

The HCU5 is a community oriented hospital for four distinct reasons: (i) focus on the patient and health care, (ii) being the most innovative and (iii) support services, (iv) tackling waiting lists, which is according to the studies of Miles & Snow.¹⁴

Similarly, we believe that this analyzer attitude is part of a prospective policy because, despite having to respond positively to its obligations as a public health organization with a private management by entering into a PPP model, it does not lose sight of the market, and their employees, as well as having power to attract new customers and to meet their expectations, both in terms of treatment or the level of amenities.

There is even a concern in the environmental management of the hospital (certified by ISO 14001:2004), as well as some services certified by ISO 9001:2008.

Hospital analyzer typology (with prospective) has rapidly grown, tread new paths and develop innovative methods. These organizations make frequent and substantial adjustments in environmental conditions.

The administrators of these organizations also look to its interior, since most of the decision-making are influenced by internal organs. As such, there is decentralization and a flatter organizational structure (e.g. only has three services – medical, surgical and means diagnostic and therapeutic).

The strategy should be continuous rather than categorical, since these are the three types – prospective, defensive and analyzers, according to the Boyne and Walker³³ reported in their study. The reviewer ends up disappearing because it is redundant, i.e. it is included in other types.

We may have different profiles depending on the status of organizations (public or private). Regarding the public sector, as it is more stable and not subject to many pressures (e.g. shareholders to take profits), intending to meet a variety of objectives,³³ the four types are present in proportions almost identical. This may indicate that they co-exist simultaneously, performing in a continuum.^{9,29} Similarly, and according to these authors, the private sector and public organizations managed according to private assumptions are less stable, having to be more analyzers, and thus responding to the environment.

Adapted Competing Values Framework of Quinn

When looking at the adapted Competing Values Framework, it appears that it helps to understand the dynamics of the five health organizations analyzed (case studies), in terms of organizational culture and leadership.

Depending on their cultural characteristics they may have: (i) a culture of support (related to human relations), (ii) a culture of innovation (open systems), (iii) a culture of targets (to be more rational), and (iv) a culture of rules (internal processes); and make adjustments in internal and external environment.

Health Care Unit 1

The purpose of this organization is efficiency and quality. The focus is on achieving the vision and objectives. The practices management looks for performance by objectives, investment to increase production to full-scale implementation of technology and systems, implementing process improvements, and adherence to regulatory standards. The employees are trustworthy, help each other, resolve conflicts and participate actively. The work organization has clear rules, objectives based on logical and structured processes.

The HCU1 has characteristics of an organization with a rule culture, is an organization that enjoys a culture of rules. This unit offers greater management flexibility and efficient concentration of resources and services (core business) differentiated between care and primary health care.

This unit displays the characteristics of an organization with a leadership controller, where the style of the leader is the coordinator and monitor.

Health Care Unit 2

The focus is on values and what is most important is achieving the objectives. Practices related to performance management by objectives and investment are used to increase production. Employees are guided by objectives, are assertive, responsible, decisive, competitive. Leadership is coordinator and monitor. The purposes of the health organizations are efficiency and quality. The organization of work is based on clear rules, objectives, logical, and structured work.

HCU2 exhibits characteristics of an organization with a controller and competitive culture, i.e. is an organization that enjoys a culture of rules and objectives. These dimensions are not mutually exclusive, by expressing certain dimensions to a given level.

HCU2 presents a profile that fits the characteristics of an organization with a leadership controller, where the style of the leader is monitor and coordinator.

Health Care Unit 3

The focus is the vision and objectives, and values are the results. Leadership is innovative, entrepreneurial and visionary. The purpose is efficiency and quality. The practices are performance management and implementation of technology and systems. Employees are trusted and guided by the objectives and work organization can be described as high pressure, results, qualifying, paid for what they produce.

The HCU3 has a profile that fits the characteristics of an organization with a competitive culture, i.e. is an organization with a culture of objective.

The HCU3 has characteristics of an organization with creative leadership, where the leadership style is innovative and broker.

Health Care Unit 4

The focus lies in the values and these are commitment and communication. Leadership is a mix: innovative, entrepreneurial, visionary, based on coordinator and monitors. The purpose is efficiency and quality. The practices are in performance management. Employees are guided by objectives, and organization of work is clear and logical objectives.

The HCU4 sets the characteristics of an organization with a rule culture. It is an organization that enjoys a culture of rules.

The HCU4 displays characteristics of an organization with a leadership and creativity simultaneously controlling, where the style of leader is a mix of monitor and coordinator with innovative and broker.

Health Care Unit 5

The focus lies at the level of vision. The values are commitment, communication and development, as well as results and innovation. Leadership is innovative and entrepreneurial. The organization's purpose is innovation and growth, as well as community development and knowledge. The practices of this organization go towards team building and the development of communities of practice, training and coaching, trying to create a shared vision and values. Employees are reliable and help each other. Work organization is described as a harmonious environment, an area of cooperative work, informal communication, and shared values.

The HCU5 emphasises decentralization and differentiation, giving it characteristics of an organization with an organizational culture and creative innovation.

The HCU5 has the characteristics of an organization with creative leadership, where leaders have a style of innovator and broker.

Looking at the results, and comparing the HCU1 and HCU5, we found that the HCU1 has a clear leadership and controlling in the HCU5 is clearly creative. Being units that provide CSP/special care, funded by capitation (per habitants), they have different profiles.

In conclusion, the constructs of the model help us to better understand the dynamics of the cases studied, including the organizational culture. With the exception of HCU5, which is centred in the right upper quadrant and left (culture of innovation and support), all other cases are centred on the left and right lower quadrants (stability and control) with cultures of rules and objectives.

Regarding leadership, the public sector units have a leadership controller (with leaders monitors and coordinators). The cases studied in the private sector range from creative leadership (youth and irreverence) to a parent leadership (leaders monitors and coordinators), whereas in the case of HCU5 leadership is creative with the highest of all cases.

In units of public sector, culture and leadership are focused on control and centralization, with stability (perhaps from a perspective of stagnation), where there are many rules and objectives. Let us note, en passant, that the Integrated Management and Performance Assessment System in Public Administration – (SIADAP, in Portuguese) – focus on the goals came in three main areas: efficiency, effectiveness and quality as well as programme contracts. In these units, innovation, opportunities, competitiveness and capabilities are systemic in a border zone or even outside of their concerns (OECD).³⁴

The cases studied in the private sector have different forms of organizational culture and leadership. Youth in HCU3 is the characteristic that differs when compared with the HCU4 in relation to leadership, because the culture they are in tune, and though belonging to the private sector, turn out to be similar to the public sector.

Factors inhibitors and facilitators of innovation

Today, healthcare organizations live with a problem in terms of stability, given the pressure to resolve situations that occur – waiting lists and waiting times for surgery or for consultation. The lack of ability to communicate with patients by many health service providers, the existence of exaggerated waiting times, inappropriate location of many services and strong growth in costs have led to changes in how services are delivered.³⁵

HCU5 attempts to resolve this situation (not exceeding 90 days for surgery – time limit under contract with the Valencian Health Agency); if they trespass, they will be penalized. External consultations are open until 22:00 hours, meeting the needs of patients. The HCU3 and HCU4 are also queries that end up later. In the public sector, particularly in HCU1 and HCU2 this concern is not yet very visible. In waiting lists for surgery, time is still too long,³⁶ and in the case of oncology can sometimes be beyond the time of intervention considered appropriate for these situations.

The fact that electronic process is available in either primary care or in differentiated care and in the future could be available anywhere for the physician, allows a reduction in consumption of health services by the patients who use these more services, and the doctor can access clinical data and avoid duplication of tests.³⁷

In HCU5 and HCU1 the clinical process is available electronically in primary health care and differentiated care, allowing an asset to the health system and the patient. In the other cases studied such a link, leading to duplication of acts and procedures, is not established.³⁸ In fact, the family doctor does not perform its role adequately, since he has no effective control of the total development of his patient.

Computer softwares in healthcare organizations often have a more radical or transformational role in their nature (see the case of the link between the CSP/differentiated care), given the gains that accrue to them.³⁹ In the case of HCU5 and HCU1 these gains are too obvious: the software improves quality of life of either the wearer or the organization itself. The way it is implemented is different: the HCU5 was the institution that felt the need to put together the Valencian Health Agency. This, in turn, seeing the opportunity to improve services resulting from the implementation of this software, developed and put them in other health units on their jurisdiction.

In the case of HCU1, it was the same unit that developed the software and implemented, but other health facilities that could benefit from its acquisition operation have not been able to use it, and there was a multiplier effect. Moreover, in other cases studied, the situation is identical to the latter, i.e. a potential innovator is not available to all.

The five biggest barriers to innovation in these health organizations are: (i) lack of coordination between departments (HCU5 and HCU3), (ii) organizational structure (HCU5), (iii) resistance to change (HCU1), (iv) lack of time (HCU2), (v) a long time to react (HCU4), and (vi) incorrect decisions (HCU3). These results are similar to those found in the study of the NHS⁴⁰ and to the results submitted by the Permanent Innovation Survey 2007, where the two biggest obstacles to the 177 respondents were resistance to change (51%) and lack of time for innovation (58%).

In summary, the many interviews and various secondary sources consulted confirmed a continuing evolution of health organizations for decades, always trying to offer new services to its customers.

However, the role of the patient should be highlighted, which has evolved very rapidly and requires more innovative solutions that meet their needs. The greater supply of services, particularly private, has sought to meet these needs in a time of greater cost containment in the NHS.

In parallel, new technologies have improved the diagnosis and treatment of pathologies, allowing more satisfying existing needs, and simultaneously allow private health to expand its business.⁴¹

Besides the acquisition of new medical equipment, there is increasing technological change supported by newer versions of software that help improve the results, while maintaining the same hardware. That is, the profitability of many equipment purchases is made through the renewal of software, not the systematic exchange of equipment.

The HCU3 has a long history related to medical innovation and particularly with technological innovation. Its strategic goal is to lead, innovation in Portuguese healthcare. That is also the aim of its main shareholder. The leadership of the innovation is achieved through the acquisition of knowledge and technology (e.g. sophisticated medical equipment).

Customers of the HCU4 have various origins, but are primarily originating in the private health insurance. These patients are more sensitive to the comfort and the risk and, accordingly, are also more vulnerable to marketing campaigns, often opting for solutions that perceived as being more innovative.

Doctors and patients who are provided with choices and access to knowledge often opt for innovative solutions, especially those who are seen as representing the latest technological novelty. Additionally, the increasingly widespread practice of defensive medicine leads doctors to choose tests that offer greater possibilities for making a diagnosis and appropriate treatment.

Main limitations

Due to the diversity of strategies used in the health sector a more complex and delicate collection of data either through primary sources, or through secondary ones was expected. The reality has confirmed that health organizations studied have very disparate treatment information.

HCU4 Administration mentioned that, for example, the technological and procedural innovations are not systematically evaluated. Moreover, there would be some technological innovations that would not be profitable if they were exclusively for the new services.

Even more important than the difficulty of accessing data on emerging technologies is the fact that there was little comparable data between them. This makes it difficult to compare performances.

The development of research would be more fruitful and more solid if technologies were implemented with a multi-disciplinary nature. That is, technologies have a clear clinical focus. Other skills are relevant to their operation (HCU3). The various skills involved in new technologies and new

processes require the integration of activities of various actors, to achieve better results.

If doctors have a knowledge more focused on the diagnosis and treatment of diseases, engineers have the knowledge focused on the functioning of technology, technicians aim at working in the inter-relationship between the equipment and patients and managers have the information necessary to perform cost-benefit analysis.

Finally, the analysis model proposed was adequate for the five cases studied. The organizational strategy was centred to the decisions and would depend on four key factors: (i) the leadership of the organizations studied, the way leadership was exercised and how the top leaders of intermediate levels of the organization influenced (studied by the Quinn adapted model), (ii) how the organizational strategy was influenced by the environment, or internal or external (studied by the model adapted from Miles & Snow), (iii) innovation and how it affected (and was affected by) organizational strategy and leadership, and (iv) the organizational culture and its importance to organizational strategy (studied by the model of competitive values adapted from Quinn).

Conclusions

Leadership in the context of innovation in health organizations is a topic of extreme importance to managers and management. More empirical studies should be carried out, with a multidisciplinary nature and more rational and pragmatic support on this issue.

There are different kinds of leadership and innovation, with different approaches and uses to conduct studies with specific objectives and methodologies. In health care, the value of human life and all its attendant impacts, such as the quality of life and their life expectancy, are important issues. It is crucial to evaluate the performance of leadership and innovation, not only by the logic of profitability and efficiency of services, but also by qualitative and quantitative assessment of the subject of services, which are the patients.

This empirical research in the form of case study is focused on the observation and analysis of the triad leadership, innovation and strategy, in five healthcare organizations (cases), four in Portugal (two public, two private sector's) and one in Spain (public sector but managed by private management tools, through contract management - concession).

What we put in evidence was the importance of organization and leadership in the context of innovation in health care organizations (which are different from most companies in the production sector, the high degree of complexity, large number of specialists, high technology, specific skills, meets new challenges, among others).

The main research question was to understand how to exercise leadership and to define the strategy in the context of innovation in health organizations.

Each of the five cases studied has a different way of exercising leadership and strategy in a context of innovation. Belonging to different sectors (public and private), the management methods are different. The results of this study show that there is a wide line between the analysis of the

questionnaire and the information that the elements of the administration (leaders) provided.

Health facilities in the public sector (HCU2 and HCU1), despite the management model being pilot (started in 20/11/1996 and 09/06/1999), do not have legislations, and contracts have major constraints. Business plans and contract programmes do not mention R&D budget (for innovation, technologies or organization).

HCU2 is more controlled and less competitive (culture of rules and culture for objectives), and has a controlling leadership, while HCU1 is less controlling and more creative (cultural rules) and has a monitor leadership, and the focus of their development and their activity is their internal environment - integration (effort into integrating the primary health care and differentiating from the perspective of a user).

The HCU2 aims to be a health unit where there is a recognition of the quality of care and its potential in management innovation tools. The HCU1, having served as the basis for the creation of "Unidades Locais de Saúde", sees its work recognized as a pioneer of this model and feels that their efforts to integrate primary health care/differentiated care as a distinguished example are fruitful.

The HCU5 is a healthcare institution owned by the State but that is managed privately, a unit in which leadership is creative, allowing for greater autonomy of leadership and innovation. It has a creative and collaborative culture, focused on human relations and open systems.

The HCU5 has a clear focus on differentiation (being a university hospital). The HCU5 is integrated into a Department of Health. It is a novel experience at management level and in integrated primary health care and differentiated care.

The last two cases are somewhat similar to the level of care they provide, however distinguished in the management model presented.

The HCU3 and the HCU4 are from private sector. HCU4 has a position of greater flexibility when it comes to issues of external environment and is more controlling when it comes to domestic issues - integration. He is in the market for some time, he must continue to have an attitude of modernity with the outside world (monitoring the market allows to envision business opportunities), but the fact of having to answer to his shareholders causes him embarrassment and greater control: it means a more creative leadership and control, within a culture of rules. The HCU4 seeks to maintain and expand its market share and be recognized for their work by stakeholders (e.g. Physicians Order) in certain medical specialties and thus have an effective recognition of the societal level as well as the loyalty of existing customers.

As it is a young health care organization, HCU5 wants to be creative in terms of the management model, and needs to be competitive in order to come in and establish itself in the health market. It is innovative and presents a distinctive strategy, having a culture of targets.

As barriers to innovation, HCU5 has a lack of collaboration between departments and the organizational structure, the HCU1 facing resistance to change, HCU2 has a lack of time, HCU4 takes too long to react and HCU3 suffers from incorrect decisions and lack of coordination between departments.

Our study shows that the models adopted may be applied to public and private healthcare organizations, and they are

sufficiently robust to classify the different organizational cultures and the types of leadership in the context of innovation and change.

Culture, perceptions and emotions are three barriers to innovation and leadership in the implementation of strategies in health organizations. However, they are also facilitating the spread of leadership in innovation and strategy to be developed.

Three major drivers of innovation are organizational culture, leadership and people. If there is an organizational culture pro-innovation, with incentives (monetary and symbolic), the leaderships incorporate and develop innovation, which seeks to do better, differently, taking risks. This innovation will be the best strategy for these organizations to gain competitive advantages and better sustainability.

Leaders must put innovation on their agenda, and should provide conditions to flourish. The terms top-down bottom-up, inside-out and peer-to-peer should be replaced by empowerment of all internal employees or external organizations. The training will leverage the organization and will have a positive effect on their performance, value creation and competitive advantage. The objectives of the organizations should be integrated with the innovation (R&D strategy), including new business models and their evaluation, new innovations in diagnosis and therapy.

Innovation and creativity are the keys to success in an increasingly competitive and globalized market.

According to the results observed a different approach to organizational innovation goes through three requirements: (i) integrate innovation in the strategic agenda of the management of organizational leaders, (ii) do not apply innovations without criteria (managers must make the best use of talent to innovate, creating conditions for a dynamic and systemic innovation smoothly), and (iii) reaffirm and develop trust (so employees understand that their ideas are valued, there is confidence that it is safe to express their ideas without risk of embarrassment or reprisal).

It follows that good leadership is the best way to develop the innovation, and for this purpose: (i) define the type of innovation that drives growth and helps to achieve strategic objectives, and (ii) establish performance indicators (financial and behavioural) and targets for innovation. The quality and customer service attributes are no longer differentiators, but prerequisites.

The development of a strategy in which they interact economically, technologically, culturally and socially, does not escape to complexity. The strategy is to devise a design, intuitive vision and constant learning, must involve individual cognition and social interaction, cooperation, including the initial analysis and subsequent programming and also throughout the negotiation process, to respond to the environment.

It is essential that organizations have well-defined organizational strategies. Depending on their age and maturity, organizations evolve and move according to characteristics of the environment in which they operate. This plasticity and versatility will shape the course of the organizations, which allows development of organizational strategies. Similarly, health services according to defined strategies are evolving, responding to the needs of populations.

It is therefore the complexity of managing and not managing the complexity, given the unpredictability, which is itself the notion of complexity. Thus, the strategy cannot be conceived in a closed structure like an office, must involve all levels of the organization so that all different views are appreciated, and taken into account, in whole or in part, incorporated.

Nevertheless, organizations are at the mercy of the evolution of societies, requiring periodic organizational reconfigurations. What does not change is the idea that there will always be changes.

Emerging from research to the understanding of organizational effectiveness, the Competing Values Framework (organizational culture and leadership) can be considered a 'map', because it allows a visualization of how the organizational culture and leadership work in an organization.

Leaders can shape and enhance the values of employees, or may have an educational leadership which translates to setting new goals, higher levels of aspiration, of new standards of performance and consultation.

In turn, the innovation leaders – the maestro, conducting and facilitating commitment to innovation – should put it on the calendar, and provide conditions for it to flourish.

Last but not least, all employees must work together, putting their ideas and suggestions in a portfolio or addressing them to be responsible for developing the organization.

With this research work, we contribute to:

- Promoting and developing the study of leadership and strategy in the context of innovation in health care organizations in Portugal, seeking to clarify concepts and creating a conceptual model;
- The production of knowledge and evidence about leadership and strategy in the context of innovation in health organizations, so that both policy makers and the elements that lead organizations can put the best solutions (institutional and organizational) in practice;
- The central role in providing care, their functional integration, the best management practices, accountability and participation of patients in the life of health organizations;
- The change in the health sector, whether in the public sector or the private sector, to create synergies, meeting the needs of patients and their rights and expectations.

At the end of a decade in which it was intended to integrate health care there is still much to do. With the beginning of a new decade, it is intended that this study, with its pioneering, is a first contribution to the integrated approach and extensive debate on this subject of paramount importance for organizational development and institutional the health sector.

Conflicts of interest

The authors have no conflicts of interest to declare.

REFERENCES

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1. Davidson C, Voss P. Knowledge management. Auckland: Tandem Press; 2002.

2. Ribiere VM, Sitar AS. Critical role of leadership in nurturing a knowledge supporting culture. *Knowl Manage Res Pract*. 2003;1:39-48.
3. Gray JH, Densten IL, Sarros JC. Size matters: organisational culture in small, medium, and large Australian organizations. *J Small Bus Entrepreneurship*. 2003;17:31-46.
4. Quinn RE. Beyond rational management: mastering paradoxes and competing demands of high effectiveness. San Francisco: Jossey-Bass; 1988.
5. Cameron K, Quinn R, Degraff J, Thakor A. Competing values leadership: creating values in organizations. New York: Edward Elgar Publishing Limited; 2006.
6. Schein EH. Organizational culture and leadership. 3rd ed. San Francisco: Jossey-Bass; 2004.
7. Miles RE, Snow CC. Organizational strategy, structure, and process. New York, NY: McGraw-Hill; 1978.
8. Conant MP, Mokwa P, Varadarajan R. Strategic types, distinctive marketing competencies and organisational performance: a multiple measures-based study. *Strategic Manage J*. 1990;11:365-83.
9. Hambrick D. Some test of the effectiveness and functional attributes of Miles and Snow's strategic types. *Acad Manage J*. 1983;26:5-26.
10. Castoro C, Bertinato L, Baccaglioni U, Drace C, McKee M. Configuring the hospital in the 21st century. Copenhagen: European Observatory on Health Systems and Policies; 2004.
11. Shortell S, Zalac E. Changing generic strategies: likelihood, direction and performance implications. *Strategic Manage J*. 2006;10:413-30.
12. Morais L. Liderança e estratégia em contexto de inovação nas organizações de saúde: estudos de caso [Dissertação]. Lisboa: ENSP. UNL; 2010.
13. Morais L. Liderança e estratégia: casos de inovação nas organizações de saúde. Lisboa: Escolar Editora; 2012.
14. Miles R, Snow C. Organizational strategy, structure and process. Stanford: Stanford University Press; 2003.
15. Yin RK. Case study research, design and methods. London: Sage; 1994.
16. Stake ER. The art of case study research. Thousand Oaks: Sage; 1995.
17. Baxter P, Jack S. Qualitative case study methodology: study design and implementation for novice researchers. *Qual Rep*. 2008;13:544-59.
18. Flyvbjerg B. Five misunderstandings about case-study research. *Qual Inquiry*. 2006;12:219-45.
19. Graça L. Desenho, redação e aplicação de questionários e guiões de entrevista. Lisboa: Grupo de Disciplinas de Ciências Sociais e Humanas. Escola Nacional de Saúde Pública. Universidade Nova de Lisboa.; 2009 (Textos; T 1069).
20. Ghiglione R, Mataton B. O inquérito: teoria e prática. 4th ed. Oeiras: Celta; 2001.
21. Graça L. Guião para o desenho de um projecto de investigação. Lisboa: Grupo de Disciplinas de Ciências Sociais e Humanas. Escola Nacional de Saúde Pública. Universidade Nova de Lisboa; 2009 (Textos; T 834).
22. Creswell J. Research design qualitative & quantitative approaches. London: Sage Publications; 1994.
23. Polit DF, Hungler BP. Fundamentos de pesquisa em enfermagem. 3rd ed. Porto Alegre: Artes Médicas; 1995.
24. Bogdan R, Biklen S. Investigação qualitativa em educação: uma introdução à teoria e aos métodos. Porto: Porto Editora; 1994 (Ciências da Educação, 12).
25. Fortin M-F. O processo de investigação: da concepção à realização. Loures: Lusociência; 1999.
26. Bell J. Como realizar um projecto de investigação. 2nd ed. Lisboa: Editora Gradiva; 2002.
27. Shortell S, Zalac E. Perceptual and archival measures of Miles & Snow's strategic types: a comprehensive assessment of reliability and validity. *Acad Manage J*. 1990;33:817-32.
28. MacPherson M. Strategic Capability Survey. Alexandra, New Zealand: Macpherson Publishing; 2001. Available from: <http://www.baldrigeplus.com/survey2.pdf> [updated 23.09.07; cited 13.12.10].
29. Innovationlabs. com [Internet]. South Asia: Innovation Labs Innovation; 2007. Available from: <http://www.innovationlabs.com> [updated 06.08.07; cited 13.12.10].
30. RAND Healthcare Organization survey for senior leadership. Santa Monica: RAND; 1999.
31. Bardin L. Análise de conteúdo, vol. 70. Lisboa: Edições; 1977.
32. Pestana M, Gageiro J. Análise de dados para ciências sociais: a complementaridade do SPSS. Lisboa: Edições Sílabo; 2003.
33. Boyne G, Walker R. Strategy content and public service organization. *J Public Admin Res Theory*. 2004;14:231-52.
34. OECD. The measurement of scientific and technological activities: proposed guidelines for collecting and interpreting technological innovation data: Oslo manual. Paris: Organisation for Economic Co-Operation and Development; 1997.
35. Herzlinger R. Market driven health care: who wins, who loses in the transformation of America's largest service industry. New York: Perseus Books; 1997.
36. OPSS. Observatório Português de Sistemas de Saúde. Luzes e sombras: a governação da saúde: relatório de Primavera 2007. Coimbra: Mar de Palavra; 2007.
37. Simonet D. Medical practice under managed care: cost-control mechanisms and impact on quality service. *Public Organ Rev Glob J*. 2005;5:157-76.
38. OECD. The reform of the health care system in Portugal. Paris: Organization for Economic Co-operation and Development; 2004 (Economics Department Working Papers; 45).
39. Tidd J, Bessant J, Pavitt K. Managing innovation: integrating technological, market and organizational change. 2nd ed. New York: John Wiley & Sons; 2001.
40. USA Institute for the Future. Health and Health Care 2010: the forecast the challenge. 2nd ed. Princeton, NJ: Jossey-Bass, a Wiley Company; 2003. Support for this publication was provided by The Robert Wood Johnson Foundation.
41. Länsisalmi H, Kivimäki M, Aalto P, Ruoranan R. Innovation in healthcare: a systematic review of recent research. *Nurs Sci Q*. 2006;19:66-72.