

Strategy as evolutionary path.
Five higher education institutions on the move

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Abstract

Strategy in universities has been a controversial issue in the last decades of scholarly debate, at least in relation to continental European models. On one side higher education institutions have been considered specific organizations whose essential nature hinders strategy and the coordination and control functions thereby entailed. On the other side, new public management reforms requiring strategic capability to be developed have been the object of critical scrutiny with respect to their underlying ideology and their implications for the functioning of academia. Against this backdrop, little empirical research has been conducted in order to understand how universities develop their strategy and what this consists of at the organizational level. This research aims at contributing to this discussion by providing an analytical framework in order to observe strategy and its dimensions and, accordingly, by presenting the analysis of five higher education institutions.

Strategy is conceived as a coherent pattern of actions at the organizational level, which must be recognized as such by relevant actors. This definition allows us to look retrospectively at the combination of deliberate and emergent strategies that produce organizational undertaking as a continuous stream of actions that are consistent over time. Two central dimensions of strategy are considered: actors' interactions in producing strategic organizational actions and the impact of strategy on university positioning. Strategy is the result of several actors' interests and endeavors which eventually converge: in fact, deliberate strategies may be modified, integrated or substituted by emergent strategies, continuously developed by central administrators, academics and public authorities advocating their interests and responding to new environmental conditions. Furthermore, strategy impacts the position of universities within their national higher education system, influencing its trajectory, its linkages and resource acquisition in relation to other higher education institutions and public authorities.

University strategies are investigated by means of an embedded multiple case study based on the Swiss system five higher education institutions have been selected to reflect the highest degree of variety according to institutional types (three cantonal universities, one federal institute of technology, one university of applied sciences) as well as size, age, mission, budgets and research intensity. The period considered goes from 1996 to 2008, twelve years where major changes have been carried out at the system level, with the creation of a binary system, a new university act and at cantonal level with the reforms of legal frameworks concerning the single universities. A documentary analysis has been carried out on strategic plans and other institutional reports, as well as on policy documents, laws and regulations as well as political debates. Interviews with central administrators, academics and public authorities have been conducted in order not only to triangulate data but also to understand thoroughly the strategic processes, the intermingling of deliberate and emergent strategies, and the roles and positions of actors. Organizational positioning and trajectories over the years have been reconstructed through statistical data of the federal statistical office concerning the single cases as well as the entire system.

The findings show different patterns of strategic actions according to three aspects: first, the five higher education institutions developed distinctive strategies focusing on different core activities. In this perspective, research represents a key area, however, strategies emphasizing education, governance structures and finances have also been detected. Second, strategies reflect different degrees of coherence, measured by looking at the consistency of actions across the different key activities. In some cases strategic sectors have been enhanced and supported by all other organizational areas, while in others university actions incongruously evolved across the different organizational technology and central functions. The issue of incoherence is related to the third aspect, which relates to change in strategy: this can be deliberately decided (e.g. after consolidation of education, a university intends to develop intensive research) but also be the unintended result of incoherence of actions over time (e.g. when tensions and conflicts are difficult to reconcile).

Strategy as a coherent action is directly connected to the role of actors: the five cases reflect a high degree of variety, shaped by governance structures which frame the context within which managers, academics and policy makers take action. However, the relation between actors and governance is reciprocal, as the first may be able to mobilize the second by triggering and sustaining a change of structure in order to support their own interests.

The examination of university positioning has portrayed different institutional trajectories: all five schools have changed their position within the higher education system, repositioning in a distinctive niche. In so doing, they have displayed different degrees of agency by transforming strategically their context to acquire resources, e.g. relations with public authorities have been modified to increase funding, poorly accepted institutional profiles have been legitimized, already occupied niches have been claimed.

This work shows that universities are able to produce organizational strategy, by engendering coherent patterns of actions over time which are the result of different combinations of deliberate and emergent strategies. On one hand, strategy is constructed by multiple actors (central administrators, academics and public authorities), who are granted constraints and opportunities within governance structures. On the other hand, strategy shapes university relations with the environment, as on the other it affects its positioning and organizational trajectory, on the other it unfolds different degrees of organizational agency, by enabling the university to intervene and change the various linkages they hold with public authorities (pursuing increased funding) and other universities (targeting competition and cooperation for students, research grants and staff).

In conclusion, the concept of strategy is tackled in this research in order to contribute on one side to the notion of universities regarded as organizations producing collective actions, on the other side to the issue of strategic agency of higher education institutions in their relation with the environment.

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I INTRODUCTION

1. Research topic and literature review

1.1 Background

Strategy is a much investigated concept in management studies, while it has been somehow disregarded in higher education studies, in particular with respect to continental European universities. This may seem surprising as, since the Eighties, political calls to universities urging to establish appropriate strategies have been increasingly frequent, while governance reforms were conceived and implemented in order to trigger universities' strategic capability by granting institutional autonomy. In particular, political and societal demands have raised questions about the necessity for universities to become accountable, financially sustainable as well as able to fulfill functions other than education and research, such as regional economic development and technological transfer. Moreover, a strand of research has emphasized how universities have been transforming into entrepreneurial (Etzkowitz, 2004; Clark, 1998) and capitalist organizations (Slaughter and Leslie, 1997).

Hence, in the framework of the idea of the knowledge society, universities have been asked to carry out activities useful to the broader society. National higher education systems have introduced more competition in their funding schemes and states have retreated from their governing roles and have diminished available resources. Notwithstanding whether these are consequences of general social trends such as mass higher education, the crisis of the welfare state, or the raise of liberalist ideology, universities have been required to develop and extend their missions and tasks. Among these, the request to formulate their own strategies is paramount, whether it has been characterized as setting direction, focusing efforts, or defining a mission and a vision. Thus strategy, regarded as a device to stand out in the market, is considered an abstract concept to comply with in order to achieve organizational success by transforming university organized anarchy (Cohen and March,

1974: 2-4) into a more cohesive, balanced and focused action (Quinn, 1978). In other words, strategy is the means by which universities should become effective organizational actors.

This public debate delineates a series of issues: first, it entails a prescriptive view of strategy as a model according to which universities should conform; second, strategy is closely related to governance, in that reforms of the latter should automatically generate strategic action; third, on the background, university as organizations are considered unmanageable – or uncontrollable - and need to be (further) reformed.

Against this backdrop, it is relevant to ask how strategies in universities are shaped, in order to understand their characteristics, how they are formulated and how they relate to universities conceived as organizations embedded in highly institutionalized environments. In this perspective, the following sections will outline an overview of strategy literature in order to define the research object.

1.2 Overview of literature on strategy

Strategy is an important topic for organizations and it has been intensively studied since the Fifties; for a categorization of the different schools within strategic management see Mintzberg and colleagues, who propose *design, planning, positioning, entrepreneurial, cognitive, learning, power, cultural, environmental and configuration schools* (2005: 5). There is a general agreement in characterizing strategy as a way to define essential objectives and to allocate relevant resources accordingly, as Chandler put it, *strategy is the determination of the basic long-term goals and objectives of an enterprise and the adoption of courses of action and the allocation of resources necessary for carrying out these goals* (1990:13). Accordingly, strategy is an expression of rationality, directly related to organizational effectiveness and efficiency: it features organizations as intentional actors, whose objectives are measurable in terms of attainment and overall organizational success

(Brunsson and Sahlin-Andersson, 2000). In this sense, strategic management studies inquire how organizations pursue their objectives and enact voluntary actions.

Though rationality is recognized as a constitutive attribute of strategy conceived as voluntarism (Astley and van de Ven, 1983) other scholars have also underlined non rational and non linear aspects: in the cognitive psychology perspective, Weick studied individual information processing and framing, featuring rationality as *self-justification of dissonance theory, which is also directed at real or imagined auditors* (1995: 13), while the concept of the learning organization has highlighted quasi undetectable incremental and evolutionary processes (Mintzberg and Waters, 1985; Quinn, 1978, Burgelman, 1991). Furthermore, and directly connected to the previous arguments, strategy has been conceived as an arena for organizational politics, whereby several actors, according to their distinct interests and leeway, negotiate organizational actions (Pfeffer and Salancik, 1978: 24; Pettigrew, 1992). Finally, Chaffee (1985) identifies rational, adaptive and interpretive strategies, which relate to the broader conceptualization of organizations as rational, natural and open systems (Scott 2003:26-28).

Strategy content and processes have been traditionally separated from an analytical point of view (see for example de Wit and Meyer, 2010: 5). On the one hand, content reflects the actual components of a given strategy at a particular moment, and how an organization articulates its portfolio of activities. On the other hand, scholars who have focused on strategy as process, have highlighted its dynamic nature and have tried to identify characteristics, stages and paths through which strategy is built (Mintzberg, 2007; Mintzberg and Waters, 1985). In interpreting strategy making, business literature focuses mainly on executive management as a key actor in getting substantial and cohesive policies planned and implemented. However, broader sociological approaches have emphasized collective aspects of strategy formation, taking into account other actors within the organization, such as staff, and, outside its perimeter, customers and regulatory bodies. Hence strategy has been conceived as the product of complex social dynamics (structuration processes for

Jarzabkowski, 2008; power relations for Hardy, 1996) rather than the artifacts of managerial and entrepreneurial leadership.

Moreover, strategy can be observed according to internal and external dimensions such as organizational and environmental characteristics. Organizational design has favored the first aspect by regarding structure as functional to strategy, thus supporting the sequence structure - strategy (see Chandler, 1990: 14). On the other hand, the positioning school has shifted the attention to the industry to which an organization belongs, contending that sophisticated analyses of competitors determine a successful strategy, which has only to be selected from a limited group of possible choices (Porter, 1980: 29). In this context the resource-based view has criticized what was perceived as an unbalanced approach towards external conditions, by claiming the opposite: a strategy can only be featured by leveraging on internal resources (Prahalad and Hamel, 1990).

The nexus strategy and change represents another essential topic, since strategy is featured as a (re-) alignment of the organization to its general objectives. There are different types of change, which are related to strategy, as outcomes of the different conceptualizations. Strategy processes may go from discontinuous to incremental, from opportunistic to imposed, from piecemeal to orderly structured. Variations in strategy content can have different scopes for change: internally (e.g. structures) and externally (e.g. positioning) as well as in terms of organizational performance (e.g. productivity).

There are different levels of analysis where strategy can be observed: corporate strategy, which defines trajectory and long term objectives for the entire organization; business strategy, which is made of the aggregate of unit strategies and functional strategy, connected to the specific functions such as human resources or finance. Nonetheless, it has been argued that these different levels should be more interrelated, so that a higher degree of cohesiveness can be achieved with a beneficial impact for the entire organization (see for ex. knowledge management Alavi and Leidner, 2001 for the micro level; Porter, 1996 for the macro level; Grant, 1996 for a knowledge based view).

This short overview of literature has listed a series of essential characteristics of strategy: its dimension of rationality, its relation with organizational processes and environments, its features of process and content, the role of actors and its collective nature, its relation with change, as well as the need for considering the interrelations between the primary level of analysis – the focal organization - with a lower echelon – intra-organizational - and a macro level entailing the environment in which the organization is located. The discussion has allowed the identification of some topics that represent essential characteristics of strategy and will be useful in reviewing higher education studies literature.

Strategy in higher education institutions

University strategic capability is not an obvious topic in higher education studies. Significant parts of the existing literature posit that strategy at organizational level is hard to manage in complex and loosely coupled organizations such as universities (for an overview see Musselin, 2007; Leslie, 1996).

The debate on university strategy in higher education has experienced different perspectives over time: in the Seventies the extensive democratization of universities influenced scholarly research, who emphasized the horizontal multi-actor internal governance and the perceived chaotic endeavor (i.e. garbage can model by Cohen et al., 1972).

In the Eighties, planning was seen as a most efficient instrument to manage raising financial constraints and take into account environmental conditions. Hence, normative stances on appropriate processes of university strategy making were developed (Keller, 1983: 172), Kotler and Murphy, 1981, more recently Duderstadt, 2000: 268) in an attempt to *apply rational logic to decision making about future states of the organization* (Leslie 1996). However, this line of research was criticized for being prescriptive and for ignoring the reality where such strategizing represented more an act of compliance with environmental

demands, and only partially reflected the complexity of organizational undertaking to produce coherent actions.

In a different perspective, scholars have emphasized the low degree of strategic capability of universities to take action autonomously and organizationally. Against the background concerning strategic responses to institutional pressures proposed by Oliver (1991), the debate has focused on reactive responses (Maassen, 2002), on maintaining traditional mechanisms of resource allocation (Baldrige, 1971:173), or on low degree of autonomy in order to manage resources (Salancik and Pfeffer, 1974).

Nonetheless, attempts at linking strategy to the organizational nature of the university conceived as loosely coupled systems have provided relevant discussions on emergent strategies based on ad hoc responses by learning organizational units (Weick, 1976) or by adaptation through *simultaneous tracking* (Leslie, 1996). Finally, developing on organizational configurations and the notion of professional bureaucracy (Mintzberg, 1979: 348ff), Hardy (1991:165) drew attention to the relationship between structure and strategy identifying different combinations of strategy formation processes and university distinctive organizational dimensions.

From the previous review it appears that most literature focused on Anglo-Saxon higher education institutions and only more recently the issue has been tackled in a continental European setting. This might also explain why university strategy has been more recently addressed by Anglo-Saxon scholars (Rytmeister, 2009; Hazelkorn, 2009; Jarzabkowski, 2008; Rhoades, 2000).

However, inquiry on continental European Higher Education institutions has been targeted at the influence of growing conditions of institutional pressure to become more efficient, financially sustainable and competitive, as well as strategic. This has primarily concentrated on internal and system governance (Reed et al., 2002; Amaral et al., 2003) in order to detect organizational change and system dynamics. In fact, changes in the conditions within which

European universities operate have been differently experienced according to the diverse European national higher education systems (Huisman et al., 2007; Teichler, 2007).

To different degrees, universities have been pushed towards strategy: first, they have been formally requested to develop strategies and profile themselves against other higher education institutions (Reichert, 2006: 8-11). Second, states have introduced more competitive funding schemes to foster competition (Jongbloed and Vossensteyn, 2001). Third, increasingly diversified social demands for higher education have pushed universities to expand their educational and research activities (Teichler, 2008).

In so doing, universities may differentiate both functionally and hierarchically (Bleiklie, 2003, Clark, 1978) according to the different activities within their portfolios, so that, for example, on one hand an institution may compete in research and coordinate in joint educational programs, on the other hand it can coordinate and compete in the same scientific field, for instance in expensive disciplines such as natural sciences. Similarly, universities have also tried to designate the different markets where they compete (for the Swiss case see Fumasoli and Lepori, 2011).

In a framework where universities set up to become strategic actors, some scholars have discussed their transformation into formal organizations (Brunsson and Sahlin-Andersson, 2000), and have consequently characterized strategies as *intentional change instruments in the hands of management* (Krücken and Meier, 2006). Looking at the same issue but in a microeconomics perspective, strategy has been conceptualized as a necessary instrument to plan organizational decisions, in order to attain defined objectives with existing resource limitations and to identify one's own positioning under conditions of uncertainty (Bonaccorsi and Daraio, 2007b: 11-14). Others have studied the relation between organizational structure and strategic capability (Whitley, 2008), underlying specific organizational characteristics of universities, such as *problematic goals, unclear technology and fluid participation* (Cohen and March, 1974: 3), to stress the limitations of coordination and control by management (Musselin, 2007).

1.3 Defining the research object

This literature review has covered diverse and scattered approaches where strategy and university are conceptualized according to different paradigms and understanding.

Nevertheless, it allows us to identify a series of challenging points: first, there is little empirical research on university strategy, in contrast with what has been done at a lower level, as within research units and laboratories (Leisyte, 2007: 355-361, Joly and Mangematin, 1996, Weisenburger and Mangematin, 1995). Second, a prescriptive approach defining strategy primarily in terms of rationality has hampered further theoretical and empirical progress. Third, much has been said about the relation between strategy and the specific nature of universities as organizations, so that focus has shifted usually more on the organizational framework, or, even more narrowly, on personal leadership (see also Mignot-Gérard, 2006: 23). Fourth, little has been investigated empirically on environments and on the specific connections universities hold with their systems and with other higher education institutions from a strategic point of view (however, see Bleiklie et al., 2009 on universities as networked organizations).

In order to look at strategies in universities, it is essential to use a definition of strategy that takes into consideration the above mentioned points: in particular, strategy has to be captured beyond its rational dimension, as a complex organizational undertaking to which multiple actors participate and as an instrument shaping the relation between university and environment. For these reasons, the analytical model presented in chapter two has been built on a specific framework that conceptualizes strategy as an ongoing process of deliberation and emergence of strategic actions, which is based on Mintzberg's work (for an overview see Mintzberg 2007).

Strategy is conceived as a pattern of coherent actions that an organization undertakes to achieve its objectives. These actions are not only prompted by managers, but they are also

integrated, modified, substituted by other actors who participate, through different positions, to strategy making. Against this backdrop, universities are conceived as organizations able to formulate, adapt, and integrate their strategies in accordance with the multiple actors involved on one side, and the changing environmental conditions on the other side. Finally, to portray its dynamic evolution over time, strategy is regarded as retrospectively rationalized organizational actions (Weick, 1995: 24ff).

The second relevant choice relates to the conceptualization of strategy as content on which university external relations are based: accordingly positioning is characterized as a central purpose of strategy. By developing their strategies universities select a specific position – a niche - in their wider context, featuring the dimensions under which they profile, compete and coordinate with other higher education institutions, they relate with the state and the other actors present in the same higher education system.

2 Conceptual framework

Building on the previous arguments, this chapter presents the analytical framework by which university strategies are studied. As a starting point, the environment in which universities are embedded is discussed in order to provide analytical categories useful to investigate strategy integrating different levels of analysis, as illustrated in the previous chapter. Subsequently, strategy will be characterized according to its three main dimensions: patterns of actions and the role of actors, which are related to strategy as process; and positioning, connected to strategy as content. In conclusion, the analytical model is presented from which the research questions are drawn, and the following chapters are briefly introduced.

2.1 Strategy environment, process and content

2.1.1 Organizational fields

Organizational fields are defined as complex, heterogeneous, multi-layered and dynamic spaces (Hoffman and Ventresca, 2002: 7-8; Hirsch and Lounsbury, 1997), their relational characteristics have been highlighted by Scott, who characterizes them as *systems of organizations operating in the same realm as defined by both relational linkages and shared cultural rules and meaning systems* (2003: 130).

This notion appears to be appropriate for higher education systems for two reasons. The first is analytical, as highly institutionalized spaces, higher education systems entail a focal population, i.e. the higher education institutions, which, on one side, are embedded in vital relations with public authorities, who provide a regulatory framework and most of the resources necessary to survive. On the other side, universities interact with alike organizations by competing and coordinating (see the concept of commensalism by Aldrich and Ruef, 2006: 245-246). The second reason is empirical: the concept of organizational field allows to analyze and resolve into different components the mutual relations between

single organizations and the wider environment. Hereafter the organizational field components are discussed.

Actors are different in function, position, level, access to resources. They can be classified into public authorities, intermediary agencies, industry and higher education institutions. The first provide the regulatory framework, which can act at national and regional level and most of the necessary resources, thus holding a constitutive relation with higher education institutions. Intermediary agencies are mandated by public authorities and distribute funds for research (e.g. national science foundation, innovation agency). The third actor, industry, has a specific influence on universities and is related primarily to the so-called third mission (services, technology transfer), however this is not specifically treated in this work, which focuses on academia's core activities, i.e. education and research. The fourth type of actor is represented by universities themselves, which produce education and research, and which can be grouped according to different categories such as "traditional" universities and universities of applied sciences. These organizations act individually or by associating themselves in order to advocate specific common interests and share existing resources. Narrowing the focus to a strategic perspective, actors can be classified on one hand in similar organizations – all higher education institutions - and on the other hand dissimilar organizations to the focal population – state and funding agencies. These categories have a major impact on the linkages within the organizational field, accordingly on the specific positions of higher education institutions.

Within an organizational field there are different types of *linkages* according to the actors considered. Among universities (alike organizations, i.e. the same population) there are horizontal connections that can be characterized as relations of coordination and competition. These serve to acquire resources important for organizational functioning either by sharing such resources, e.g. through partnerships in education or research; or by competing, e.g. for students and research grants. Between universities and funding authorities there are vertical connections, which entail a stream of resources the first receive

from the second. These resources are mainly represented by financial means, e.g. block grants from public authorities or subsidies according to specific criteria (e.g. number of students), but they can also derive from other assets such as infrastructure and estate.

Organizations can be analyzed individually or by looking at collective effects, like imitation (DiMaggio and Powell, 1983), however their linkages are relevant, since it can be assumed that, in a highly institutionalized environment, these constitute a key element of organizational survival, allowing to access key resources, actively manage their environment and promote wider changes (Mayntz and Scharpf, 1995). Hence, the network of relationships between different organizations account for stability and reproducibility at the field level, but also for the potential for collective action and change both at system and organizational levels.

Actors of strategy may also be located at the system level, as, for example, policy makers, who are able to influence strategic options on one side by distributing resources, on the other side by the role defined in governance structures.

Finally, actors may be situated within universities: academic administrators act at organizational level, by managing the organization internally and externally; academics, as professionals who carry out education and research, may also act individually or in groups (e.g. in faculties). Internal governance structures provide a framework in which central administrators and academics are located in specific positions, which enable and constrain them in intervening in strategy processes.

Resources are the set of elements related to the production of research and education, and include available financial resources and funding schemes (Jongbloed, 2007). In general, these resources are under the control of the state and intermediary agencies, who should be regarded as field level players. Besides, high qualified staff such as teachers and researchers are needed by universities in order to develop educational programs and research activities. Finally, the students themselves, might also be regarded as resources, in that they bring financial means to the university through enrollment fees and government subsidies.

Moreover, within the educational mission, students constitute the *raison d'être* for university existence.

Along the same line, university positioning can be observed through the lens of resource acquisition in order to reconstruct university trajectories over the years. Looking at funds, staff and students will show how higher education institutions are able to cope with their environment and locate themselves in a distinctive position that allows for attracting funds, staff and students.

Institutions are illustrated by regulative, normative and cognitive-cultural systems of meaning (Scott, 2008: 59), to which organizations have to comply in order to be legitimated within their organizational field. They represent the set of values, norms, rules shaping to a large extent the behavior of the actor (Scott, 2008: 76). This includes the state-defined policy regime and intervention model (Ferlie et al., 2008), but also a set of common beliefs and rules recognized by the field's actors and reproduced by them, including a wider set of institutions at the national level (Hollingsworth, 2002: 6). In this regard, strategy may be conceived as a balance between compliance to the institutional setting and differentiation to carve out a distinctive position.

As a specific feature of higher education, *boundaries* set a line to separate what is within a system, or a population, and what remains outside. It can be constructed both formally and socially: the state provides direct sources of diversity (or homogeneity), while these boundaries are further socially defined and enacted by actors. The perimeter of higher education has been subject to profound changes in the last decades, with the creation of new universities, but also with the progressive integration of organizations and educational forms which had constituted in the past the realm of professional education, i.e. universities of applied sciences (Kyvik, 2004).

Determining system boundaries also highlights the structure of space among actors within a field. This is relevant for two aspects: on one side in terms of vertical and horizontal connections, on the other side according to center and periphery. Hence, university position

is framed by the distance from state authorities as well as by the different degrees of centrality within the field.

In this research, university – the organization - represents the primary level of analysis. However there is scope for incorporating an additional two levels: on one side processes of strategy making have to be observed at an intra-organizational level, as management and academics are involved, as well as at system level, as the public authorities may also be implicated in determining strategic direction. On the other side, positioning results in a specific location at the level of the environment, which entails a system perspective in order to understand the linkages held by the single university within the organizational field.

These levels of analysis are directly connected, since actors of strategy making are present in each of them: while central administrators and academics are situated within the organization, policy makers can be found outside the organizational perimeter. In support of this standpoint, Clark (1983:104) characterizes managers as connected to the organization, academics to the understructure and public authorities to the higher education system (see also Musselin, 2001: 171).

2.1.2 Patterns

It is posited that strategy is a pattern of decisions and actions aiming at realizing objectives that are relevant for the organization and which compose a coherent sequence developing in time and across relevant areas of activity. To be identified as a strategy, such patterns must be recognized and shared by organizational members as a collective pursuit of organizational goals. Actors' rationalization of a pattern as an organizational strategy can occur before decisions and actions take place (as in strategy formulation, for example in the strategic plan), meanwhile or afterwards, as actors make sense of organizational events in a strategic perspective.

In this respect, strategy is a matter of empirical observation: it can be detected by looking at organizational decisions and actions over a significant lapse of time and by identifying patterns of coherence relevant for the organization and recognized by significant actors. Once detected, a strategy can be analyzed as resultant of the possible combinations of organizational features, meaning that a strategy relies within the opportunities and constraints provided by the organizational structures. It is formulated through processes of decision making that are based on the internal governance of the higher education institution: this defines the range of interactions among actors and structures where strategy is formulated and acknowledged (Musselin, 2001: 172).

The analysis of patterns will show how intentions and actions combine (Mintzberg and Waters, 1985), referring to the duality between deliberate and emergent strategies, the first being intentional, e.g. formulated by the management, the second not, e.g. realized according to environmental pressures, external conditions and through the convergence of multiple actors. The intertwining of deliberate and emergent into a realized strategy is crucial to understand strategy processes, how organizational action is shaped, how actors are involved and how influential external conditions and demands are.

Descriptors

Strategies are observed according to four descriptors: first, patterns of organizational decisions and actions are listed and analyzed in order to capture the combination of deliberate and emergent strategies. Second, chronological listings of crucial events in the environment are built in order to highlight potential opportunities and threats. Third, actors are observed to highlight different modalities of participation in strategy processes. Fourth, the *locus* of strategy making is detected with the aim of providing a picture of the relevant levels and places where processes took place and decisions are taken.

Indicators

Parallel to this general analysis of major organizational events and decisions, five major areas of strategic activities in university setting are focused following the analytical framework and according to the relevant literature (see for instance Bonaccorsi and Daraio, 2007a: 12ff). These sectors of activity relate to three different types of organizational endeavor: governance, technology and central functions. First, governance structures are looked at in order to analyze the regulatory framework (external governance) and organizational structures, people and offices (internal governance). Then higher education core activities, education and research, are characterized by educational programs, research projects and partnerships, as well as by specific indicators such as student and research grants evolution. Finally, human resources policy and finances are focused as two central functions relevant for resource acquisition. In this perspective, the evolution of staff and the introduction of new policies as well as the funding mix will be inquired.

Table 1: indicators and descriptors according to areas of activity

Governance	Education	Research	Human resources policy	Finances
Regulatory framework	Programs Bologna Reform	Projects at Swiss National Science foundation	Staff evolution	Funding mix
Internal structures	Student evolution	Doctorates granted Number of PhD students	Chair planning Tenure track	
People, offices	Partnerships	Partnerships	Recruitment procedures	

The governance indicator is divided in three parts according to three interrelated topics. First, the regulatory framework is presented as a general background on which every university is confronted: the state, which consists of national and regional public authorities,

frames its relationship with the university in terms of institutional autonomy (how free is the institution to manage itself) and in terms of funding. Second, the internal structures are characterized in order to illustrate how they have evolved over time and to what extent this is connected to strategy. The third part features the sequence of persons in the different offices and aims at depicting how internal governance arrangements unfold in relation with elections and appointments. The analysis of personal characteristics, tasks and duration of offices supplements the findings on existing regulations and investigates role and relations these persons hold with regard to strategy.

Education is analyzed according to programs: how curricula develop over the years, which specializations at what cycle are offered, in order to present the evolution of the educational profile of the institution. Additionally, the modalities of introduction of the Bologna reform, i.e. a 3 year bachelor and a 2 year master, are highlighted as a specific indicator on how higher education institutions adapt to environmental demands. The number of students is analyzed in order to verify whether strategic objectives are matched over the years. Finally, cooperation for educational programs with other universities are examined in order to investigate organizational capacity to build strategic partnerships.

Second, core activity in universities, research is investigated according to acquisition of competitive funds at the Swiss national science foundation, as well as to the number of doctoral students and of doctorates granted,. These indicators will characterize the evolution of research activities, as well as provide a basis against which deliberate and emergent strategies can be observed. The dynamics between intentions and actions will be emphasized in comparing the different data (i.e. documents, interviews and statistics). As in the case of education, partnerships with other institutions are analyzed so that patterns of cooperation are detected.

Human resources policy considers how universities manage their academic staff, primarily professorships, and the significance of such policies in relation with strategy. In this context, first, staff evolution is looked at according to categories such as professors, other teachers,

intermediate corps and administrative/technical staff. Second, the different manners through which chair planning is carried out are highlighted: introduction of tenure track, recruitment procedures and criteria (e.g. standardization or increasing severity of requirements) are illustrated in order to show strategic action at the organizational level (e.g. when recruitment refocuses on assistant professors) and the implication for the entire organization and its strategy in relation with reorientation of education and research activities.

Finally, finances provide a picture of the economic constraints and opportunities in which higher education institutions thrive. This indicator entails analysis of the funding mix in relation with a variety of state funds (national and regional), third party funds (e.g. competitive research grants, services), as well as student fees. The evolution of the different streams and the implications in terms of sustainability, leeway for strategy implementation, internal balances, e.g. between research and education, will be focused.

In conclusion, looking at these five areas allows to reconstruct strategies and observe in detail deliberate and emergent actions, to identify significant change in these patterns, to inquire coherence by cross checking consistency and interdependency across sectors. Furthermore, these areas of activity are important in identifying analytically how realized strategies arise from the complex interaction of multiple actors by showing systematically how central administrators, academics and policy makers interlink and converge in shaping the collective actions of universities.

2.1.3 **Actors**

The definition of strategy as a pattern of coherent actions produced by a combination of deliberate and emergent strategies entails a multi actor dimension. In this sense, strategy can be seen as the product of convergence of several actors on common actions at the organizational level. This convergence shouldn't be regarded as a series of intentional actions by one or more actors, but more as a complex process through which strategy is

realized thanks to actors' alignment in producing organizational actions (Mintzberg and Waters, 1985).

Hence, deliberate strategies are decided by actors at the organizational and intra-organizational level (rectorate, board and academics). Emergent strategies, too, originate from actions taken by actors that are within the university perimeter and by actors, who, at the same time, are able to span across boundaries, e.g. policy makers sitting on councils. The distinction between internal and external actors is analytically significant as it allows to observe actors' interventions in strategy making, particularly in emergent strategies, where actions (without strategic intentionality) unfold to complement, modify or cancel an existing line of action.

A central dimension of strategy making is therefore how the different actors converge, by means of their interventions, at different moments, in the strategy making process. This is made of new emergent strategies, for example as academics intervene to have their interests and preoccupations incorporated into organizational actions and managers deal with such requests. This interaction depends on the configuration of relations among actors; it is in fact central to understanding how powerful managers are in imposing their strategy and, on the reverse, how strong the other actors are, in getting their own strategies integrated into the pattern of organizational actions.

Description of actors

In the university setting actors can be outlined according to the categories of central administrators, academics and public authorities (Clark, 1983: 104; Musselin, 171). *Central administrators* include management levels of higher education institutions, in particular members of the rectorate, the executive level, and members of the board, which is in charge of supervision and long-term direction. Central administrators are in charge of conducting university affairs in that rectors and vice-rectors run the whole organization by coordinating

and controlling overall affairs, while university boards approve corporate strategy and protect the long term survival of the higher education institution. Deans represent on one side their faculty (traditionally representatives of disciplines belonging to a specific scientific field), on the other side they participate in managing the entire university, as they coordinate, to a certain extent, specific organizational units and may participate in corporate decision making.

Academics relate to those professionals that, within universities, are responsible for education and research activities, in other words they operate the technology. For the purposes of this work only professors have been taken into consideration, because they hold long-term (usually) permanent positions and participate to strategy making as members of planning committees, in faculty council and in the academic senate. As a matter of fact, the academic profession has traditionally been involved in strategy making: this is due on one side to its autonomous role in deciding on academic affairs, i.e. on education and research, on the other side to the traditionally weak power of central administrators, who used to be peers in office for a short period of time.

The third group of actors relates to *public authorities* and refers to the state as the primary funder of universities. Public authorities are in charge of providing the basis for university existence by constructing and shaping its legal framework and by holding institutionalized relations in order to finance activities. Finally, the state can be characterized differently according to the type of university: regional and national authorities, policy makers, i.e. civil servants, and politicians, e.g. the heads of ministry of education and members of parliament.

It has to be noticed that the role of actors in strategy making and the different stages of strategy formulation, from deliberate to emergent and finally realized, are profoundly influenced by the presence of the state. In fact, universities hold a constitutive relation with it, which founded them through a legal act and finances them significantly. Therefore, the state can be conceptualized both as a major actor and as a fundamental environmental condition: it can act as a driver of strategy, for instance when it imposes competition or cuts

resources. For the purposes of this study, policy makers will be categorized as external actors in the establishment of university strategy. This for two reasons: first, different public authorities are involved in strategy according to the regulatory framework (e.g. a university strategy has to be approved by funding authorities); second, as already mentioned, it may be quite common that people exchange offices within university and public authorities, so that , for instance, a former high ranking public servant becomes an academic administrator.

However, the relationship between higher education institutions and funding authorities has been characterized since the Eighties, by the transfer of responsibilities from state to higher education institutions, thus increasing university institutional autonomy (Amaral, Fulton and Larsen, 2003). This shifting relationship is central to understanding the degree of state involvement in strategy making, and accordingly the degree of freedom in strategizing higher education institutions. For instance, negotiating the contract of services may imply the mutual definition of strategic objectives; the rector may participate to formal bodies established by the minister of education in order to discuss major strategic issues. Therefore, the degree of involvement of managers, academics and public authorities on strategy making largely depends on the existing governance structures, within which actors are granted a specific position and associated power (Clark, 1983: 107).

Governance structures as a lens to look at actors

Against this backdrop, actors in strategy making should be understood by observing them through the lens of governance structures. In fact, actors' convergence on a common undertaking is possible within a complex of relations provided by governance structures that at the same time enable and constrain their actions. This entails the observation, on one hand, of how structure, roles and relationships are arranged, distributing different positions to different actors; on the other hand of how actors, located in these positions, are able to profit from opportunities and leeway to get their interests integrated into strategy (Musselin, 2001: 172-173).

Therefore, besides the degree of autonomy from the State framed by external governance at a system level, internal governance structures influence strategy making processes within universities, as they mold hierarchy and power relations. On one side it is necessary to look at the degree of centralization and at the power of governing bodies – what organizational decisions they can control, on the other side it is relevant to look at the configurations of actors and at the conditions for the creation of a stable advocacy coalition able to develop and implement an organizational strategy and, especially, to share its basic frameworks of reference and goals (Sabatier, 1987).

Moreover, processes of strategic development and implementation are likely to impact the possibility and content of organizational strategies (see for ex. Dill, 1996) accordingly, the actors controlling these processes, external constraints (for example from state regulations) and design of these processes should be taken into account. In the case of higher education institutions, a variable balance is to be expected between informal processes of decision and consensus-building – based on personal contacts within an open setting – and formal processes where decisions are taken by the responsible body and thus officially legitimated.

In order to investigate the multi-actor dimension of strategy, a multi-level analysis is required, i.e. the understructure and the other actors within the organizational field have to be observed, in order to take into consideration the complexity of interactions producing collective action. This means that if on one side strategy is featured as an organizational undertaking, on the other this can be broken down to the diverse contributions of the different actors. Academics operate intra-organizationally, central governors at the organizational level, and within the system act as public authorities. Moreover they can switch from one level to the other as, for instance, managers interact with academics, while policy makers may sit in university boards, and academics may become rectors during their career progression. Accordingly, strategy has been conceptualized as a process taking place at different levels both within and outside university.

Structure refers to an organization's internal pattern of relationships among the organizational members (Scott, 2003: 18-19). However, this concept should be integrated by the notion of governance, which characterizes higher education studies and reflect more specifically higher education institutions as open organizations: governance is featured as *the structure of relationships that bring out organizational coherence, authorize policies, plans and decisions, account for their probity, responsiveness and cost-effectiveness* (Gallagher, 2001, cited in Meek, 2003: 12). It appears to be particularly significant for higher education institutions, whose specific characteristics have been highlighted according to many aspects such as unclear and ambiguous technology (Musselin, 2007), incomplete formal organizations (Brunsson and Sahlin-Andersson 2000) professional bureaucratic modes of functioning (Mintzberg, 1979: 366), loosely coupled systems (Weick, 1976) and garbage-can decision-making (Cohen et al., 1972).

The degree of autonomy from the state and the internal governance characterize the inherent distribution of power between management, state and academics and may influence the strategy processes within universities. Looking at formal features of governance and structure, e.g. the degree of centralization and of power of governing bodies – allows us to understand to what extent they control organizational decisions as well as how convergence of actors towards a shared common strategy can be steered to some extent.

It is fundamental to investigate actors according to their position, which is characterized by roles – what actors are able to do in a specific position; and relations – what relations actors hold among each others in a given position and how this has been shifting over the years. Second, it is relevant to look at the implications of such governance structures in actors configuration and in their strategic action. Third, it must be asked how actors are able to activate such structures in order to influence strategy making.

2.1.4 Positioning

The external dimension of strategy is featured according to two interrelated aspects: content and position. Accordingly, strategy defines a content, which can be depicted as a portfolio of activities, through which some selected priorities allow the organization to position itself in the environment in a distinctive niche. Strategy can be observed longitudinally through university trajectory, namely how university position within the higher education system changes and, at the same time, how university reframes its relations to other actors such as other universities and public authorities.

The position ensued (the niche) consists of different dimensions according to which an organizational set of activities can be looked at, these relate to aspects involving the acquisition of resources such as students, funds and staff. In this perspective, university technology, i.e. education and research, appears to be the primary determinant of how resources can be obtained, while central functions such as human resources policy support universities in the acquisition of important resources necessary for their internal activities, like academic staff.

These dimensions connect universities to their environment by featuring what, how and where it will compete for existing resources. Accordingly, on one hand a position is multidimensional in that it provides the organization with different “markets” according to the specific activities framed (e.g. being a research intensive university, a specialized higher education institution etc.). On the other hand this position is multilevel as these dimensions may connect the university to different levels within the organizational field: horizontally when competing and coordinating with other higher education institutions, and at system level when connecting to funding authorities.

The environment itself consists of various components: as it was discussed in the previous section, actors, resources, linkages, institutions and boundaries shape the possibilities of action – of position – of higher education institutions. In this perspective, it is argued that a strategy articulates according to different dimensions of the organization, but also with

respect to the diverse features of the wider context, analyzed as an higher education system where universities are embedded.

From the above mentioned analytical categories, a conceptualization of these linkages as a complex multilevel and multidimensional framework is derived, as it depicts the organization deeply embedded in its environment with which it holds multiple relations. Furthermore, a mutual relation is shaped: while the environment frames the possibilities of action of the organization, the latter may be able to intervene into its environment, as, by modifying its position, it may also modify the network of relations around itself.

Observing strategic agency

The issue of the relation between organization and environment leads to the topic of strategic agency, which is relevant for highly institutionalized organizations as universities, whose boundaries against the environment, in particular with the state, are rather blended (see also the discussion on actors in the previous section on the organizational field). Thus, if on one hand higher education institutions may not be flexible enough to respond quickly to the changing environment, as expectations from stakeholders, shared norms and values, internal features and path dependency factors limit greatly their strategic options, on the other hand they may show their ability to change their trajectories and reposition themselves in their environment.

Along this line, university strategic agency is related to the paradox of embedded agency, which shows that actors can enact changes to the context by which they, as actors, are shaped (see for ex. Seo and Creed, 2002). On one side, under conditions of decreasing embeddedness and increasing motivation to change, powerful central actors become institutional entrepreneurs (Greenwood and Suddaby, 2006). On the other side, peripheral – thus less powerful – actors may profit from unexplored potentialities or contradictory logics at system level, and reconfigure (parts of) their environment (DiMaggio, 1991). Hence,

university organizational capacity to relate with the environment, accordingly to create a sustainable niche within the national higher education system, appears to be relevant. This may be done by differentiating in several ways, so that competitors are expelled, new resources gathered and demand fostered; by (re-) shaping organizational boundaries so that niches can be claimed and controlled (Santos and Eisenhardt, 2008).

The subtle balance between compliance and differentiation is a central aspect of positioning and strategic agency. In this regard, organizational actions have to be observed in order to understand when a university complies and when it decides to differentiate. However, compliance with environmental demands may also reflect strategic agency, insofar it is supported by deliberate action and accurate analysis at organizational level. Nonetheless, observing the balance between strategy and environmental determination is central and can be addressed only empirically.

Positioning in highly institutionalized settings

The relation organization-environment can be conceptualized along a continuum where, at one end, the environment determines organizational actions (Hannan and Freeman, 1977), while at the other end, organizations are able to determine their survival by interacting with the space where they are located (Porter, 1996). This is particularly significant when looking at the positioning of non-profit organizations such as universities, which entails different elements than positioning for firms.

In fact, universities not only adapt and comply to environmental conditions, but are also capable to intervene and modify their position according to their objectives. In other words, strategy also entails intentionality as it actively manipulates the niche, which will be hereafter regarded as a position of an organization within the organizational field (Popielarz and Neal, 2007).

However, the general discourse about higher education systems has often highlighted their institutionalized nature where changes are rather slow, mainly driven, on one side, by the state, able to produce and enforce different policies with regard to education, research and governance of the entire system (Ferlie et al., 2008), on the other side by market forces, that have entered higher education for some decades (Slaughter and Leslie, 1999: 1).

Drawing from these two contrasting aspects – strategic capability and institutional embeddedness - it is pertinent to inquire the relation between organizational action and the resulting position for the university in its environment. This means primarily to observe how, on one side, relations with the actors of the field are shaped, the degree of competition and cooperation and its impact on the availability and distribution of resources. On the other side, how institutional dynamics and the linkages to funding authorities influence university undertaking by providing systems of meaning and cultural rules shared by the actors, as well as most of subsidies in the Swiss higher education system. Second, to understand how (strategic) actions of higher education institutions develop under such conditions and are able to modify the position within the organizational field, accordingly changing the available resources.

In the last three decades European Higher Education institutions have been under pressure in order to become more efficient, financially sustainable and competitive. Though this pressure has been differently experienced according to the diverse European national higher education systems and to the institutional diversity ensued (Huisman et al., 2007), it has affected universities and compelled them to develop strategies and focus more explicitly, while funding schemes have promoted direct competition (e.g. for research funding) and the increasingly diversified social demands for higher education have produced diversity in terms of education, research and services (Teichler, 2008).

Universities have differentiated either functionally or hierarchically (Bleiklie, 2003; Clark, 1978), often featuring their portfolios of activities including both options, so that, for example, an institution competes with another in research and coordinates in education (e.g.

joint programs) according to different sectors and activities, or, even, coordinate and compete in the same sector (e.g. in expensive fields such as medicine and life sciences). Similarly, universities have also tried to designate the different “markets” where they are competing relating to activities but also to geographical scope such as local, national, European and international (Fumasoli and Lepori, 2011).

Conceptualizing the niche

In a position represented by its niche (Popielarz and Neal, 2007) the organization profits from opportunities even though it is limited by constraints (Podolny and Hannan, 1996) which are provided by the context. Hence the niche is considered as a position in the higher education organizational field in which the university is able to acquire the necessary resources to survive by developing and maintaining different types of relations with other actors.

Against this backdrop, there are three relevant aspects to consider: first, the niche is a set of dimensions that reflect the dimensions in which the organization prospers. In the case of higher education institutions these are represented by the technology comprising education and research activities. Moreover, finances represent a third dimension as university capability of shaping a sustainable funding mix is relevant for their existence, i.e. it influences the overall organizational setting. In fact, differently from private firms, where financial streams are more directly related to products and services, universities have to manage different sources of funding such as the state at multiple levels and according to diverse bodies and agencies, and third party funding, e.g. students fees, external research grants.

Second, within a specific niche different types of relations are in action: in horizontal relations a university can compete and coordinate with other universities, in vertical relations it holds symbiotic relations with funding authorities (Aldrich and Ruef, 2007: 247;

Scott, 2000: 13). These relations have to be observed at different levels, on one side the focal organization is embedded in the organizational field and links to other organizations, on the other side organizations in the aggregate may affect relations with other populations as they interact with other actors within the organizational field, in particular with public authorities from which they receive large endowments. More distinctively, a higher education institution may compete on one dimension, e.g. in undergraduate education competing for students, while it may coordinate on another dimension, e.g. research, sharing existing resources.

The third aspect of the niche concerns the actions that an organization displays: these can be categorized as compliance and differentiation, as the organization conforms on one or more dimensions of the niche or differentiates in order to change its position, accordingly to search for additional resources. This means that organizational positioning entails a balance between stability (remaining in the same position) and change. While universities are able to plan, pursue and achieve their own suitable niche, they have to comply with important constraints in order to match economic, cultural and political fit. In this perspective higher education institutions have to comply, at different degrees, with environmental conditions relative to their viability in terms of financial resources, with cultural systems imposing normative models and values and with political configurations directly influencing their possibility of resource acquisition.

Indicators of positioning

In order to observe the university trajectory, several indicators will be used, which refer to the areas of activity discussed in the section on patterns. This data will be further analyzed: first, indicators are provided in order to characterize the institutional profile of a university. In this case a specific dimension, e.g. third party funding, is analyzed over time in comparison with global university funds, in order to detect changes within the organization. Second, the data is compared to the overall data regarding the organizational field of higher

education, in order to illustrate the institutional trajectory and understand how this differs from the evolution of the higher education system. It is important here to show how individual universities progress in comparison to how the system moves. In fact, if, for example, a higher education institution has become specialized and the aggregated system data shows a trend in specialization, this shift could be explained, at the organizational level, as compliance.

Table 2: Positioning indicators

Education		Research		Human resources		Finances	
Student		Research grants		International professors		Funding mix	
-	Growth rate	-	Budget share	-	Professor share	-	Growth rate
-	System share	-	System share	-	System share	-	Ratio third means total budget
Degrees by domain		Doctoral students					
-	Institutional profile	-	Students share				
-	System share	-	System share				
Student origin		PhD granted					
-	International	-	Degrees share				
-	Non resident	-	System share				

First, the students' evolution is analyzed in comparison both with the growth rate of the university and to the evolution of the system, in order to detect how much a higher education institution is developing and how this relates to the system development. Degrees by education domain are observed contrasting them to individual higher education institution and to system. Again with the same logic: inquiring how much evolution is due to strategy or overall environmental conditions. The origin of the students is considered according to whether students are foreign or non-resident, the objective being to look at the impact, for example, on funding schemes: e.g. different fees for national and international enrollments, different subsidies from public authorities for locally resident and non-resident students.

International students are considered in order to detect trends in internationalization, which can be related to strategy.

Resources connected to research are analyzed looking at the national science foundation grants as a share of the institutions overall budget and system share (total amount of grants by national science foundation). The ratios doctoral students on university total students and the ratio doctoral degrees on total degrees university are also discussed in order to observe the evolution of research intensity.

With respect to professors, a focus on internationals is provided as an indicator of internationalization and, accordingly, of becoming more competitive globally either to comply with general trends or to acquire specific resources in order to stand out in a given market.

Finally, financial evolution is focused looking at the funding mix, which features the different financial sources for universities: state at national and regional level, third party funds, which include competitive funds, services and student fees. The goal is to show how universities have changed their financial resources over time, in comparison with the national higher education system financial evolution and, at organizational level, in order to detect changes in the main sources as well as the interrelation with other dimensions (e.g. increase in research grants impacts funding mix, student decrease influence fees and subsidies).

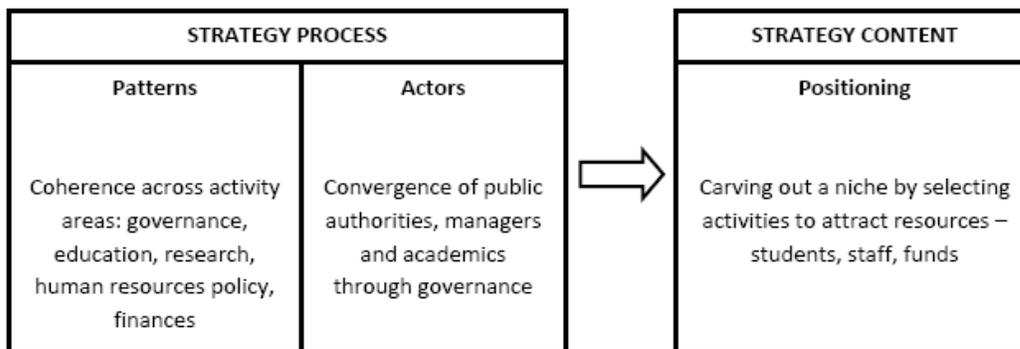
These indicators are intended to show strategic positioning. They are complemented and enriched by qualitative data, particularly from interviews (see chapter on empirical setting), which provide the necessary elements to discuss the evolution of institutional trajectory in a strategic agency perspective. The question is to what extent positioning is the result of strategy on one side, and the outcome of environmental pressures on the other side. Strategy, depending and acting upon the set of properties defined in the niche, represents a balance of the different opportunities and constraints that impact on the academic organization's position in the organizational field. Using indicators and qualitative data on one side

differentiation and compliance are analytically distinguished, on the other side change-driven by environmental variability is separated from strategic intent.

2.2 Analytical model and research questions

The analytical model presented in figure 1 outlines strategy and its dimensions as discussed in the previous sections. Strategy is conceived as process and as content: the two main dimensions of strategy process are patterns of deliberate and emergent strategies, which can be detected looking at coherence across relevant areas of activities: education and research (technology), human resources policy and finances (central functions). Actors, too, represent an important dimension of strategy as process, as they participate in constructing strategy and converge to a realized strategy in the framework of governance structures, which provide constraints and opportunities for their actions. Strategy can be studied from a content point of view, as activities are selected thereby to construct a specific portfolio. This content is related to positioning, which determines a niche wherein universities are able to survive, by attracting the resources they need, such as students, staff and funding (research grants, academic personnel, funds).

Figure 1 Analyzing university strategy



The relationship between strategy process and content can be regarded as mutual: patterns of strategies, shaped by actors, entail a content, accordingly a position in the organizational field. However, and particularly in highly institutionalized settings such as higher education, a specific position in the system affects, vice-versa, the framework within which strategy processes take place.

Research questions

In order to investigate university strategy, three research questions will be addressed according to patterns, actors and positioning.

a. What are the patterns of strategies in higher education institutions?

This question is aimed at detecting strategies as patterns of decisions and actions unfolding in universities over time. These patterns display to what extent higher education institutions are able to act coherently at organizational level, by organizing and selecting their activities, by supporting and implementing them over time. They are observed through five areas of activities (governance, education, research, human resources policy, finances): coherence and interconnections among them will be emphasized.

Coherence has to be looked at as an inherent attribute of strategy. To what extent actions can be considered coherent and when does a pattern becomes incoherent? Accordingly it is relevant to understand and observe coherence but also the implications of inconsistency. In fact if coherence is an intrinsic characteristic of strategy, it could be assumed that incoherence over time anticipates change in strategy. In the same perspective a high degree of incoherence could prompt a (sudden) shift in strategy.

Furthermore, a major aspect that will be considered is the unfolding of strategies as patterns of decisions and actions. Deliberate and emergent strategies will be emphasized in order to

understand university strategic undertaking as a dynamic intertwining of planning, adapting to new conditions, integrating new points of view and interests, as well as some degree of serendipity.

Looking at strategy over time will allow the opportunity to consider change. Patterns of actions may shift according to goals pursued or to changing environmental conditions. The question of change is subtle: different degrees of change have to be considered, as emergent strategies modify by definition the overall deliberate strategy, major changes should be analytically distinguished as they impact strategic actions so much that new patterns originate.

b. What is the role of actors in strategy making?

This question is aimed at investigating how the different actors - administrators in boards and rectorates as well as academics and public authorities in regional and national bodies and agencies - are able to influence the strategy making processes.

This issue requires the exploration of governance structures in the framework of strategy making: accordingly the position of actors will be observed in order to understand the different roles, relations, and leeway to intervene into decision making. In this perspective, it can be argued that in a participatory governance multiple interventions and horizontal participation may lead to complex bargaining among different groups, while more hierarchical structures may provide managers with larger leeway.

A second important aspect to look at consists of the opportunities of intervention these actors may be granted – or profit from - in the course of time: hence their specific position's possibilities also combine with existing conditions providing distinctive leeway under a specific constellation of events and network of relations. Thus, for instance, managers in the same governance structure positions may be able to orient a strategy thanks to distinctive events or to a special configuration where (also) other actors' positions are shifting, e.g. to converge. This dynamic aspect will be integrated in the analysis.

The role of central administrators is particularly relevant in investigating actors' configurations of strategy making: the rise of the so called managerialism has formally attributed them increasing power concerning strategic action. However, managers' positions are embedded in different roles, relations and tasks which depend upon other actors.

Meanwhile academics, organized within faculties, at different degrees according to single universities governance, contribute to strategy and take action in order to modify it whenever new conditions require change. Consequently the analysis of actors cannot be carried out without taking into consideration simultaneously all the other aspects mentioned, in that rectors, members of the boards as well as deans and academics within faculties take action and converge on a common strategy.

Finally, the relation with the state, will be looked at so that the evolution of the linkages between university and funding authorities can be described in order to highlight how policy makers impact strategy making.

c. How do higher education institutions position in their environment?

This question relates to the strategic capability of higher education institutions to position themselves in its wider context, i.e. to change. Meaning that it investigates their agency in relation of handling its environment according to the latter's components, as the linkages to the different funding authorities, its competitors and other agencies and actors, the acquisition of resources and its fit to institutional frameworks.

In this framework, this question will address the different types of relationships a university develops in its relevant sectors of activity. Strategy consists also of building and sustaining linkages in order to share resources, achieve efficiency, stand out in a market. How higher education institutions pursue (or not) linkages within the system is thus an important feature of strategy inquiry.

It is expected that a higher education institution responds to the environmental demands, opportunities and threats by displaying different degrees of agency: from reacting and

adapting, to intervening dynamically to modify, at different extents, the context in which it is embedded. In this sense, the content of a strategy is investigated as being directly functional to the management of external relations: a university defines its portfolio of activities, attempting to differentiate itself from other institutions in the system. This differentiation by focusing aims at carving out a sustainable niche where an institution can be functionally integrated in the system by offering a “unique mix” – i.e. no competitor - while simultaneously competing on selected activities in different markets (for students, for staff, for funding) with a certain number of institutions within the system.

Locating in the literature

This research on university strategy is relevant in many respects: for higher education studies, as it aims at highlighting a dimension of university that on one side has been controversial, on the other side little researched (Musselin, 2007; Leslie, 1996). In so doing, it contributes to organization studies as it tries to shed further light on university functioning as an organization (Whitley, 2008; Krücken and Meier 2006; Brunsson and Sahlin-Andersson, 2000).

It aims to bring insights on how strategic organizational action is built through the convergence of multiple actors (Mintzberg and Waters, 1985) illustrating the configuration in which these are embedded (Musselin, 2001: 159) and attempting to illustrate university evolutionary paths within their organizational fields (Gavetti and Rivkin, 2007).

Moreover, it attempts to look at positioning issues in non-profit organizations in highly institutionalized settings, thus widening the perspective based exclusively on industries in markets (Popielarz and Neal, 2007). Finally, this research attempts to explain how collective action is built and its consequences in organizational fields (Scott et al., 2000: 13ff; Lewin and Volberda, 1999).

Structure of the work

The third chapter of this research will outline the empirical setting: the choice of five higher education institutions in Switzerland is discussed, as well as the rationale for selecting a multiple embedded case study and a lapse of time of twelve years. Along this line, on one side issues of validity and reliability are addressed in relation with triangulation of different data sources, description of chain of evidence, case selection and anonymity. On the other side, the analysis conducted on strategy patterns, actors and positioning is detailed and illustrated with concrete examples. The context of the research is finally presented, portraying the Swiss higher education system according to the conceptualization of organizational field: its evolution and the changes occurred are highlighted so that implications of important environmental issues for university strategy are pointed out.

Chapter four to eight analyze the strategies in each one of the higher education institutions selected, describing first the deliberate strategies, then scrutinizing how strategies have been established over the years according to university specific characteristics and activities. These illustrations of the five cases present organizational decisions and actions according to the five areas of activities, actors involvement in strategy process as well as the university evolutionary paths over time focusing on positioning.

A comparative analysis of patterns, actors and positioning is presented in chapter nine: moving away from the single cases, models of strategy process and content are discussed in order to emphasize case study replication (Eisenhardt, 1989; Eisenhardt and Graebner, 2007) by detailing patterns of strategies, developing on issues of coherence, change, governance models, strategic agency as well as niche dimensions.

Finally, the conclusions address the research questions and present the different contributions of this research theoretically, methodologically and practically, so that avenues for future research can be proposed.

3 Empirical setting

In order to investigate strategy the following empirical setting has been constructed: first, a case study methodology has been selected, as the most appropriate device in order to understand issues on “how” strategy process and content are framed (Yin, 2009: 3). This choice has implications on data collection and data analysis that will be illustrated hereafter (see also Gibbert et al., 2008).

Second, case selection has been carried out with a purposive sample, in order to provide variety to reflect diversity on categorical values, such as different types of higher education institutions, diverse size and age, etc. Hence, the sample is to be considered representative of the diversity present in the context selected, though not specifically reflecting distribution in a statistical perspective (Gerring, 2007: 86).

This sampling and the relevant analysis allows to discuss explanatory variables concerning university strategy. The integration of a perspective at a higher level of analysis – the Swiss organizational field and its population of universities – as discussed in the second chapter, should help overcome too many idiosyncratic cases that, although interesting for their insights are not replicable in further research (Gerring, 2007: 147).

3.1 The case: strategy in five Swiss higher education institutions

To analyze strategies in higher education institutions ,the Swiss case has been selected over a period of twelve years, between 1996 and 2008. Switzerland presents specific features at the system level: on one side it is a federal state with a double layer governance where federal and cantonal governments are in charge of universities. Moreover, as it will be depicted in the following section, the Swiss higher education underwent several reforms and changes during the period considered, in particular through the establishment of a binary system comprising universities and universities of applied sciences. More specifically, this time span corresponds to three legislature terms of office, starting in 1996, 2000, 2004 and

2008 with a federal 4-year regulatory framework on higher education and research funding (i.e. the Message relating to the enhancement of education, research and technology). This reflects some general trends at European levels (Kyvik, 2004). Against this backdrop, the selection of five cases – three universities, one federal institute of technology and one university of applied sciences - has provided a high degree of variety.

Case selection

For the purpose of describing the rationale of selection, some key features will be introduced. A primary aim of this research is to understand the variety of strategy in universities, accordingly the sample has been selected in order to provide the highest possible contrast between university strategies. In so doing, five universities have been selected to reflect three different types of higher education institutions: three universities, University of Lugano (USI), University of Neuchâtel (UNINE) and University of Basle (UNIBAS); one technical university, the federal institute of technology in Lausanne (EPFL) and a University of applied sciences of Southern Switzerland (SUPSI). Besides typology, these universities provide diversity concerning their organizational features: age, size, history, subject and funding mix as well as geographical locations.

Table 3: Selecting five case studies: features

	USI	UNINE	UNIBAS	EPFL	SUPSI
Type of HEI	University	University	University	Technological university	University of applied sciences
Birth	1996	1909	1460	1969	1997
History	Built brand new	Former academy	Medieval university	Previously attached to university	assembling schools and institutes
Size	small	Medium	Large	medium	Small
Subject mix	specialized	Generalist	Generalist	technological	specialized
Funding authorities	Regional	Regional	Regional	Federal	Regional and federal
Geographical location	Southern Switzerland (Italian)	Western Switzerland (French)	Northern Switzerland (German)	Western Switzerland (French)	Southern Switzerland (Italian)

The cases reflect variety on age: USI and SUPSI are very recent, as they were created in the mid nineties, the first from scratch and the second through the assembling of existing professional schools. UNINE was first established as an academy in 1838 and then became a university at the beginning of the 20th century. EPFL was a school of engineering created in the mid 19th century, which joined the university of Lausanne by the end of the century and was eventually transformed into a federal institute of technology in 1969. Basle is the only university in Switzerland to be born, by a papal bull in 1460, before the 19th century.

Table 4: Cases: institutional profiles (2008)

Name	mission	Faculties/ departments	Expenditures	Research expenditures	Students enrolled	Staff FTU	PhD Students
USI	Teaching, research (mainly basic) Some services	Communication sciences, Economics, Architecture Informatics	73.5	22.6	2'483	444	187
UNINE	Teaching and basic research	Social sciences and Humanities, Economics Law, Natural and technical sciences	168.1	94.7	3'761	817	568
UNIBAS	Teaching and basic research	Theology, Law, Medicine, Humanities, Sciences, Business and Economics, Psychology	352.3	167.4	11'819	2'473	2'162
EPFL	Teaching and research in technology	Architecture, Engineering, Sciences, computer and communication on basic sciences, Life Sciences	476.0	289.2	6'903	3'836	1'618
SUPSI	Professional and continuous education, applied research, services	Technical disciplines, Healthcare, Social work and economics, Innovation technologies, Teacher Education, Music Theater, Distance Education	62.9*	12*	2'352	501	--

Data source: Swiss Federal Statistical Office (FSO)

*data 2007

Their missions refer to education and research (anchored in the federal university act), UNINE and UNIBAS are generalist, USI is specialized, EPFL focuses on technologies, certifying engineers and architects and conducting a large number of research activities with industry, while SUPSI delivers professional education and carries out applied research and technology transfer.

As of 2008 (last year of the period considered), the number of students, too, put these HEIs in different categories (Huisman et al., 2007): USI and SUPSI are small HEIs with less than 3000 students; Neuchâtel is slightly under 4000 students, EPFL with almost 7000 students can be considered medium universities, while Basle is among the biggest Swiss HEIs with almost 12'000 students.

Staff is also distributed in a diversified way, on one hand it is proportional to budget and students, on the other hand it reflects the prevalence of hard or soft disciplines: accordingly, EPFL has the highest number of employees. Expenditures vary greatly: while the EPFL attains half a billion Swiss francs, Basle, more than 300 millions. Neuchâtel expenditures are SFR 150 millions, followed by USI and SUPSI below SFR 100 millions, the first with about 70 millions, the second with 62 millions.

Finally, indicators of research indicate different degrees of intensiveness: while at UNINE, UNIBAS and EPFL research expenditures are about or over 50% of total expenditures, at USI and SUPSI these are considerably lower (less than 30% in the first, 20% in the second). The number of PhD students also differs: at EPFL and UNIBAS more than 20% of total students are working on a doctorate, while at UNINE they represent 15% and at USI less than 10%. SUPSI, as a university of applied sciences, doesn't grant doctoral degrees.

Apart from their distinctive characteristics, these five higher education institutions share a common feature: in the period considered, between 1996 and 2008, they were all looking for a new position within the higher education system. In this sense, these universities were in an unstable situation, be it financially, politically or from a legitimacy point of view.

Finally, even if there is not any intention to build a statistical sample, it is also noticeable that five cases selected out of nineteen higher education institutions represent more than one fourth of the overall population in Switzerland.

The University of Lugano (USI) portrays a small, specialized university created in 1996 and growing rapidly in terms of the number of students and research activities. The main challenge has been to define its position in a normative environment where to be considered as a university an institution needs to develop strong research activities and at least some areas of international excellence (especially in hard sciences).

The second case, the University of Neuchâtel (UNINE) concerns a small century old generalist university exposed to severe pressure from the environment in order to reduce costs and attract resources. Both the size of the university, the smallest generalist university in Switzerland, and the size of the host canton, equipped with limited resources, entailed a difficult (re-)positioning in the Swiss landscape.

The smallest among the big generalist universities, the University of Basle (UNIBAS), despite smaller endowments compared to other similar universities (ex. Berne and Zurich) needed to focus and develop its various education and research activities spanning from humanities to medicine as well as distinctive fields in emergent sectors like life sciences.

Traditionally a technical school centered mainly on engineering, the Federal Institute of Technology Lausanne (EPFL) has concentrated on education and industry relations. The reorganization of the technological fields at Swiss level as well as the creation of the universities of applied sciences represented problems and opportunities driving its reorientation by increasingly integrating natural sciences and life sciences.

A university of applied sciences is the last case study, the university of applied sciences of Southern Switzerland (SUPSI) was built by clustering existing upper secondary and tertiary schools, as well as private and public research institutes. In this framework, SUPSI faced

three major challenges: legitimizing itself as a new player, successfully expanding its subject areas and developing research activities.

3.2 Ensuring validity: data collection and analysis

As stated in the first chapter, for the purposes of this study, strategy is defined as a pattern of decisions and actions aimed at realizing objectives that are relevant for the organization and which compose a coherent sequence developing in time and across relevant areas of activity. To be identified as a strategy, such patterns must be recognized and shared by organizational members as a collective pursuit of organizational goals. Actors' rationalization of a pattern as an organizational strategy can occur before decisions and actions take place (as in strategy formulation, for example in the strategic plan), meanwhile or afterwards, as actors rationalize organizational events in a strategic perspective.

Even if a definition of strategy has been selected within a coherent analytical framework, the question of how to operationalize the research questions is challenging, as many strategy scholars have pointed out. First, the issue of intentions and actions in the framework of the debate on strategy has been raised by several authors. In fact considering strategy as a pattern entails the danger of identifying strategies where there is none, but a sequence of coherent decisions and actions, due to antecedents unrelated to organizational goals (Gimeno, 2002). Second, there is a certain ambiguity of searching strategies through patterns of decisions and actions: while direct observation may be based on researcher's incorrect assumptions, interviews only reveal perceptions of management and other actors (MacCrimmon, 1993). These observations may inhere further prejudice by selective and self-serving memory, as well as possibly erroneous attribution to causal relationships by the interviewees themselves.

Indeed, the triangulation of data has to be conducted carefully and the empirical setting has to provide clear cut analytical categories. Hence a double methodology with narrative (case

studies) and classificatory (typology identification) objectives has been adopted (following, among others, Ginsberg, 1984). In conclusion, retrospective sense making provides an additional lens through which strategy can be studied.

These issues have different implications for the empirical setting. First, a case study method is selected in order to understand thoroughly how strategy is built in higher education institutions. For these reasons, the sample has been constructed in order to reflect the highest variety and allow for relevant findings and observations. Second, different data sources have been combined to allow triangulation on one side, detailed reconstruction of evidence on the other side.

Data sources

Documents

Data collection was based on two different sources. Firstly, a comprehensive documentary analysis was performed on legal and policy-making documents - university acts at cantonal and federal level, national strategic plans, rectors' conference policy documents – as well as parliamentary sessions records in order to understand the political debate, identify relevant issues and events that may not have been explicit in other documents. Concerning internal university documents, strategic plans and reports were gathered and analyzed to reconstruct strategic decisions, while annual reports served as a background in order to crosscheck relevant findings, to draw relevant data concerning members of university bodies, evolution of organizational units, educational programs. By the same standards, press communiqués and any relevant information on university websites were looked at.

The examination of these different documents allows to detect on one side patterns of decisions and actions and external events for the period selected, on the other side to confront formal internal governance and strategy making processes, so that issues relating to tensions and conflicts could be detected, e.g. when the parliament re-discussed a contract of

performance, the annual budget or when decisions taken in a first stage are not carried out over time. This method supported the preparation for the interviews as it allowed to identify (additional) key actors – for instance who may have not appeared in organigrams – further issues to be clarified, e.g. compromises found informally by specific (groups of) actors. A complete list of these documents is included in the references.

Even though a high number of documents have been taken into consideration, there are some limitations to consider: first, annual reports are not always homogeneous from one year to the other and some data could not be compared over the different years. Particularly in the case of curricula and faculty structures, the reconstruction has been sometimes constrained by partial indications in documents, which have been partially or entirely cross checked in the interviews. Relevant details are provided in chapters four to eight for each table.

In conclusion, document gathering, though time consuming for research on the internet, institutional websites, or by request at rectorates, appears to be rather complete, as such documents, even in case of confidentiality, were accessible.

Quantitative data

Data on students, research grants, staff, finances were provided by the federal statistical office (FSO). From these, indicators on institutional profile and position within the Swiss higher education system were constructed, as indicated in the relevant tables. For instance, research grants were showed as a share of university budget and as a share of total research grants available for all higher education institutions. In so doing, besides the evolution in absolute numbers of research grants, it is possible to show the growing (or diminishing) importance of them in relation with total budget, as an indicator of research intensiveness and of capability of attraction of third means. Moreover, in relation with overall research

grants distributed in that specific year and over the years, it is possible to show university position within the system.

It is also important to show data relative to the system, in order to understand if a detected trajectory is independent from the general trend at population level. For instance, the number of students augmented significantly in Switzerland in the period considered, accordingly it is useful to check if student evolution in a university is above or beneath system average (and how this can be explained by strategic moves or environmental conditions).

Data regarding degrees per educational domain were built in the framework of EUMIDA a project aiming at building a database of European higher education institutions. Data on Switzerland address the period 2000-2008, whereby 2008 data have been validated by the FSO.

Finally, data provided on organizational structures (number of faculties, institutes) and on curricula (four year diploma, then bachelor, master) were constructed according to institutional reports, documents and – when possible – through interviews. The specific data sources used for each table are indicated.

Interviews

The interviews were semi-structured and helped investigating the main topics discussed above: strategic patterns, strategy making focusing on actors, institutional portfolio and positioning within the higher education system. They were instrumental first to complete the information gathered through documents and quantitative data, second to investigate intentionality and emergence of strategic actions, third to raise new issues, and look at retrospective reconstruction of strategies, of their position in relation with strategy making.

According to the analytical framework, three groups of actors relevant for strategy were addressed: public authorities at national and regional level, central administrators (board members and management) as well as academics. The respondents were contacted personally by email, meaning that no institutional agreement with university management was in place. The rate of positive response is quite high: of 92 interviews requested, 11 couldn't be organized for the following reasons: negative answer (2), no answer (5), impossible to organize in reasonable time (4).

Among the persons met there were 29 academic administrators - members of university boards and rectorates -, 39 academics - mainly full professors in different faculties - and 28 policy makers¹ - top civil servants in charge of higher education for each canton concerned (Ticino, Neuchâtel, Basle) and at federal level (ministries of home affairs in charge of higher education and of economics, in charge of professional education), at both cantonal and federal level (Swiss University Council) as well as representatives of academic associations (Rectors conference of the Swiss universities and Rectors conference of the Swiss universities of applied sciences), trade unions (VPOD-SSP representing public service employees) and industry associations (Economiesuisse and Swissmem, the Swiss Mechanical and Electrical Engineering Industries) as well as heads of intermediary agencies (Swiss national science foundation and Innovation promotion agency).

Of 81 interviews, 64 were conducted face-to-face, mostly in interviewees' offices, 16 over the phone, while 1 interviewee chose to respond in writing. The average duration was 90 minutes, six interviews lasted between 30 and 45 minutes, while five took 150 minutes.

Interviews were conducted in Italian, French, German and English. Respondents were invited to speak in their preferred language. In 70 interviews respondents selected their mother tongue or their professional language (i.e. the official language of their university),

¹ 15 policy makers were interviewed in the framework of the European project *Changes in governance and funding of higher education in Europe*. These interviews were re-analyzed specifically for the present research.

in 9 interviewees had a preference for English (instead of German and French), two interviewees chose French (instead of German).

Interview questionnaire

The questionnaire was constructed around strategy and its dimensions, as depicted in the analytical model presented in chapter 2. Thus, every interview addressed the issues of strategy, according to patterns, actors and positioning. At the beginning personal information was asked in order to understand how the respondent got to the position for which she was interviewed. Even though the curriculum vitae were studied prior to the interview, the introductory questions helped understand personal choices and circumstances providing an insight on personal progress towards strategically relevant positions. In particular it was important to know for which competencies and coincidences a person was appointed to a specific position.

The first question on strategy related to strategic planning: how it is conducted, the respondent's involvement, as well as other relevant groups'. This query aimed at deepening and completing information collected through documents (usually related to legal framework and to strategic documents) and to provide insight on specific situations and on how things were "concretely" arranged between the different actors, beyond formal structures and procedures. Depending on the type of interviewee, the perspective focused on intraorganizational, organizational or systemic levels, hence dynamics among academics, between academics and central administrators, between managers and boards, and finally between central governors and public authorities were addressed

This introduced the topic of patterns, accordingly of deliberate and emergent strategies: instead of asking direct questions on what the strategy is about, with the risk of getting replies reflecting the content of official documents, it was asked to list three major successful strategies and three major unsuccessful ones. In so doing, the discussion could

rapidly enter into the substance of strategy as a series of intentions which could be modified over time by emergent strategies. In-depth knowledge of documents and quantitative data, as well as previous analysis, were important in order to steer interviews and have new relevant insights emerged. As of key areas of activities illustrated in the analytical framework: it was practically unnecessary to make them explicit, as they were addressed, with different accents and focus, by all respondents. Punctual questions were posed on deliberate and emergent strategies, according to the specific pattern discussed in a specific interview.

In order to highlight the role of actors in strategy processes, besides asking about planning and personal involvement, questions were posed about modalities of intervention in order to modify, contrast, propose strategic actions from the point of view of the respondent (e.g. an academic asking for support for a new research area, or, more generally, about decisions relevant for the organization like appointments, new procedures and regulations). In general respondents naturally addressed issues of governance, providing their vision on internal (relation management-academics) and external governance (relation university-state).

Regarding positioning, specific questions were asked in order to draw information both from strategists, who had clearer ideas based on their analysis, and from academics, who contributed to this topic with enlightening personal perspectives. In this respect queries were recurrent: first, who are your competitors at national and international level, and why; in which sectors there is competition (education, research, human resources, finances); with whom your university cooperates in education and research activities, for what reasons and with what results. In order to control for these responses, three additional questions were introduced at the end of the interview: where you see your university in 10 years, what university you consider the best one, in which university you would like to work if you could choose. These queries were useful in order to understand better norms and values underpinning previous responses and to check whether already provided elements were to be integrated with other opinions.

In sum, the risk entailed in interviews with experts, who are highly qualified and knowledgeable in discussing and communicating about their work, was overcome by an in-depth preparation and analysis of data already at hand. However, it has to be noticed, too, that such interviews allowed to address complex questions and move to more abstract levels of discussion, such as reflection on the nature of university, of strategy, or discuss accurate assessment of the organizational field, etc. This was certainly an opportunity for acquiring extremely rich information, highly interesting insights and to have remarkable discussions on university strategy.

Table 5: Interviewees

	USI	Neuchâtel	Basel	EPFL	SUPSI	System	Total
Total interviews	15	14	12	12	13	15	81
Academics	<i>10</i>	8	8	7	7		37
Central administrators	4	6	5	5	6		29
- Rectorate	2	4	3	3	3		
- Board	2	2	2	2	3		
Policy makers	3	4	1		2	5	15
- Coordinating bodies						1	1
- University associations						4	4
- Intermediary agencies						2	2
- Industry associations						2	2
- Trade unions						1	1

The number of interviewees doesn't correspond exactly to the single respondents, as many of them, between 1996 and 2008, have been involved in different positions, spanning sometimes over the three typologies mentioned and sometimes over the more than one university analyzed. Accordingly, academics might have been rectors, academic administrators might have been politicians or policy makers.

Of 39 academics interviewed, 15 had been deans, as the sample also aimed at collecting information from academics in charge of coordinating or managing their own faculty, at the interface between understructure and central administration. Another important criteria for selecting academics was their seniority and their critical attitude to the institutional strategy of their university, in order to observe how different opinions were considered in strategy processes. These professors could be identified both through the documentary analysis (e.g. repeated critical interventions reported in academic senate minutes) and by snowball sampling, i.e. their names were provided by other respondents.

Table 6 Respondents according to discipline

Social sciences humanities	Economics	Law	Exact / natural sciences	Medicine	Technical sciences
12	6	3	15	2	9

This table presents the respondents' disciplines according to the Swiss catalogue of discipline (<http://webaccess.unifr.ch/Docu/AAI/faecher200409.pdf>), central administrators with an academic track (i.e. who held academic positions) were also included. As the table shows, disciplines are all represented according both to the five cases and to the system.

Interviewing these different types of actors on strategy as a combination of deliberate and emergent patterns entailed a sensitive aspect. As respondents were selected also according to their being against strategy, some of them first replied negatively, sometimes asked for explanations on the reasons why their names were picked up. The interpretation given was that, according to individuals and particularly for academics, people were somehow afraid of speaking negatively about their university. To address this issue, on one side the researcher provided additional information on the type of research, on the general topic to be addressed (strategy, patterns, actors, positioning). On the other side, anonymity was assured in the following terms: nobody besides the researcher would know the respondent's identity, data treatment was handled by the researcher, for the sole purposes of this study, any citation, even if anonymized, would require the respondent's authorization. Accordingly, all persons requested accepted to do the interview. Hence, the five cases illustrated hereafter are public, but the data coming from the interviews are presented in a way that it would be difficult, even for someone knowledgeable of the Swiss higher education context, to understand who said what: there is no respondent's specification for all citations according to type of actors and institutional affiliation. This represents a good compromise between confidentiality and need to provide further insights on the analysis.

Constructing five case studies: a process with different overlapping steps

The five cases were selected in an early stage according to criteria of a purposive sample (see previous section), in particular following two preliminary documentary analyses (Fumasoli, 2008a; Fumasoli, 2008b). The stages of data gathering and analysis were not temporarily distinct, as analysis started, case by case, immediately after data collection. Hence, a pilot study was conducted at USI in January-February 2009, whereby documents were collected and analyzed, then followed by interviews. The fact that the researcher works for this institution helped from the point of view of organization, logistics and prior knowledge of the university. A case study was finalized and presented at the "Sixth

Euredocs conference” at the Centre de Sociologie des Organisations in Paris, May 2009 (Fumasoli 2009a). Meanwhile documents were analyzed and interviews were conducted at the university of applied sciences (SUPSI), as well as documents analysis concerning the university of Neuchâtel (UNINE). A paper with preliminary findings on these three cases was presented at the “Prime PhD and Early Career Researcher Conference 2009” organized in the framework of the PRIME network of excellence project at the Manchester Institute of Innovation Research, Manchester Business School in Manchester, June-July 2009 (Fumasoli 2009b) . As data gathering and analysis was completed, a more advanced paper was discussed at the 22nd CHER conference in Porto, September 2009 (Fumasoli and Lepori, 2009). Subsequently to these presentations, a paper was submitted to Higher Education in October 2009. It was accepted in March 2010, after some revisions were introduced regarding the analytical framework (emphasis on positioning aspects, Fumasoli and Lepori, 2011).

Meanwhile documents were analyzed and interviews were carried out at EPFL and UNIBAS until the end of 2009. By spring 2010 transcripts were completed and interview analysis performed before summer, as well as documentary analysis and collection of relevant quantitative data. A paper on strategic agency and positioning was presented at the 7th Euredocs conference at the Observatoire Science Politique et Société, University of Lausanne (Fumasoli, 2010a) and a second paper on changing governance structures was presented at the 23rd CHER conference in Oslo in June 2010 (Fumasoli, 2010b).

In conclusion, the five cases were organically developed and exposed to peer review in conferences and in one journal, so that the construction of this research is the result of a constant iterative work between theory, data collection, analysis and writing. While the order of cases has been followed for convenience reasons, the final arrangement here presented aims at presenting first the cantonal universities, then the federal institute of technology, finally the university of applied sciences.

The sample of interviewees as well as the specific context of the Swiss higher education system allowed for further triangulation: in fact, the respondents, besides their own university, have in-depth knowledge of the Swiss higher education system. It happened often that, within an interview on a specific university, relevant insights were provided on other universities within the sample. This should further ensure for control at higher level of analysis, i.e. population and organizational field, as opinions and facts match each other (see (Gavetti and Rivkin, 2007)).

Data analysis

Documents

Strategic documents, annual reports, evaluations were used immediately at the beginning of the research as background information in order to understand the evolutionary path of higher education institutions. The first products of this analysis were chronological listings of organizational decisions and actions of each higher education institution considered. These were subsequently scrutinized according to five types of activities, i.e. governance, education, research, human resources policy and finances. Handwritten analyses are available in the database and protocols produced for every case.

Actors and locus of strategy were then detected in order to unravel strategy processes within formal governance structures. Parallel to information gathering, discontinuities were also searched. For instance, when a strategic objective, an organigram, the name of a person in charge of specific tasks changed from one document to the other, e.g. from one year to the other, without explications. These “silences” were inquired further in interviews in order to verify if a specific issue was latent, like the closure of an institute or the departure of a person, as well as a sudden change in strategy that is not reported as such.

Policy making documents were extremely important to define the framework in which strategies were formulated, as they also shape the leeway for academic administrators.

However, they were constantly triangulated with political discussions in parliaments and with institutional documents, particularly in a temporarily perspective: in Switzerland there is a complex system of negotiations of different actors to produce legal documents, so that, practically from the beginning, all stakeholders are involved, for example, in drafting a law. For these reasons it was relevant to check how strategies developed over time in these documents and understand the configuration of actors contributing to strategy formulation.

This elaboration of data was conducted in order to carry out the interviews with as much possible information at hand to be able to discuss substantially with the respondents. After the interviews, documents were studied again in order to complete additional information, and to substantiate new issues raised at interviews.

Interviews

Interviews were entirely transcribed, for those where the respondent didn't allow recording, a detailed report was immediately drafted based on large amounts of notes taken during the discussion. This eventually produced 1090 pages of text for analysis (see following sections). Of 81 interviews, 50 were transcribed by the researcher, 4 were summarized according to personal notes, 26 by two assistants with previous experience of interview methods, as well as outstanding linguistic competences, one respondent provided written answers. Interviews were completely anonymized and an agreement of confidentiality was signed between the researchers and the assistants.

Depending on the type of (recorded) interviews, notes were taken. However this had to be abandoned in some cases as discussions were lively and, at different degrees, the interviewer, too, was actively engaged in exploring diverse issues. Interviews were read immediately after transcription, first to check points that were not clear, conducive to re-listening to recording; second to comprehend as many issues and details as possible in order to prepare for the following interviews.

Analysis was framed around the analytical model presented in chapter two. The five areas of strategic activity – governance, education, research, human resources policy and finances were coded at a first macro level.

Hereby examples from the interviews are provided to show how excerpts from transcriptions were coded according to the five areas of activity

Governance

This is very situational, it is difficult to say what has to be centralized and what not: it's a problem of critical mass, of leadership, the stronger the administrative leadership, the more it can centralize and maintain a light administration. If leadership is weak, it is almost better than everybody has his own tasks.

Education

Concerning the Bologna reform: we had to confront the monster immediately, we had to jump on the bandwagon. In the Swiss landscape it was a novelty, we anticipated that novelty.

Research

Becoming an institute hasn't changed things, it is a legitimization for us. Research needs irreducible time. To do good research you need time, especially qualitative research. You need reflection, in-depth analysis. Eagerness for results and publication is counterproductive. You cannot collect some data, put them in a table, though it may even work, every twentieth time...

Human resources policy

When a position is open, to appoint someone is crucial, you cannot follow any other logic [than the academic one]. A position is open, you see who is available among professors, you can't select a post-doc, because she hasn't enough academic recognition. Open-rank calls can be done from now on. Before it was a consolidating period, only highly reputed professors were appointed.

Finances

Financial power is anyway in the hands of politics, not of this university. This has the only task to spend in the smartest way the money its canton provides, it is its single task.

Afterwards these codified texts were analyzed according to deliberate and emergent strategies. This entails basically that, crosschecking with documents and quantitative data of the federal statistical office, the intertwining of intentions and external constraints is investigated and, accordingly reconstructed.

Positioning issues were tracked according to two themes: first, the niche in terms of resources and in terms of relations with other higher education institutions (competition and coordination) as well as with public authorities (which provide regulatory framework and funding). In this case, quantitative data from the federal statistical office as well as from documents were used. Second, strategic agency, meaning to what extent the higher education institution was able to position itself according to strategy, to what extent its positioning was the result of external conditions. For this second topic, interviews were a primary source of data, as they allowed to understand university trajectories and the dynamics which were underpinned between agency and environmental determinism.

Hereafter two examples are provided in order to show how text containing the different issues were coded. In the first excerpt a respondent starts to describe how her university took action in order to modify its position in the system through cooperation, in the second financial constraints connected to public authorities is described.

Strategic agency

In order to maintain our profile we tried to establish partnerships with other neighboring universities. We supported what was already in place, then we built new alliances...

Environmental determination

Our critical element, needless to say, is our dependence from public funding. Our growth is strong and public funding cannot follow linearly. Competition with other higher education institutions is getting stronger and stronger. At the beginning we were lucky, we could integrate existing research institutes and we had a competitive advantage, but it is less and less so.

In conclusion, the methodology used was built in order to tackle the issues in empirical research challenged by the present definition of strategy. This has resulted on one hand in an in-depth analysis of university decisions and actions over twelve years, triangulating different sources of evidence. On the other hand, clear cut analytical categories have been used in order to reproduce university strategies over time, as well as in order to compare them across the five cases.

3.3 The context: the Swiss higher education system

As argued previously, strategy provides a link between the organization and its environment, since it locates university in a specific position characterized by multiple dimensions and types of relations. Accordingly, this section introduces the Swiss higher education system.

Actors

Swiss higher education institutions are composed by two Federal Institutes of Technology (FIT), by ten Cantonal universities and seven universities of applied sciences (UAS). All these institutions deliver three years bachelor and two-year master degrees, while doctorates are not granted by UAS, which are oriented towards professional education and applied research. The system is rather decentralized and small scale: the largest university only slightly exceeds 20'000 students, while many universities are below 10'000 and thus would qualify as medium sized institutions in international comparison (Huisman et al. 2007). As

of cantonal universities, seven are broadly generalist covering most scientific domains (University of Basel, Berne, Fribourg, Geneva, Lausanne, Neuchâtel, Zurich) while three of them are specialized in a few fields (University of Lugano, Lucerne and St. Gallen). The federal institutes of technology (ETHZ and EPFL) cover only technology and natural sciences, while universities of applied sciences are nowadays embracing most domains of professional education.

As a federal state, Switzerland organizes its higher education system at two main levels, federal and cantonal: the first is in charge for national policy through the State secretariat of education and research. Its main competence relates to system coordination, together with cantons, to the maintenance of the federal institute of technology domain and to subsidizing cantonal universities and universities of applied sciences. Cantons are responsible for their universities, i.e. ten schools in ten different cantons, as well as of seven public universities of applied sciences, managed together with the confederation (Lepori, 2007).

There are two intermediary agencies: the Swiss national foundation (SNF) and the Innovation promotion agency (KTI), the first is responsible for distributing grants for mainly basic research, the second evaluates applied research projects where industry constitutes a key partner of higher education institutions. While universities usually apply at the SNF, the federal institutes of technology submit their proposals to both SNF and KTI, and universities of applied sciences, besides contracts with industry, receive research grants almost entirely from KTI (Lepori, 2006: 172).

Linkages and resources

According to the type of higher education institution, the relations with funding authorities can be different. Cantonal universities are primarily funded by their host canton, they receive subsidies from the confederation on a formula characterized by 70% on education activities, i.e. the number of students, and 30% on research activities, i.e. the amount of

research grants (Bund, 1999). An intercantonal agreement regulates overall cantonal subsidies according to the number of students enrolled in one cantonal university but resident in another canton (Bund/Universitätskantone, 2000).

The federal institutes of technology are funded directly by the confederation and traditionally profit from a large endowment in comparison with cantonal universities (Confederazione, 1991). Universities of applied sciences are funded both by the confederation and the host cantons (Bund, 1995): in the first case the number of bachelor students represents an essential criterion for determining subsidies, while in the second case the responsible canton(s) negotiate with the institution a block grant, as in the case of universities.

The previous illustration of the relations between higher education institutions and their funding authorities shows that funding sources are differentiated: first, cantons are important actors for universities and universities of applied sciences but are not able to provide such large amounts as the confederation does in favor of the federal institutes of technology (Lepori and Fumasoli, 2010).

This has an impact on relations of competition and cooperation, as the federal institutes of technology are favored by larger endowments and profit from a better position within the system. Second, some elements of competition are manifest for both universities and universities of applied sciences: the number of students is crucial for federal subsidies, as well as the number of Swiss non-resident students for intercantonal subsidies. To a lesser extent, also research grants count for subsidies: thus universities compete for SNF grants among them as well as with the FITs; finally the universities of applied sciences compete among them and with the FITs for KTI grants (Lepori, 2007) .

Traditionally Swiss universities have hardly developed cooperation, acting on an individual basis. However, in the last fifteen years different policies have been put in place in order to introduce both competition and cooperation (Baschung et al., 2009). This point will be discussed in the following section on changes between 1996 and 2008.

Institutional framework

Historically most higher education institutions have been strongly limited in their strategic autonomy of most higher education institutions: their broad positioning was basically defined by law and by the responsible authority, with the cantons holding a strong control on their universities (Lepori and Fumasoli, 2010). Hence the Swiss system has been characterized as a mix of bureaucratic control from the State concerning finances and administration and a wide autonomy of the academic understructure for research and education; both entailed a weak position of central organizational bodies and a lack of strategic capability of the organizations themselves.

Major changes 1996-2008

The perimeter of higher education has been subject to profound changes in the last two decades, with the creation of new universities, but also the progressive integration of organizations and educational forms which had constituted in the past the realm of professional education, i.e. universities of applied sciences. Hence, between 1996 and 2000, the number of HEIs augmented from 10 to 19, while the enrolment ratio (ISCED 5a) doubled from 16% (1995) to 32% (2005), to 169'000 students (data Federal Statistical Office, see also Lepori and Fumasoli, 2010).

The creation of universities of applied sciences had also an impact on the space of the field: first, these new higher education institutions compete on relations with funding authorities, as they are established both at federal and cantonal level. Second, they may compete with universities for students and funds. Overall, they may occupy – at least in some dimensions – similar positions to universities, for instance with respect to industry relations, or to disciplines with a professional orientation (Lepori, 2010).

The confederation, with the new secretary of state for research and education initiated, at the end of the Nineties, a reorganization of the higher education landscape by means of a new federal act, approved in 1999 and implemented in 2001 (Bund, 1999). This introduced some elements of competition, as federal funding has been since then determined by the number of students and research activities. Moreover, the Swiss university conference, a coordination body comprising federal and cantonal authorities, was granted enforcing power (inclusive sanctions), for example, concerning the introduction of the Bologna model.

A national agency for accreditation and quality was established in 2001. In parallel, universities, which used to be scattered and act rather independently from each other, were the object of reorganization of scientific fields, e.g. expensive sectors like veterinary and pharmacy were grouped in order to create critical mass and become more efficient. Technologies – i.e. engineering and architecture – were concentrated in the federal institutes of technology (for the rationale of these policy see Kleiber, 1999). Since the mid 2000s, a new federal act has been under discussion: it aims at covering both universities and UAS, at redistributing competences among cantonal and federal policy making authorities, as well as at introducing additional measures to enhance competition. However, its implementation, initially due for 2007, has been postponed to 2012.

At the cantonal level regulatory frameworks were also modified: since the end of the Eighties all university acts have been reformed. To different degrees, they all granted increasing institutional autonomy to universities, featuring the relation with funding authorities by means of a contract of performance, the role of rectorates was strengthened in order to coordinate better university activities, to establish an organizational strategy and to manage global budget (Fumasoli, 2008).

Table 7: Swiss higher education system major events

1997	UAS established
1999	Switzerland signed Bologna declaration Intercantonal agreement on UAS funding
2001	Federal University Act Accreditation and Quality agency created Competitive funding on national competence centers (NCCR)
2005	UAS act revised
2006	Constitutional articles on coordinating role of confederation in education
2007	Due date for new federal university act (then reported to 2012)

To summarize, the Swiss higher education system has different important characteristics: first, the system is densely interconnected, with respect to the different public authorities and relative funding streams. Second, the horizontal relations show compartmentalization, since, historically, universities have acted individually. However, a series of policies have been implemented between 1996 and 2008 in order to enhance some degree of competition and cooperation. Third, the fragmentation of the Swiss institutional space and the relative high degree of convergence of different actors, has provided space for differentiated types of positioning, where higher education institutions are able to negotiate their own niche in which to coordinate and compete.

The next chapters outline the strategies of University of Lugano (USI), University of Neuchâtel (UNINE), University of Basle (UNIBAS), Federal institute of technology Lausanne (EPFL) and University of Applied Sciences and Arts of Southern Switzerland (SUPSI) between 1996 and 2008. They provides a description for each case applying the analytical framework and the operationalization presented in chapters two and three.

For each of the five cases, the main features of the higher education institution are introduced, followed by an outline of strategies formalized in documents and plans. The unfolding of strategic decisions and actions is analyzed according to the five areas of activity focused – structure, education, research, human resources policy and finances. Finally, patterns of identified strategies are discussed in order to illustrate their main contents and characteristics.

II FIVE CASES

4 University of Lugano (USI): differentiating to enter the system

“After the war triggered by the federal university act in 1999 and after the introduction of the Bologna reform, which has exacerbated this situation, it is not possible anymore to manage a university with a system publicly regulated and controlled. At the moment USI (...) is a case of Darwinist success, though temporary by definition, (...) years ago it would have been wrong”.

“USI may represent the future of Swiss universities: first, because it has a business-like internal governance to face decreasing financial involvement from canton and confederation; second, it reflects the progressive de-elvetization of our higher education system towards a globalized world; third, chaos theory: USI’s strategy is not reducible to well defined focal points hence it can be flexible within markets.”

4.1 Patterns

Table 8: USI summary of events and actions

Governance	Education	Research	Finances	Human Resources policy
1998 first president (external and part time)	1999 -ECTS introduced, - 3 curricula and 7 areas of specialization	1999 institute of finance created	1996 -Federal subsidies granted,-	2004 Tenure track assistant professor position created
2000 full federal recognition	2001 Bologna curricula	2004 faculty of informatics created	participation to intercantonal agreement on subsidies	2006 nomination procedures standardized
2002 centralization of administration	introduced	2005 associate institutes integrated into faculties	2001 contract of performance introduced	
2006 second president (external)	2007 institute for Italian studies created	2006 institutes of management and of health communication created		
		2008 -institute of		

computational
sciences created,-
institute for
research in
biomedicine
affiliated

4.2 Actors

4.2.1 Strategic planning: a flexible task in evolution

The university of Lugano (USI) was created in 1996 as a specialized university and grew up over the years, developing its main activities of education and research, increasing the number of students and extending its subject mix in a framework of relatively low financial resources in a peripheral canton of Switzerland.

Deliberate strategies at USI can be identified in a series of documents regularly produced. At its creation, in 1995, the message accompanying the university act presented by the cantonal government outlined the main strategy for this new institution: to provide an alternative offer in the Swiss higher education landscape according to a double rationale: on one side coordinating and not competing with existing universities, on the other side starting with a light organization and infrastructure according to the canton's financial limitations (Consiglio di Stato, 1995).

By 2003 the first formal strategic plan was drafted as an internal working document for the exclusive use of management and deans (USI, 2004). It addressed the (potential) university evolution in terms of new institutes, curricula, research activities, and finances. These documents were conceived by the university president and secretary general as a formalization of the existing strategy in a specific point in time, in order to be submitted to and discussed with the deans. These plans indicated paths of development for the new university: in 2003 and particularly in 2007, an increasing accent on research activities can be observed, e.g. relating to the creation of the fourth faculty of informatics and to the integration of computational sciences (USI, 2004 and 2007).

However, the latest strategic plan, addressing the period 2008-2011 (USI, 2007), reflected also the new president way of communicating: as the planning itself was formalized in the same way – key areas of development for every faculty – a discursive section was introduced and made available to general public. This consisted of a presentation by the president focusing on his vision of USI for the following five years. Research was systematically emphasized: the development of research activities was stressed, in relation with existing excellences, underdeveloped opportunities as well as in connection with new promising sectors, e.g. computational sciences.

4.2.2 A new model of governance

The years immediately before the creation of USI show the intervention of external actors, represented by cantonal policy makers. They were able to assemble a broad local coalition that avoided a referendum against the university project (as it was the case only 10 years before, when voters in the canton refused another university project). The large support from the local community allowed USI to be presented at national level as a *fait accompli*, without the traditionally long lasting consultations that precede any political project in Switzerland.

Indeed, the link between public authorities and USI strategy was very strong in the initial phase: some of the policy makers involved in the creation of USI were also active internally in its structuring immediately after birth, for example the person in charge for the government to outline the legal framework, became USI first secretary general. Accordingly continuity was provided across two different stages of development by means of exchange between representatives of public authorities and central administrators. This is a common feature in the Swiss context, as it will be shown also in the cases of the universities of Neuchâtel and Basle, where positions between officials and academic management were exchanged.

Strategy was carried out by different actors and through different documents, in particular in the first years: the Swiss Science Council was mandated by the federal government to evaluate USI in 1996, while in 1999 USI itself instructed a second evaluation (Conseil Suisse de la Science, 1996, 1999). In 2000 a self evaluation was conducted in order for the cantonal government to apply for the status of Ticino as a university canton (USI, 2000). This status would allow political authorities to participate as full members to national coordination bodies such as the Swiss University Conference.

USI governance structures comprise three main levels: the council, which is also led by the president (i.e. the rector), the faculties and the institutes. USI started with the three faculties of communication sciences, economics and architecture, integrating existing institutes in the regional territory, which were eventually absorbed by the faculties. In 2004 it created a fourth faculty of informatics.

Table 9: USI faculties and institutes

	96-97	00-01	04-05	08-09
faculties	3	3	4	4
institutes	6	10	11	11
Institutes outside faculties		3	3	-
Interfaculty institutes			1	-

Source: USI Annual Reports 1996/1997-2007/2008

As this table shows, the number of institutes almost doubled from the first year reflecting the structuring of disciplines within the faculties of communication and economics in particular. The experiment of maintaining interdisciplinary institutes outside faculties was interrupted by 2006, when these units were integrated into faculties. According to most

interviewees this “failure” reflected both a problem of critical mass and the difficulty to develop research sectors based on interdisciplinarity with a top-down approach.

There was some wavering (in the structuring of units) and perhaps a proliferation of institutes. Interdisciplinarity is a word used too often, I am convinced that it is based on a real interest between partners to listen to each other and understand, it is created bottom up, by persons who want to collaborate by learning from each others.

Meanwhile, from 2002 central administrators were working on the option of a new faculty, in order on one hand to strengthen research activities, on the other hand to establish what was perceived as a more complete higher education institution, made of an aggregate of several disciplines and faculties.

The integration of new faculties had to be done, because this creates a university. A university is made of different faculties, not one or a few. Informatics is therefore an extension of the activities and also an increasing presence at all levels: regional, national and international.

It is to be noticed that the first attempt at an additional faculty, at the beginning of the years 2000, concerned sciences broadly conceived, however this plan failed as the political support –parliament has to approve faculty creation – lacked, mainly on financial grounds.

USI modified its internal governance in 2002, after six years of its existence, as federal authorities requested a more transparent administrative structure (Conseil Suisse de la science, 1999). The administration had to be centralized under the university council, while it was previously dispersed over two different groupings of faculties: architecture belonging administratively to USI and communication sciences and economics belonging to the city of Lugano university foundation. In 2004 the legal act was further modified in order to integrate the fourth faculty of informatics, which had to be accepted by the cantonal parliament.

At USI the president reports only to the university council, where the deans and a majority of external members sit. This body can make decision making more quickly and flexible, as it is concentrated in the council and in the hand of one person. As deans are elected by their

own professors within the faculty, a compromise between top down and bottom up is achieved (USI, 2003; Cantone Ticino, 1995).

The university president has to be external and can have his mandate renovated every four years (USI, 2003). Both presidents were professors in other Swiss universities in areas non represented in Lugano (medicine and physics), originating from within the region and arrived while or after retiring. The university council has been constituted mainly by external members: academics from Swiss and Italian cross border universities, with the exception of the head of the cantonal ministry of education. Deans also participate as full members to all decisions, however the overall number of the members is made explicitly dependent on a favorable balance to external members (USI, 2003a). Hence, a significant aspect of USI council resides on the fact that the political, strategic and executive levels are represented in the same institutional body. According to some interviewees, USI governance shall remain flexible until its definitive consolidation as a university.

It is not by chance that a university has a rector and an academic senate. USI is a structure pointing strongly toward its future and its accomplishment. In this sense USI is not an accomplished university.

The deans, in the first years of the institution, were the same professors who contributed to the creation of the university. In the course of time the faculties established time limits to this office (e.g. at communication sciences two years renewable one) and eventually dean's offices were established and a vice dean position created.

4.3 Evolutionary trajectory

4.3.1 Legitimizing through education

From 1996 to 2004, when the faculty of informatics was created, teaching activities overcame other organizational sectors: professors were directly employed through personal networking by executives and academics in order to respond to the unexpected high numbers in student enrolments. This faculty was in general middle-aged, non-resident and

held already a chair somewhere else, mostly in Northern Italy and other Swiss universities. Moreover, the rate of external teachers compared to internal professors was extremely high, to the point that an external evaluation conducted in 1999 solicited a rebalancing according to Swiss standards (Conseil Suisse de la Science, 1999, see below the subsection on human resources policy).

Curricula, too, were rapidly developed and characterized by some degree of innovation (e.g. the development of new technologies in education). This urge for acting in accordance with the teaching mission is also expressed in a proactive behavior with respect to opportunities provided by the environment. In this perspective, in 2001, USI was among the first Swiss universities to introduce the Bologna model, starting the first bachelor in 2001 and the first master in 2003.

Table 10: USI students evolution

	96-97	00-01	04-05	08-09
Total	322	1410	1856	2483
System share	0.35	1.25	1.16	1.35
Growth rate %		+338	+32	+34
4-year degree	322	1297	725	198
bachelor	0	0	660	1141
Master	0	0	219	822
doctorate	0	49	116	187
² Other	0	64	136	135

Source FSO

² Continuing education + MAS + other

This table shows the rapidly growing numbers of students over the years: USI started with 322 enrollments in 1996/1997, more than tripled in 2000/2001 to 1410, grew additional 30% by 2004/2005 to 1856 and eventually augmented more than 30% in 2008/2009 thanks to enrollments at the faculties of economics, architecture and the introduction of the masters.

The number of programs was incremented in a fairly short period of time as a consequence of the introduction of the Bologna model with Bachelor and Master.

Table 11: USI programs

	96-97	00-01	04-05	07-08
4-year curricula*	3	3		
Areas of 4-year curricula		7		
Bachelor			4	4
Areas of Bachelor			13	13
Master			14	19

Source USI Annual Reports *Architecture had a 5 years curriculum until 2001, then 3-years Bachelor, 2-year Master and 1-year practice.

Even though this table shows that the number of Masters continued to grow, some reorganizations were carried out as new masters were created and old ones closed, due to weak numbers of students. In the course of time, masters did not just reflect programs of each single institute, but different types of cooperation on innovative topics among different institutes (e.g. master in tourism between the faculty of economics and communication), in some cases with other Swiss higher education institutions (e.g. master in public management by the faculty of economics, communication and the universities of Lausanne, Berne as well as the Swiss school of public administration or, with Italy, the master in international policies and economics).

Table 12 USI educational domains

	Humanities	Social Sciences	Economics	Law	Experimental/Natural Sciences	Medicine Pharmacy	Building Sciences	Agronomy	Mechanic Engineering	Inter-disciplinary	Arts	Health Sciences
2000	0	59	41	0	0	0	0	0	0	0	0	0
share	0	3	1	0	0	0	0	0	0	0	0	0
2008	0	36	30	0	6	0	28	0	0	0	0	0
share	0	2	3	0	1	0	9	0	0	0	0	0

Source: FSO/Eumida

This table shows how the educational profile of USI changed according to domains. It reflects the accomplishment of educational programs, after four years in 2000 only degrees in economics and communication sciences were granted, in 2008 degrees in architecture are visible as well as those in the newly created faculty of informatics.

4.3.2 Reputation building through research

USI strove in the first years of existence to develop a critical mass of research activities. In this sense, the creation of a fourth faculty was intended primarily as a completing step in the process of creation of USI (Cantone Ticino, 2002). This integration was planned for several reasons: not only all actors conceived a university as an aggregation of several faculties, but they also aimed at enlarging the offer to the high numbers of students interested in the new higher education institution. Moreover, the faculty of informatics represented an attempt to develop the hard sciences, on one side according to the Swiss normative model, on the other side as a catalyzer of research funds, e.g. through the canton, federal subsidies and third means.

We will never develop hard sciences as such: the other universities develop them in their faculties of mathematics, natural sciences, engineering at the federal institutes of technology. Our faculty of informatics was called faculty of sciences at first, it was planned to open to other disciplines, but this idea was scaled down only to informatics, because when you say sciences, you mean biology, mathematics, chemistry and these are extremely expensive.

In this respect informatics represented a light version of hard sciences, as it was focused on software engineering, and reflected the limited strategic options due to financial constraints.

Hence, since 2004 the research profile of USI changed, tending towards a more international vocation seeking for recognition by scientific communities. The other faculties followed a similar path, at different degrees, so that the entire university went under major changes. All nomination procedures were systematized according to international excellence standards, institutes with modest research output were reorganized or closed.

At the beginning education was paramount, now it is the time to match [education and research]. Academics have realized there are chances in research, if you want to get out of the local scene and go national and international

By the end of 2008, while students numbers stabilized, output in research had increased fast and new projects of further expansions were underway, e.g. with the supercomputing center of federal institute of technology in Zurich and the institute for biomedicine in Bellinzona. In this framework, a new institute in computational sciences was built in 2008 within the faculty of informatics.

We are interested in hard sciences that are not expensive. There are three ways of doing research 1) theoretical research 2) experimental research 3) virtual laboratory, which is a computer. It makes numerical simulations (...) it is a way to approach hard sciences.

Research at USI is primarily funded by the Swiss National Science Foundation (SNF) and European research programs, as well as by private foundations and, to a lesser extent, by industry. Activities in this sector grew incessantly since the beginning, both in absolute numbers (from SFR 1 million in 2000 to SFR 9 million in 2008) and as a percentage of total costs (they covered 10% of overall budget 2003, over 18% in 2008).

Table 13: USI research grants at FNS

	1996	2000	2004	2008
Total millions SFR	0	0.7	1.7	3.3
Share total budget	0	2.4	3.6	5.1
Share system	0	0.3	0.5	0.8

Source: FSO

The Swiss National Science foundation covered 40% and EU 20% while mandates accounted for more than one third of total research funds in 2008. Communication sciences, informatics and economics each made up between 20% and 30% of total amount, while architecture lagged behind and was still attempting to create, in 2008, PhD student positions and significant opportunities for basic research.

Table 14: USI doctorates granted

	1996	2000	2004	2008*
Total	0	0	15	15
Share degrees	0	0	5.6	4.9
Share system	0	0	0.5	0.5

Source: FSO * total degrees = 4 year degrees +Master degrees+PhD

The number of doctorates increased from zero to fifteen in 2004 reflecting the first doctorates concluded in communication sciences and economics. These numbers can be compared with respect to the numbers of PhD students (see table on student evolution in the subsection on education): in 2004 they were 109, in 2008 167. The share of PhD students on

total students increased from 6,2% in 2004 to 7,5% in 2008, reflecting a steady growth in all faculties with the exception of architecture, where, until 2008, no PhD student was enrolled.

4.3.3 **Shifting human resources policy from instrumentalism to standardization**

USI is the only university in Switzerland where there are no permanent contracts, except for technical and administrative staff. In this framework, full professors have a four year contract which has to be renewed at the end of every period. Hence, technically, tenure doesn't exist at USI.

As already said, in the first years of its existence USI called professors with a permanent position in other universities to contribute to the construction of programs. Therefore the number of full professors was low, while many external teachers contributed to organize courses.

USI started with mercenary troops, without rules for appointments (...) Professors working elsewhere were recruited, they were only part-time [at USI], they were educated elsewhere, they had no loyalty to this alma mater. But universities have a system of internal growth and inbreeding and they attract talent by means of their reputation.

This situation changed in the years immediately after, as professors grew from 10 to 41 and remained stable until 2004, when the creation of the faculty of informatics catalyzed a strong shift in the human resources policy: young assistant professors were hired with a tenure track position (meaning leading to full professor position under 4 year contract), the graduate education sector was bigger than the undergraduate and the whole faculty was the most international.

The profile of professors at USI also changed rapidly to integrate research activities. In 2006, a second president went into office endorsing more explicitly the cause of international reputation in research by systematically declaring it publicly and intervening in nomination procedures.

Table 15: USI staff (FTU)

	1996	2000	2004	2008
Tot staff	61	175	261	444
professors	10	41	42	60
Other teachers	3	16	30	47
Intermediate corps	16	85	129	234
Technical/administrative	32	33	60	103

Source FSO

In general staff evolution followed the growth of USI in all categories: plus 290% by 2000 to 175 full time units, plus 50% by 2004 to 261, plus 70% by 2008 reaching 444 FTU. However, even though the number of professors augmented, a stagnation is visible between 2000 and 2004, which was compensated by the increase of other teachers. By 2008 professors increased again from 42 to 60 thanks to the creation of informatics, and the further expansion of the other faculties.

4.3.4 Finances: new ways of coping with a constraining environment

Data on funding sources report a steady increase from the creation of this university. This reflects the raising numbers of students and research activities, as according to the university federal act (Bund 1999) subsidies are allocated on the number of students and the amount of research grants. The intercantonal agreement also grants subsidies according to the number of other Swiss students, while the contract of performance is partly based on students.

Table 16: USI funding sources

	1996*	2000	2004	2008
Tot budget	4.0	28.9	48.2	65.2
confederation	0	4.5	12.4	17.4
Canton	2.5	8.0	10.3	14.0
Intercantonal agreement	0	7.8	10.9	10.6
Third means	0.8	2.0	5.9	12.0
Fees	0.7	5.0	6.8	9.7

Source FSO, *Source USI Annual report

In 1996 the total budget attained 4 million Swiss francs, and did not consider the federal and intercantonal subsidies, which were integrated later. Since 1997 USI received all funding streams and, four years later, its total budget jumped to Swiss francs 28.9, whereby 4,5 million came from the federal government, 7.8 from other cantons sending their resident students.

Moreover, the steadily increasing numbers of students allowed to augment fee entries from less than 1 to 5 millions. This increase is unique for Switzerland and is related to USI decision to establish high student fees: between Swiss francs 4000 and 8000 for national and foreign students (average annual fees in Swiss universities amount to Swiss francs 1000-1500). Until 2004 the budget grew by two thirds to 48.2 million, while by 2008 it increased, again, by 35%. To 65.2 million.

While all sources increased constantly, the funding for other cantons' students stagnated between 2004 and 2008, reflecting a structural condition for USI: as on one side it is the most international university according to student origin, it also has low numbers of Swiss students from other cantons. This can be explained by the young age of the institution and the relative reputation, by the language used (mainly Italian and English) and by the fact that students from other cantons have to move to the region in order to attend courses.

4.4 Discussion

Patterns

Patterns of decisions and actions according to key areas of activity are important as they allow to look coherence over key organizational areas of the university and they permit to identify different strategy periods. Finally, these patterns show how from an originating action or condition, e.g. a deliberate strategy or a change in the environment, the academic organization was able to behave coherently in all its sectors by adapting and integrating emergent strategies. This section aims at representing how strategies develop and produce a distinctive strategy around a specific issue or organizational area..

At USI, a first strategic phase is observed between 1996 and 2004. This period was the construction of an educational offer to face the high numbers of students enrolled: programs, recruitments of professors and teachers were mainly concentrated in producing an adequate offer in this sense. This period of rapid construction of USI was mainly coordinated by the academic administrators in accordance with the cantonal funding authorities, as only few academics had a permanent position. On parallel, USI was structured around educational activities: on one side the university had to comply with national requirements to be recognized as a university at Swiss level. This acceptance legitimated this higher education institution in several aspects: first to be “labeled” as a university like the others, second, to participate at national coordination bodies, third to be entitled to federal and intercantonal subsidies. The modification of the legal framework concentrating administration and academic affairs oversight to a single council, in 2002, can be considered the central event in this process of legitimization (see Conseil de la Science, 1999).

The turning point between the first and the second strategy, was the creation of the fourth faculty of informatics, which was aimed from the beginning at building an international

reputation in a relevant scientific field characterized by strong research focus and international students and staff. In fact, this second strategic phase was dedicated to expanding functions in order to match the Swiss university model, meaning developing research intensive activities. This second stage of strategy has been steered by central governors and academics in particular at informatics. The way this faculty was shaped, concerning staff (international young tenure-track assistant professors) and research (intensive PhD education, immediate acquisition of competitive funding for research) was supported by changes in recruitment procedures and public discourse on university mission.

This two phase strategy, first education then research, has been recognized by most interviewees as the “natural” way to build a brand new university: on one side by fulfilling Swiss criteria of quality, on the other by complying with scientific requirements established by international academic communities.

In this sense, the degree of coherence is very high as actions taken in all other key areas of activity were supportive of the main goals. Changes in strategy, e.g. the closure or integration into faculties of interdisciplinary institutes, showed flexibility and constituted a swift correction to changing conditions.

Actors

At USI strategy is communicated and promoted thanks to a strong centralization, a high degree of autonomy from the canton and a dense network of informal contacts, which is possible thanks to its small size. Furthermore, academic administrators manage and adjust strategy in order to foster bottom up initiatives, which must be aligned to overarching goals – e.g. providing support for research activities perceived as promising and with critical mass - and to frustrate or censor undesirable developments – e.g. opening of specific faculty positions or new programs; hence centralization allows for adaptive elements and trial and error processes, while keeping at the same time coherence in the basic strategic objectives.

Positioning

USI has succeeded in having its existing - but poorly legitimized - niche of the specialized universities recognized, this was done together with St. Gallen university (which changed its brand from “business school St. Gallen” into “university of St. Gallen” at the end of the nineties) and the university of Lucerne, recognized at federal level in 2000. It did so by inventing a brand new faculty in the national landscape, i.e. communication sciences. Offering an original mix of disciplines and integrating the Swiss system, rather than competing for existing positions, represented the two main dimensions of its successful evolutionary path. In parallel, a creative use of few resources, given the financial limit of the host canton, was framed in order to (tend to) match the existing normative model, which considers appropriate a university where sciences are well represented. This was achieved, first, with the foundation of the fourth faculty of informatics, a financially lighter solution in order to bring the hard sciences and second, four years after, with the creation of the institute of computational sciences. A strategy of partnerships, with the big players like the ETHZ in computational sciences, but also with a different higher education institution like the local university of applied sciences (SUPSI), as well as the existing research institutes (IDSIA artificial intelligence and IRB biomedicine) features the positioning of USI further. Its geographically and relationally peripheral position within the organizational field allowed for more flexibility and for the search of original solutions. USI, first and still unique in Switzerland, introduced from the beginning very high fees, four times superior to any other Swiss university and doubled fees for non-resident foreign students. This approach, highly criticized by student unions, had the goal to cover financially the subsidies per students within the intercantonal agreement (whereby every canton pays for its resident outgoing students), in a university with the highest number of international students (up to 50% in 2008, FSO).

USI specific subject mix allowed on one side to distinguish clearly from all other universities, on the other side it led to some limited outcomes in research (particularly communication sciences as a new type of faculty and architecture with a humanist orientation). For these reasons USI had to comply to the Swiss traditional standards of academic research, nonetheless this was, again, pursued in an innovative way.

5 University of Neuchâtel (UNINE): coping with internal tensions and external pressures

“This is the problem in a small university: it depends too much on individuals. I think it is a mistake, I don’t know if it is fate, but you have to watch over the situation. In a big university there are many people, a critical mass of people representing the different scientific fields, not only one [for field]. Strategizing in a small university, this remains an art!”

“The period between 1996 and 2008 was exceptional, I hope. It was a civil war.”

5.1 Patterns

Table 17: UNINE summary of events and actions

Governance	Education	Research	Finances	HR policy
1996 new university act (rectorate reinforced) 2000 -new rector 2001 -rectorate restructured 2001 new campus for sciences 2002 new university act (rectorate further reinforced) 2003 interim rectorate 2004 first “external” rector 2007 interim rector (internal)	2000 increased coordination on education with Berne and Fribourg 2000 admission criteria for professionally educated students eased 2001 - faculty economics and social sciences created, -partnership with neighbor universities increased 2002 Triangle	2001 – NCCR plant survival (29,1 mio) 2001 partnership with federal statistical office 2005 - faculty of economics reorganized (social sciences to humanities), - house of social processes analysis created, -new campus for sciences opened, NCCR plant survival (29,2) 2007 -journalism	2003 Full cost accounting introduced 2005 contract of performance introduced, 2005 budget cuts by canton 2006 budget cuts by canton	2003 association of intermediate corps created 2005 - intermediate corps reorganized, - tenure track positions for assistant professors created 2008 intermediate corps regulations revised – tenure track assistant professors not recruited

2008 new rector (internal), reorganization of central services and rectorate

Azur created (coordinating Bologna in French speaking universities)
2004 - federation of protestant theology faculties joined, -partnership French speaking universities created
2005 - Introduction of Bologna Bachelors, - 3 chairs in humanities closed, - social sciences offer reinforced
2008 - 7 Bachelor and 20 Master, -3 Bachelor and 2 Master in sciences closed

and media academy created, -micro-technique, particle physics and geology transferred to other universities
2008 focus on plant biology and hydrogeology

5.2 Actors

5.2.1 From no planning to too much planning

The second case outlines the strategies of the university of Neuchâtel. Similarly to USI, this institution is situated in a peripheral canton and, since its birth at the beginning of the 20th century, had to constantly look for a balance between its scientific ambitions and the constraining cantonal finances (Baumann 2009).

What was new in the 2002 law, what provided the rector with power, was the strategic plan, which didn't exist before. Before we lived on budgets, faculties presented their needs, they used to say: we want to develop this and that, without a strategic vision of the university. It was really bottom-up, the rector arbitrated this. On the opposite with the strategic plan it

was really top-down, the rector said: here it is what I am going to do. He didn't really ask academics what they wanted to do and integrate it in the strategy.

In spite of the requests made by public authorities, from 1996 to 2004 no strategic documents were created at UNINE besides reports of activities and annual reports. A plan of intentions 2005-2007 was established by the new rector arrived in 2004, subsequently approved internally, by the academic senate and the council, and externally, by cantonal government at the beginning of 2005 (UNINE, 2005). Portfolio restructuring in the fields of education and research was indicated, as well as changes in recruitment procedures and personnel regulations. This plan aimed mainly at reorienting UNINE towards disciplines with high numbers of students by favoring in particular social sciences and reorganizing those with few undergraduate students, i.e. humanities and sciences.

Two years later, in 2007, a new strategic plan was released by an interim rectorate, indicating major changes concerning downsizing modalities previously advocated (UNINE, 2007). As a new rector was appointed, at the end of 2008, a third strategic plan was produced on a large consultation basis within the institution (UNINE, 2008).

5.2.2 Strengthening rectorate powers to face internal (un-)balances

The legal conditions in which the university operated were modified significantly in 1996, when the canton put in place a governance reform through a new university act intended at fostering strategic capability by means of a block grant and a strengthened rectorate (Conseil d'Etat, 1996). A council made of external members was created to balance a rectoral conference attended by internal elected representatives of the different personnel categories.

The university of Neuchâtel changed its internal governance twice according to two different legal frameworks: in 1996 the rectorate was reinforced, on one side the traditional rectoral conference with the representatives of the different groups of staff – professors, intermediate corps, administrative and technical staff - was maintained. On the other side a university council was established to act as a board of trustees. In 2002, the government,

preoccupied with the perceived unsatisfactory implementation of institutional autonomy, produced a new law, reinforcing further the power of the rector by delegating him budgeting as well as the competence to choose the members of the rectoral office. The rectoral council was suppressed, in an attempt to ease the decision making line and avoid the rector to report to two different supervisory bodies. Additionally, in 2001, the parliament approved the new faculty of economics, which was separated from the faculty of law.

The 1996 law was recent but didn't meet the requirements: it was too traditional, as it gave still too much weight to faculties and less to rectorate. (...) Some programs had too few students, or they were too expensive and could have been concentrated. In order to do this, it was necessary to give more weight to rectorate, as deans passively opposed to every proposition of change.

Meanwhile, the usual 4-year rector's permanence was interrupted by an interim period, as the new act required different appointing procedures to be fulfilled.

Based on four faculties and a high number of institutes representing the chairs, the internal structure of UNINE was modified in several moments according to different objectives. The rectorate was reorganized in 2001 and, further on, in 2008. The first time additional new positions of vice rectors were created, while the second time these positions were reorganized and tasks were redistributed.

Table 18: UNINE faculties and institutes

	1996	2000	2004	2008
faculties	4	4	5	5
institutes	25	27	26	28
Interdisciplinary institutes				5

Sources: UNINE annual reports, interviews

The number of faculties increased from four to five with the creation of economics in 2001. However, policy makers had considered first the transfer of economics to the university of Lausanne, eventually this project was abandoned for political contrasts: according to interviews with policy makers, the parliament was not ready to approve the elimination of an entire field as this was understood as contravening the idea of university as a grouping of several disciplines. Hence, the proposal was never submitted to parliament by the government.

The transfer of economics to the university of Lausanne was stopped at the last minute thanks to the intervention of the economical milieus (...). But it was difficult because it was already public and students didn't want to start here and then be obliged to change university, the number of enrollments decreased significantly

This abandoned strategy created further insecurity on UNINE future. However, the debate on where to locate economics unfolded differently, in that another solution eventually arose: together with social sciences, economics was separated from law and made independent into a new faculty. Social sciences would join the faculty of humanities in 2007.

The rather stable number of institutes doesn't reveal precisely the concrete differences in the periods considered: in 1996 most institutes were located at humanities and sciences, in 2008, their number was reduced and new institutes, particularly in social sciences, were created, whereas a strategy of supporting interdisciplinarity through brand new units continued to develop, and the so called "houses" achieved the number of four (e.g. the house of analysis of social processes and the house of historical sciences).

There was a demand which was at the same time top-down and bottom-up, as we were interested and the rectorate was interested, too. The solution was the house of analysis of social processes, meaning that we wanted to (...) create a critical mass of researchers and profit from the small size of our institution where people work very close to each other. We didn't want to just create a new research institute. This triggered the creation of other "Houses" of literature, communication sciences, etc.

From 1996 to 2002 there were two rectors, accomplishing their office with usual 4 years periods (the first rector started in 1994). The new law in 2002 required several procedures to be established in order to select the rector and left a gap filled by a first interim rectorate. In

2004 a new rector coming from a neighboring university was appointed, but was abruptly laid off by the cantonal government at the beginning of 2007 for diverging visions on the future of the university and in particular of the faculty of sciences. It was then the turn of a second interim rectorate, taken over by a professor coming from the faculty of sciences, who remained in place until 2008, when a rector, also from sciences, was finally appointed.

The university council was composed of nineteen members, ten nominated by the government, inclusive the president, and nine elected internally. As already mentioned previously, from 1996 until 2002 a rectoral conference was in place, comprising representatives of the different categories of university staff. It included two representatives for each branch of university staff and community: professors, intermediate corps, PhD students, students as well as administrative and technical personnel.

Meanwhile, deans continued to be elected within their faculties, generally on a two- year term, turning in order to represent the different disciplines.

5.3 Evolutionary trajectory

5.3.1 Changing resource allocation in educational activities

The evolution of curricula in Neuchâtel shows that, differently from USI, the Bologna reform was introduced later and more slowly. On one side, the reorganization of programs in terms of bachelor and master in a period of internal restructuring was postponed of two years and started in 2004/2005. On the other side, the evolution of the number of bachelor areas and of masters until 2008 shows that the school was able to diversify and rebuild new curricula according to the new priorities in social sciences and in specific fields of hard sciences, like for example the masters in plant biology and hydrogeology, geothermal power.

Table 19: UNINE educational programs

	96-97	00-01	04-05	08-09
4-year curricula*	4	5	5	0
Areas of 4 –year curricula	17	--	8	0
Bachelor	0	0	3	4
Areas of Bachelor	0	0	10	26
Master	0	0	9	26

Source: UNINE annual reports

The number of bachelor and master reflects on one hand the downsizing of the faculty of sciences, which took place between 2004 and 2008, on the other hand, it displays the expansion of social sciences, that could diversify their educational offer to cope with increasingly larger numbers of students.

UNINE participated to a certain number of institutionalized partnerships: to the BeNeFri, grouping the universities of Berne, Neuchâtel and Fribourg, the Triangle Azur, together with the universities of Lausanne and Geneva, as well as the CUSO (University Conference of Western Switzerland). All these associations focused mainly on post graduate education.

Student mobility is interesting, it was quite successful in humanities, somehow in economics, but in natural sciences, students were so busy that they couldn't also go here and there to attend lectures.

Hence, outcomes of such partnerships, activated in order to share resources, were mitigated in the opinion of all interviewees.

Table 20: UNINE students

	96-97	00-01	04-05	08-09
Total	3388	3135	3296	3762
Share system	3.7	2.8	2.1	2.0
Growth rate		-7.5	+5.1	+14.1
4-year degree	2844	2550	1898	490
bachelor	0	0	737	1824
Master	0	0	135	796
doctorate	452	500	428	568
Continuous + MAS + other	92	85	98	83

Source: FSO

UNINE is the only university among the five analyzed in this research, where the number of students stagnated for most of the years considered. However distinctions have to be made among faculties: social sciences, economics and law attracted increasing numbers of students: from 2004 to 2008 students in humanities and social sciences 8% to 1823, economics 112% to 541, law 66% to 617. On the other hand sciences diminished 5% to 722 (FSO).

At the beginning of the years 2000, the idea of establishing a minimum number of students for program as a requirement to fulfill in order to receive federal subsidies started to be discussed.

[this idea of a minimum number of students] was a disaster for Neuchâtel. It was never implemented, but the underlying idea played an important role, psychologically, for policymakers and academics. (...). My ideal is providing good research and not achieving critical mass of students

Although no decision was ever taken in this respect, this had several implications for the university of Neuchâtel, as chairs were closed (like Greek and Italian) and others put under pressure.

Table 21 UNINE education profile (share of total degrees and system)

	Humanities	Social Sciences	Economics	Law	Experimental Natural Sciences	Medicine Pharmacy	Building Sciences	Agronomy	Mechanic Engineering	Inter-disciplinary Arts	Health Sciences
2000	21	18	18	19	23	0	0	0	2	0	0
Syst	4	4	3	5	5	0	0	0	1	0	0
2008	26	23	11	13	22	0	0	0	4	0	0
Syst	5	2	1	3	4	0	0	0	1	0	0

Table 21 shows how UNINE educational profile changed from 2000 to 2008: in particular the faculty of humanities and social sciences augmented the number of degree granted by 5%, while economics and law diminished conversely. Data on sciences and engineering do not feature big changes, as a 5 year lapse of time has to be considered in order to observe shifts of degrees according to reorganization of programs.

5.3.2 Struggling over priority setting in research

For many years UNINE was the best university in relative terms concerning the acquisition of competitive funding at the Science national foundation over total budget achieving more than 13% of total budget (data FSO). The reorganization of the faculty of sciences entailed a decreasing importance of research as the data on 2008 start to show (see table below).

In fact, the university attained a critical point at the beginning of the years 2000, when these intensive research activities, mainly carried out at the faculty of sciences, were not sustained

by the numbers of students. Against this backdrop, after 2005, the university was pushed to limit these costly activities: the new rector proposed to give priority on disciplines with large numbers of students and to concentrate on selected poles of excellence in research, like plant biology and micro-technique.

It was primarily for these reasons that the conflict between the rectorate and the cantonal government broke out: the first supporting the institute of micro-technique (IMT) as the main building block for research activities, the second convinced that a transfer of the latter at the Federal institute of Technology in Lausanne would release the necessary resources for other disciplines.

The stakes were high. IMT was declining in terms of resources, doctoral students, quality of professors. In such a situation you can 1) find money to finance your further development, which was impossible, there was no political will 2) establish an alliance with an institution with a network of international excellence (which was the position inside the institute).

Eventually, the following interim rectorate (2007-2008), besides transferring micro-technique, continued the downsizing of the faculty of science, by moving geology and particle physics to other Swiss universities.

Table 22: UNINE competitive funding FNS

	1996	2000	2004	2008
amount	9.6	11.4	16.5	16.1
Share total budget	10.5	10.8	13.2	11.7
System share	3.8	4.5	4.7	3.8

Source: FSO

The table on SNF project acquisition reflects primarily the trend of the faculty of sciences: until 2004 a steady increase reflected the primacy of research activities in research intensive

domains, while, after 2004, it started to diminish as important sectors moved from UNINE to other higher education institutions.

Table 23: UNINE doctorates granted

	1996	2000	2004	2008*
PhD	60	50	46	64
Share total degrees		13.1	13.3	16.1
System share	2.2	1.8	1.6	2.0

Source: FSO *total degrees: 4-year degrees + Master degrees+PhD

Also the numbers of doctorates granted between 1996 and 2008 reveal the intensity of research in Neuchâtel, which had a high share of PhD students on total students, approximating 15%. This stands for the Swiss average together with the other big generalist universities and the two federal institutes of technology (data drawn from FSO).

National centers of competence in research (NCCRs) represent an important strategic instrument created by the Swiss national foundation in 2001, with the purpose on one side to establish poles of excellence at national level, on the other to leverage on critical mass by university cooperation (<http://www.snf.ch/nfp/nccr/E/Pages/home.aspx>). They represent therefore an important indicator for research in terms of funding, but also in terms of institutionalization of interdisciplinary research activities. In 2001 UNINE acquired a NCCR in plant biology for a total SFR 58,2 million and 33 million third party funding, by which it became leading house of a partnership including the universities of Berne, Fribourg, Geneva, Lausanne and the federal institutes of technology in Zurich and Lausanne. The acquisition of NCCR denotes also research intensiveness and excellence in a specific field: in this regard it is important to notice that UNINE was the only small university in Switzerland able to obtain such form of financial support.

Other types of instruments, such as the institutionalized cooperation networks of BeNeFri, Triangle Azur and CUSO, already discussed in the section on education, proved to be less successful in terms of long-term synergies for research strategies. According to the interviewees, it was more difficult to organize mobility for researchers than for students, as their activities depend more on facilities such as laboratories, and team work.

5.3.3 Inertia in human resources policy

The evolution of staff at UNINE shows different patterns that are not always coherent with the strategy planned and that indicates how balance among faculties was difficult to achieve. The period between 1996 and 2008 marks a stagnation of personnel, particularly with respect to professors, teachers and intermediate corps. Only the technical and administrative body, from its lowest of 170 FTU in 2000, increased to 269 in 2008. There are several factors that could explain this evolution: first, it emerged from the interviews that a trend towards bureaucratization of the central services was detectable from 2004 with the arrival of the new rector. However, a second (partial) explanation could be that researchers were recruited under the label of laboratory and scientific personnel.

The distribution of professors according to faculties didn't reflect the numbers of students: At humanities, professors grew from 40% in 1996 to almost 50% in 2008 (including social sciences from 2007), at sciences they decreased by almost 10% but still represent more than 30% of total numbers, while at economics and law professors represented less than 10%, though in 2008 students constituted one third of the total.

Table 24: UNINE staff in FTU

	1996	2000	2004	2008
Tot staff	723	817	805	817
prof	104	107	113	103
Other teacher	37	49	41	40
Intermediate corps	384	482	417	404
Tech/adm	198	179	235	269

Source: FSO

In 2004 new professorial positions were planned by the rectorate, while closure of chairs with few students were also arranged (e.g. Greek and Italian). Two major changes were introduced in human resources policy: on one hand an accurate timetable for chair planning was prepared replacing the traditional substitution of retired professors, on the other hand the role of the intermediate corps was questioned, and a high number of year long positions was questioned. The rationale of university management was based on considering assistant professor more effective to enhance research, PhD students more appropriate for cost and flexibility reasons (UNINE 2005). Additionally, preoccupations for intermediate corps positions to end up in a dead end after several years in academia, were expressed and addressed by the rectorate, and, contrasted by academics (this topic emerged in several interviews).

Along this line, in 2004 possibility of hiring assistant professors on a tenure track base was established. However, these positions were hardly taken into consideration, as selections tended to privilege more senior profiles, thus attributing (only) full professorships.

Every time a position was defined, professors didn't really have the idea of giving a chance to a young person. They looked at her file and found it was not enough, but this is normal, because of the age. In the end more experienced persons were appointed with a title of full

professor. Hence few assistant professors were appointed (...) Appointing assistant professors is an act of will.

The following rectorates also reestablished intermediate corps positions of postdoc and senior assistants and researchers (UNINE 2008).

5.3.4 Financial constraints over strategy

As for research and human resources policy, also the patterns concerning funding at UNINE display some incoherence.

Even though the university of Neuchâtel faced severe pressure from its canton in order to contain expenditures and was repeatedly invited to allocate more efficiently its resources, these demands were only partially responded to: except for establishing some coordination with neighbor universities on educational programs (in the regional networks BeNeFri: Berne, Fribourg, Neuchâtel and Triangle Azur: Geneva, Lausanne, Neuchâtel), no major action was taken to select and reorient core research activities until 2005.

On the contrary, UNINE continued to ask and receive a yearly linear increasing budget, whose allocation was based on internal balances and traditional modes of expenditure according to faculties, where the faculty of sciences was spending the most for its research activities and other disciplines such as parts of humanities, social sciences hosted large numbers of students.

Table 25: UNINE evolution of funding sources

	1996	2000	2004	2008
Tot budget	92.3	105.5	125.2	137.7
confederation	18.3	18.7	24.8	25.4
canton	34.6	41.9	43.7	47.7
Intercantonal agreement	10.5	11.5	13.4	14.8
Third means	26.7	29.9	40.1	45.5
fees	1.8	2.1	2.3	2.6

Source: FSO

UNINE global budget continued to increase with the exception of 2000 (from 107 in 1999 to 105,5) and 2003 (from 120,9 in 2002 to 120,3). However with relevant differences according to sources: on one hand federal and intercantonal sources reflected until 2002 the stagnating numbers of students, increasing again by 2008; on the other hand, third means, with some drawbacks in 2000 and 2006, augmented from 26,7 to 45,5 (28,9 to 33%). Cantonal block grants increased between 3% and 8% per year from 1996 to 2001, reflecting a linear augmentation of human resources, while the number of students was stagnating.

Although the new rector's shake off strategy was formally accepted by the university council, as well as by the government at the beginning of 2005, the institution continued to remain under pressure when external demands and (new) resource constraints obliged the academic administrators to delay a certain number of planned appointments. Indeed, the canton decreased its block grant from SFR 45 millions in 2002 to SFR 42 millions in 2006.

5.4 Discussion

Patterns

From 1996 to 2001 the university of Neuchâtel tried to maintain the status quo in terms of balance between education and research, which also meant preserving the internal allocation of resources favorable to the extensive research activities of the faculty of science and the large number of chairs and institutes at the faculty of humanities. This pattern of actions continued despite some attempts at changing relating to the internal governance made by the ministry of education and the new university act in 1996.

The first strategic period can be considered the continuation of historical patterns regardless of signals of changing conditions coming from state authorities. In this framework, the internal conditions started to deteriorate significantly as the number of students stagnated and the rectorate wasn't able to implement major changes. Moreover, a series of new events in the environment made the situation further deteriorate, like increasing competition for students by the newly created universities of applied sciences in 1997 and a stronger orientation of federal funding to numbers of students and research output (Bund, 1999). Hence the university saw its leeway getting increasingly smaller and its capability to respond in terms of available resources and timing more and more constrained, while external political pressure was growing and the canton claimed against an unsustainable financial situation.

The milestone separating this first from the second phase was the new legal framework approved by the parliament in 2002, when a change in the patterns of action of UNINE started: the organizational structure was further centralized in the hands of the rectorate. Reorientation of research activities, including downsizing, drove restructuring in education. However, budget cuts from the canton slowed down the implementation of this strategy, while a conflict on how to downsize the faculty of sciences interrupted the rector office in 2007. Between 2007 and 2008 two rectorates were appointed, who continued the

reorganization according to the general objectives – downsizing research activities in sciences to order to reduce costs -, but on different and more shared strategic options both from the government and from academics within the institution.

Hence, the case of UNINE shows a certain degree of incoherence: in the first phase the university seemed unable to adapt to – be coherent with - changing conditions. In the second phase, while the strategy produced in 2005 was coherent towards its main objective (strategically reorienting the institution), the actions that followed were not always consequent and timely adapted to rising conflicts. Internally, groups of academics (especially in the faculties concerned) did not agree on it; externally, public authorities changed their mind (i.e. micro-technique) and public outrage broke out against the closing of historical chairs. Significant changes of strategy were repeated and, at least in one case (focus or transfer of micro-technique), had great implications for the inner stability of UNIEN. On parallel, from 2002 to 2008, four different rectors with relative rectorates came into office. This, too, had a major impact on the coherence and the duration of strategy. In conclusion, the case of UNINE shows that strategy is a pattern of coherence over key areas of activity, but it is also capability of adapting to (suddenly) changing conditions, by timely modification of the strategy in order to take into account emergent strategies.

Actors

UNINE underwent two governance reforms in a short lapse of time, i.e. six years. These were intended to promote strategic action in a context of lasting autonomy of the academic understructure and where the canton intervened regularly into university affairs. The balance of power of faculties framed further the possible strategic options for the rectorate: in this sense the university of Neuchâtel is a case of strategic incoherence as the rectorate was not able (or was not given either possibility or time) to take into account the different powerful groups internally and externally and convince them on its strategy, or at least adapt it to upcoming pressures. This means, i.a., that the position of the rector is weaker, because it

depends on the canton for his nomination, while the professors elect their own deans. The latter vote in the university council as full members, while the rector only reports to this body. Moreover, the academic senate, as well as the university council participate on the choice of the rector, the first by being consulted, the second, by proposing the nomination to the cantonal government.

Positioning

The university of Neuchâtel displays a trajectory towards becoming increasingly a specialized university, while some peculiar fields in sciences, like plant biology and hydrogeology are maintained. It reached this position by adaptation to difficult financial and political conditions. As a matter of fact, this transformation was not painless, in that it emerged in contrast with university history and tradition as a research intensive institution. Along the years it suffered from increasing competition by other cantonal universities – which in Switzerland are very closely located – and by the EPFL, losing parts of its existing disciplines in favor of competitors in search for integrations to enhance their own growth ambitions. The trajectory of Neuchâtel also shows how ties to funding authorities and the local community entail strategic significance in order to be “protected” in difficult times: the rising acquisition of staff at national and international level, enhanced by the growing competition, weakened the relationships between the institution and its region, as professors from other cantons were hired and participation to cantonal politics decreased.

UNINE changed and moved to a more social sciences oriented profile, as at the same time being small and contemporary research intensive was not viable anymore. In this sense UNINE complied to the external requests and downsizes research, while trying to build a distinctive offer in particular in the social sciences and humanities.

The university of Neuchâtel, situated in a more vulnerable position, i.e. in a peripheral canton, achieved an impressive proportion of third means funding, due to its intensive

research activities. However its excellence based position was eroded as the funding mix was eventually unsustainable against stagnating number of students (which remained below 4000 between 1996 and 2008).

6 University of Basle (UNIBAS): linking tradition and entrepreneurship

“Brand, money, political position and protection are the three university key assets: the brand, which allows to give the academic titles, the money, which allows to operate and the political protection, which allows to operate in a protective environment free of any interference. This is nothing that comes from inside the university (...)the university deserves for its purposes also a kind of respect and of difference.”

“Everybody had their ideas. Those who wanted to become Nobel prize winners, those who wanted to get more students, to have more money, others wanted to expand their fields of science or needed new methodologies. Everybody had an idea of what will happen in the future. But these ideas were without any exception dependent on individuals and they did not reflect the commitment to the organization they belong to and they were certainly not ideas like: number one formulated, number two coordinated within the university and certainly not formulated whatsoever or coordinated with those who were the carriers of the university, the constituencies, i.e. the governments of the two cantons.”

6.1 Patterns

Table 26: UNIBAS summary of events and actions

Governance	Education	Research	Human resources policy	Finances
1995 new university act	1996: faculty of economics created	1996: faculty of economics created	1998 tenure track introduced	1996 from scattered financial items at the ministry of education a single organization
1996 new university statute: (4 year and re-eligible rector; departments; rector not anymore senate president)	sciences and humanities faculty 1997 strategic focus on education, introduction ECTS and new system pre Bologna	sciences and humanities faculty 1998 chemistry, dentistry and computational sciences reorganized, Gender chair created (first chair in CH)	2000 Attempt at suppressing Habilitation in social sciences and humanities	financial structure is created 1996 Basel Land contribution increased by 30 mio
1996 new faculty of economics out of social sciences and humanities	1998: accreditation of medicine	2001 NCCR Nano scale 111 mio		2000 contract of performance introduced
1997 strategic focus on Life and culture	2000 Bologna reform	2003 faculty of psychology created out of		2000 Basel Land extra contribution 10 mio
1998 new rector	introduced, first in			

1998 rectorate reorganized (from 1 to 3 vicerectors) 1998 Departmentalization 2001 First strategy revised 2003: centralization of administration 2003? Campus for life sciences? 2005 new council, president is former minister of finances 2006 Funding by two cantons BS, BL (first in CH with double funding) 2006 new rector and (external) vice rector research	CH 2003 faculty of psychology created out of social sciences and humanities faculty	social sciences and humanities faculty 2004 geography and astronomy suppressed, Biozentrum from medicine to sciences faculty 2005 NCCR Nano scale (47,6) Iconic criticism (15 mio), NCCR Sesam (23 mio) 2006 two faculty institutes created (European and Jewish studies) 2007 third strategy Life sciences and culture	2001 Basel land contribution 7-9 millions in contract of performance 2003 initiative “75 millions plus” failed: budget exercise started 2004: second strategy Portfolio Clearing 2007 Basel Land contribution equals Basel Stadt
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6.2 Actors

6.2.1 Firm-like planning in a loosely coupled system

The university of Basle during the period 1996-2008 was transformed from a dispersion of single, almost independent units scattered in several separated items of the cantonal budgeting, into an organization with structure and management, based on a high degree of autonomy from political authorities.

As USI and UNINE, though with different proportions, UNIBAS strove to strike a balance between its academic ambitions and a canton not always able to provide as many financial

resources as its competitors, like other big generalist universities – e.g. Berne, Zurich – and the federal institutes of technology in Zurich and Lausanne.

After the new legal framework was in place, in 1995 (Basel Stadt, 1995), the new university council, composed of external stakeholders, the rectorate and the planning committee produced a strategic plan, which was adopted in 1997 (UNIBAS, 1997). This document consisted of a statement on mission, vision, identity and a working program on how to act according to priorities for the following four years 1998-2001. In particular it defined two main profiles: life and culture, emphasizing the tradition of excellence in humanities and life sciences not only academically but also as a constitutive identity of the city (pharmaceutical industry represents a major sector in the region). It defined specific objectives and deadlines until 2001, and stressed the central position of education in the quest for scientific quality.

In 2001 the revised strategic plan 2002-2006 was adapted to the changing conditions of the new federal act and was developed in a more comprehensive document with a vision 2010 and objectives for the next four years (UNIBAS, 2001). It continued to indicate life sciences and culture as the core building blocks of strategy. While the full implementation of the Bologna reform was highlighted as a priority for education, specific measurable objectives were provided for research, e.g. extent of increase in European funds or acquisition of national competence centers for research.

In 2004, a so called “portfolio clearing” strategy was produced for the period 2005-2008 in order to consolidate and prioritize UNIBAS activities substantially, and was submitted to the academic bodies for revision before adoption by the council (UNIBAS 2004).

In 2007 a new strategic plan was adopted after large consultations. It was conceived as a continuation of the previous documents. It restated the two profiling dimensions of life sciences and culture. More general in its outlining, it focused more on research and was prepared, from the beginning in 2005, by two distinct working groups within the institution (UNIBAS, 2007).

6.2.2 Constructing a formal organization

UNIBAS went through two major reforms of its legal framework. First, in 1995 the canton Basle-City adopted a new university act granting institutional autonomy, providing a governance in which a university council took over the strategic oversight and granting the rector increasing powers as of his role in coordinating and controlling university activities.

There was a huge number of totally independent units. Sometimes they were real faculties, sometimes they were just an assembly line of institutes, sometimes they were even not units, only numbers of individuals who had not a single belief in common. The only thing which was common was that they were legally part of the university and that they had the same pay roll (...) It was one brand University of Basle but a mess below that.

Second, in 2006, after ten years of negotiations, the canton Basle-Country joined Basle-City as a funding authority under equal conditions concerning budget and competences. This reform, i.e. a double cantonal holding, has been the first in Switzerland for a cantonal university. Policy makers might have looked at the reforms in professional education: created in 1997, the universities of applied sciences can be hosted by different cantons, like the university of applied sciences of Northwestern Switzerland (Basle-City, Basle-Country, Solothurn and Argovia) or that of Western Switzerland (all French speaking cantons).

The double cantonal Trägerschaft (funding body) aims at developing management structures but also to develop a diplomatic relation between the two cantons of Basle-City and Basle-Land. When this unity was achieved, it was possible to develop further [the university] and its position in the federal system. Since then there is a more successful university policy, more subsidies from the federal government. By means of this success, more students, more money are attracted. This means that the first objective was not necessarily economic, but its economic implications have been very favorable both for the canton [Basle-City] and the university.

These two reforms had important implications, in that the internal functioning of the university was modified in different ways (König, 2010: 160ff). First, the university was considered, accordingly organized, as a unique entity tightening up the formerly group of loosely coupled faculties and institutes: the first outcome was the centralization of

administration and budget in the hands of the rectorate (see interviews with central administrators).

A reform of faculties was introduced by the new rectorate: these had to regroup their institutes in departments in an attempt to better coordinate independent and isolated subunits, especially in the faculty of humanities, social sciences and economics (the so called Phil I).

Faculties were the academic units, close to them departments were planned as units for staff and financial management, conceived also as temporary amalgamations. Departments turned out to be rigidly organized, it was practically impossible to modify them.(...) There was a permanent dispute between faculty and departments over financial issues, i.e. who was in charge.

A faculty of business and economics was established in 1996 in order to deal with tensions and conflicts with social sciences and humanities, which allegedly arose around scientific excellence and international competition, as some interviewees in both faculties stated.

Table 27: UNIBAS faculties and institutes

	1996	2000	2004	2008
faculties	6	6	7	7
departments³	0	18	22	22
Institutes outside faculties	0	2	2	2
Interdisciplinary institutes	0	0	0	2

Source: UNIBAS annual reports, website

³ It has been impossible to reconstruct the total number of institutes over 1996-2008. The website states: “about 70 institutes” <http://www.unibas.ch/index.cfm?5EB68B95AA2FC00BF645831DA20533BE>, consulted 6 July 2010

In 2003, after business and economics, a faculty of psychology was created by separation from Phil I. The primary reasons for this partition were based on the numbers of students massively increased in psychology related disciplines as well as the perceived orientation of psychology more towards behavioral sciences and quantitative methods. This explains also why management's first strategic option, which considered to attach also social sciences to this new faculty, was fiercely contrasted by academics within Phil I and eventually abandoned.

There were sparks [on the transfer of sociology] but we sat down together and agreed, the rectorate changed its opinion completely. First sociology had to be canceled, then it had to be transferred into a faculty of behavioral sciences with psychology. This was already decided in the rectorate and in the board without involving the sociologists in the discussions. There was opposition and this was successful. The rectorate and the board withdrew their decision. I consider this really strong!

In 2004, the portfolio revision reorganized some institutes, which were downsized (e.g. Nordic languages) or closed (astronomy and geography). On the other side, the reorganization of the faculty of medicine and the enhanced focus on life sciences saw the transfer of the research intensive institute Biozentrum, active in the field of cell biology and biochemistry, from medicine into the faculty of sciences. However, the proposition to close down a certain number of institutes wasn't implemented thoroughly, as academic and popular indignation led to public manifestations and political discussions on the nature of generalist universities, which were conceived as a combination of as many disciplines as possible. In particular at the faculty of social sciences and humanities, the planned downsizing didn't take place, on one side thanks to student mobilizing, on the other because the concerned disciplines were selected but disregarding the significant numbers of students enrolled (e.g. institute of Slavic studies).

The new legal framework of 1995, defined a different role for the rector: before he was elected every two years to represent each faculty in turn. However, with the new chart the two year limit was canceled and the terms of office were increased to four years repeatable. The role was also separated from that of the president of the academic senate, formally

distinguishing between academic and managerial layers. Moreover, the rector and the members of the rectorate could come also from other higher education institutions (UNIBAS, 1996). This has been the case for the vice-rector for research, appointed in 2006, who arrived from the university of Zurich.

The university council displays two periods: the first, between 1996 and 2004, was characterized by members coming from industry, banking, culture and society, as well as politics (ministry of education of Basle-City and Basle-Country), with a president coming from the pharmaceutical industry and a long experience on corporate reorganizations. The second council, since 2005, had more representatives of the political milieu, while the president, a lawyer, was a former minister of finances.

We have made some steps forwards, yes, but the board has become more political, and for that reason the division between the rectorate and board has blurred, because the board interferes in many operational things, if they think that this is politically necessary, politically sensitive.

This can be explained by the taking on board of a second canton as a full funding authority, in that specific decisions were characterized by political (instead of strategic) discussions and outcomes. This was the case, for example, of the choice between buying and renting specific infrastructure: even though investing in facility was the best solution in financial terms, renting was eventually favored in order not to prefer one or the other canton (referred in two interviews).

On the reverse, deans continued to serve according to traditional models of (mainly) one year office, despite some attempts to distribute responsibilities in the appointing procedures.

The system in place, whereby only faculties had the right to appoint deans was unbalanced. A compromise was aimed at by splitting [responsibilities] with a double legitimation: the faculty elects a dean, who is then to be confirmed by the rectorate or the university council. This would have been a better system, of course, it was impossible to implement it.

6.3 Evolutionary trajectory

6.3.1 Building a competitive profile around education

The first strategy of Basle, issued in 1997, concentrated on educational excellence and formulated a series of actions: the introduction of ECTS and the organization of programs by modules, reform that actually anticipated the Bologna reform. For these reasons UNIBAS was the first Swiss university one to introduce bachelor in the academic year 2000-2001, and master in 2001/2002.

In the 1997 strategy there was a kind of foresight because we said politically the university needs to excel in its teaching responsibility, (...) we need to have a total revision of the curricula, to go for a credit point system before Bologna (...). The interesting thing is that Basle was underway to totally renew its curricula when the Bologna wave arrived and this made many many people angry, because they had to revise curricula twice.

Yet, although Basle was the first university to introduce Bologna, in 2008 there were still more than 1500 students in the 4-year curricula. Furthermore, while the “pre-Bologna” reform was accepted positively by the academics, the actual implementation of Bologna arose some discontent, as organizational efforts to adapt the programs had to be repeated in a short period of time (this was stated by an interviewee in charge of the processes).

Table 28 on students evolution shows a stagnation of the numbers between 1996 and 2000, remaining below 8000. From 2001/2002, however, enrollments increased steadily from 5% to more than 8% every year and reached almost 12'000 students in 2008. In the twelve years considered, the number of doctoral students augmented 85% from 1172 to 2162. From 1996/97 to 2000/01 they increased 15% to 1350; in the following four years to 2004/05 they augmented 40%, while numbers rose about 14% from 2004/05 to 2008/9.

Table 28: UNIBAS students evolution

	96-97	00-01	04-05	08-09
Total	7958	7606	9222	11819
Share system	8.7	6.8	5.8	6.4
Growth rate		-4.4	+21.3	+28.2
4-year degree	6532	5938	4459	1556
bachelor	0	28	2416	5957
master	0	0	397	1637
doctorate	1172	1350	1896	2162
other ⁴	254	291	54	507

Source: FSO

Educational programs were indissolubly connected to institutes. In particular, at the faculty of Phil I, every institute was in charge of a specific area of the 4-year curriculum. Unfortunately the annual reports were not so specific to allow the reconstruction of the evolution of programs over the years. The situation in 2010 is: 48 Bachelor, of which 31 at Phil I, 68 Masters, of which 42 at Phil I (<http://www.unibas.ch/index.cfm?5EF9BC34908CD5F181C9A03FFA8AA673> accessed 7.7.2010). The reporting at the university of Basle doesn't allow to be more precise and accurate.

Like UNINE, UNIBAS was actively involved in partnership with other universities: it was part of EUCOR, the European confederation of upper Rhine universities (including Albert Ludwig-Universität Freiburg, Karlsruhe, Strasbourg and Haute Alsace), which aimed at enhancing student mobility and cooperation in education and research, even though most of its activities were focused on education and student exchange. Again, as in the case of Neuchâtel, the evaluation of this kind of instrument is mixed: UNIBAS management

⁴ Continuous + MAS + other

perceived this instrument biased by an unbalanced relationship between autonomous, little bureaucratized institutions and universities highly dependent on their national or regional governments.

Partnerships with foreign universities are not a strategic option, as you can't do anything without irritating the other partners, in Germany it is too complicated. Our strategic cooperation is in Switzerland.

Table 29 UNIBAS education profile (share of total degrees and system)

	Humanities	Social Sciences	Economics	Law	Experimental and Natural Sciences	Medicine and Dentistry	Building Sciences	Agronomy	Mechanic Engineering	Interdisciplinary	Arts	Health Sciences
2000	18	5	19	17	17	25	0	0	0	0	0	0
Share	8	2	7	10	9	18	0	0	0	0	0	0
2008	17	11	9	13	17	29	0	0	0	5	0	0
Share	10	2	3	9	9	24	0	0	0	13	0	0

Source: FSO/Eumida

Table 29 shows the trajectory of the educational profile at UNIBAS. Social sciences, reflecting a general trend of the system, augmented by 6%, while medicine of 4%, increasing Basle position within Switzerland. Unique case presented here, Basle could develop an “interdisciplinary” share of its degrees, mirroring a certain success in the strategic creation of interdisciplinary institutes.

6.3.2 Building a research profile coherent with strategy

The main actions of UNIBAS concerning research matched the strategic overall objectives of life sciences and culture, as defined in the first strategic document of 1997 and confirmed over the years. The university of Basle competed among the best institutions in Switzerland

for research activities, as it held, over time, more than 12% share of total grants by the national science foundation. In 2001 and 2005 Basle was able to acquire two NCCR⁵ programs according to its strategic priorities, i.e. the nanotechnologies, with SFR 111 million, which led to the creation of the institute of nanotechnology; and the project called iconic criticism, in 2005, reflecting the strategic priority “culture”. Moreover, in 2005, the new faculty of psychology secured a NCCR in behavioral sciences.

There is a great, essential change after 1996, in the way how these projects are negotiated. (...) before professors were in charge of the negotiations for a single research. Now it is the rectorate.

The importance of rectorate’s involvement in the negotiations for big project with intermediary agencies and federal authorities seems to be an outcome of both federal policies to restructure and consolidate the Swiss higher education system (Kleiber, 1999) and the governance reforms implemented which concretely granted rector’s offices of more power and responsibilities.

Table 30: UNIBAS competitive research at SNF

	1996	2000	2004	2008
Total SFR millions	32.7	30.9	44.2	52.5
Share budget	11.3	11.4	12.0	8.8
Share system	12.9	12.2	12.7	12.2

Source: FSO

Some important reorganizations went on at the faculties of sciences and medicine: in 1998 chemistry, dentistry and computational sciences were restructured, in 2004 the Biozentrum (life sciences) was transferred from medicine into science as part of a strategy to foster a

⁵ See previous chapter for a detailed explanation on NCCRs

regional pole in life sciences; at the same time geography and astronomy were suppressed. Moreover, in 2006, two institutes on European and Jewish studies were established as interfaculty subunits in order to enhance interdisciplinarity.

Looking at the number of doctorates, compared also with PhD students, Basle confirmed its ambitions as a research intensive university, with a share of PhD students on total students equal or superior than in the other generalist universities (e.g. Berne, Geneva) ranging from almost 15% in 1996 to a maximum of about 21% in 2004. In 2008 the rate was 18% while the national average was around 15%.

Table 31: UNIBAS doctorates granted

	1996	2000	2004	2008*
PhD	381	377	286	365
Share degrees		32.2	28.5	27.6
Share system	14.0	13.4	10.2	11.4

Source: FSO total degrees = 4 year degrees + Master degrees + PhD

With the third strategic plan in 2007, to foster research activities and to face the growing difficulties in preparing complex applications – for the NCCR but also for the European Framework and traditional SNF grants – the university decided to dedicate a special fund to support researchers in the preparation for these applications (UNIBAS, 2007).

As already mentioned in the section on education, UNIBAS participated to cross border EUCOR network. Nevertheless, these research collaborations were considered inefficient as they concentrated on joint programs mainly in doctoral education.

6.3.3 Human resources policy: slowly introducing change with some drawbacks

Staff evolution at UNIBAS, all categories included, reflects a consistent augmentation of human resources, even in the period between 1996 and 2000, when students numbers stagnated. This might reflect the fact that the strategy “life and culture” required increasing resources to be implemented over the years, in particular concerning education, a distinctive priority in the same period, and research in the field of life sciences.

The increase in the number of assistant professors appear to confirm this assumption. From 8 assistant professors in 1998, there were 21 in 2000, 45 in 2004 and 41 in 2008. Tenure track was introduced by the rectorate in 1998: since 1999, every year up to 5 tenure track assistant professors were recruited, with a peak of 7 in 2008 (sources: UNIBAS annual reports, no information available for the years 2001 and 2005).

Table 32: UNIBAS staff in FTU

	1996	2000	2004	2008
Tot staff	1778	1890	2243	2473
prof	204	230	245	254
Other teacher	78	89	147	163
Intermediate corps	942	943	1123	1258
Tech/adm	555	627	728	798

Source: FSO

On the other hand, academic management unsuccessfully attempted at canceling the requirement of the Habilitation, which is requested for academic career, according to the German standards, in the faculty of social sciences and humanities. According to two

interviewees, the average age for the habilitation at UNIBAS is 41 years, age considered too advanced both for initiating an academic career or entering the labor market.

6.3.4 Pioneering a new framework of relations with funding authorities

The university of Basle pursued a strategy of enlarging its institutional financial basis integrating the canton of Basle-country in the institutional steering: from 1996 to 2008 the total budget doubled from SFR 290 million to SFR 595 million, outperforming the positive trend in the Swiss landscape. The canton of Basle-Country, whose contribution was stable until 2000 under SFR 80 million, increased its share of 26,6% to SFR 98,4 million in 2004, and of additional 46,5% to SFR 131,6 million by 2008, eventually matching the same amount of Basle-City since 2007, when the double Trägerschaft was implemented (financial data from Annual reports, University of Basle).

Table 33: UNIBAS funding sources

	1996	2000	2004	2008
Tot budget	290.7	277.5	367.9	595.3
confederation	33.6	36.7	44.5	71.2
Canton(s)	154.4	133.7	180.0	273.5
Intercantonal agreement	16.5	24.0	34.1	68.2
Third means	68.6	65.0	83.5	105.6
Fees	6.7	7.8	10.6	12.9

Sources: FSO

The increase in terms of students explains the augmentation of the confederation and intercantonal sources as well as of student fees, while the share of third means decreased from 25,9% in 1996 to 20% of the overall budget in 2008.

In spite of this steady growth of the overall budget, the university of Basle had always difficulties to find a balance between its (potential) ambitions and its financial conditions, due to relatively small size of its funding canton. In 2003, university management tried to advocate an increase in the allocation of funds from the canton. This initiative was called “75 million more for the university” but couldn’t be satisfied eventually, as the government refused to augment further its contribution. This had as a direct outcome the so-called portfolio clearing exercise, a strategic plan stating openly what to focus, accordingly what to close and downsize (see sections 6.1 and 6.2).

6.4 Discussion

Patterns

The case of the university of Basle displays significant change driven by the strategies elaborated by the council and the rectorate. A first period from 1996 to 2005 can be regarded as a profound transformation into an organization able to take its own decisions through a new organizational structure and hierarchy, with a reinforced management layer supported by an external board of trustees. However, the attempt at building critical mass around scattered institutes, particularly at the faculty of humanities and social sciences, was less successful, according to all interviewees. Furthermore, the layer of the deans remained unchanged, as these continued to turn every year, elected by their peers as representatives of the main disciplines within the faculties.

In terms of education and research, UNIBAS was able to consolidate and further develop on the two macro dimensions of life science and culture. This is particularly visible in research

activities, which grew consistently in this direction, thanks also to the NCCRs acquired in nanotechnologies and semiotics. Financially, the whole period was characterized by the constant quest for additional funds, frustrated by cantonal authorities, which were unable to respond (always or entirely) positively: for this reason a portfolio clearing was attempted but only partially implemented due to strong disagreement in the academic community itself and in the public opinion.

The milestone dividing this first from the second strategic phase was the full involvement of a second canton in the funding authorities and the arrival of a new rector in 2006. On one side, the integration of the canton Basle-country into the Trägerschaft allowed the university to widen significantly its financial basis, ensuring additional and more regular means within the block grant to enhance growth. On the other side, the rector was selected by academics as a person able to defend their interests, but also approved by the council as someone able to manage the different disciplinary groups and to consolidate the reforms of the organization, in particular in the faculty of humanities and social sciences.

This higher education institution shows patterns of coherence in a general perspective: as a big, old, traditional university it was able to organize itself according to the external demands, to secure first the quality of education, second of research as well as to acquire financial means. In sum, it was capable to provide itself with a long running strategy and to face changing conditions, by establishing itself as a formal organization. However, looking, at a more micro level, a certain extent of incoherence is detectable: the reform of the organizational structure was reached only at the upper level, i.e. of executive management, the introduction of the Bologna reform was implemented over a long lapse of time and, in 2008, was still debated and contrasted at Phil I. The intensity of research activities in expensive fields such as life sciences and medicine persistently required large amount of resources. Thus, in spite of the enlargement of the funding basis, uncertainty in the long term surfaced cyclically, as interviews at the management level highlighted. Finally, academics and public opinion could rapidly coalesce against changes proposed by central

administrators that concerned the reorganization of faculties, these changes were perceived as (politically) unjust and protests could successfully hinder strategy implementation.

Actors

At UNIBAS the rectorate functions as an interface between the external context and the academics, actually mediating academic oligarchy expectations towards the demands of the university council. In this sense the role of the rector is extremely important for the entire university functioning. The sense of belonging of the members of the organization is very strong (as all interviewees confirmed) and is due, in particular, to the tradition and history of this 550 years old institution. Noticeably the council is considered to be outside of the academic perimeter, as a body attached to match external requests⁶. At UNIBAS strategies are planned at the level of governing bodies, while academics negotiate directly with the rectorate or discuss collective issues in the senate. Changes in internal governance could be implemented rather easily insofar they do not concern directly the organization of the academic community (e.g. reorganizing the administration) but were fought against fiercely (e.g. closure of institutes which gave way to protests by students and public opinion) or resisted with high degrees of inertia (e.g. departmentalization, which, according to all interviewees hasn't achieved the objective of dynamizing activities within certain institutes). In this sense a separation is observable between top management – council and rectorate – and the understructure – faculties and institutes.

UNIBAS maintains a balance between a flexible and business like top management where the university council is delegated from the cantonal government to build a university strategy and eventually appoint the rector. On the other side, academics maintain a strong power as they elect the rector through the academic senate and their deans within faculty. In this sense, it is easy to understand how, on one side, the council developed strategies in a

⁶ At the dies academicus at UNIBAS, the ceremony presents, by means of specific dresses and order in the parade, the members of the university. The board, although present, is not included (source: interview).

firm-like manner, on the other side, how the academic community exercised its power in the academic affairs, organizing in advocacy coalitions (Sabatier, 1987) in order to contrast restructuring endangering disciplinary structures and the idea of the “generalist university” .

Positioning

University of Basel changed its position by growth to shift more to the center of the organizational field, within the group of the big generalist institutions with more than 10'000 students (Geneva, Berne, Zurich). While being the oldest Swiss university, it identifies itself with its closer industrial and cultural environment. This is manifest when one looks at the council members, all representatives of the political, economic and cultural context and rough whom the intention to maintain strict relations with the community is shown. However, by broadening its political basis with the entry of canton Basel country in the maintenance of the university, Basle also showed strategic capability to search for innovative solutions, rapidly imitating the newly born governance model of UAS, that, differently from universities, can be held by several cantons. Particularly in the last years of the period considered, UNIBAS displayed a pattern of actions towards strengthening its ties to the university of Zurich and ETH Zurich, for example with respect to life sciences and nanotechnology. Aware of its history and of its specific identity, this university shifted intentionally towards the Zurich area anticipating some general political reconfigurations at the Swiss level, whereby larger macro regions are being discussed. While defining its partners, Basle respectively identifies its competitors, in particular EPFL and Geneva University: in the field of life sciences the first, as a big generalist university the second.

UNIBAS differentiated in that it focuses on culture and life sciences in order to search for excellence in these two domains. However, the generalist profile has been maintained and research activities – with different degrees of quality – continue to stretch all over the faculties, in particular in that of humanities and social sciences, where the closure of

institutes and the grouping into departments to enhance critical mass wasn't achieved substantially (see chapter 4).

7 Federal Institute of Technology Lausanne (EPFL): embracing international competition

“EPFL was created by engineers to educate engineers, even before the federal institute in Zurich was established [1853 Ecole spéciale de Lausanne, 1855 ETHZ]. It was created when Switzerland on one side was becoming industrialized, on the other side it wanted to build its railway, build tunnels under the Alps. (...) There were three ancestors: Humboldt in Germany, i.e. education and research (...), industrialization in the UK (...) and the French “grandes écoles”.”

“EPFL positioning depends on rankings. Our competitors are, first, in Europe, like everything, because we are fundamentally European (...) just look at the origin of our typical Master students, a lot of them come from Europe. We also recruit a lot of professors, who are European but who went to the US and want to come back to Europe, profit from a system very close to the US. There aren’t a lot (of such systems) in Europe, unless you want to go to the UK, but even there is quite different from US.”

7.1 Patterns

Table 34: EPFL summary of events and actions

Governance	Education	Research	Human resources policy	Finances
2000 new President arrived with new rectorate (3 VP, 3 deans, SG)	2000 communication systems department created	90ies project SVS under discussion	2000 tenure track (3+3) introduced by FIT board	2000 contract of performance introduced
2001 existing strategy revised	2001: sections created	2000 SVS project presented	2000 SAP system for personnel management introduced	2003 new act: controlling
2001 Orthogonality reform into faculties, institutes and sections	2001 chemistry and chemical engineering degrees introduced	2000 scientific evaluation is systematized	2002 new contractual framework	2004 transfer chemistry, physics, mathematics from Lausanne brought 50 mio
2002 4 faculties created out of 16 departments; new faculty of life	2003 bachelor Bologna introduced	2000 communication systems department created	2003 Deans appointed by president	2006 private funding for learning center found
	2003 curriculum life sciences introduced	2001 institutes within faculties	Professor appointments through	
	2004 master Bologna	2001: transfer of		

sciences 2002
 delegation to deans
 for strategy, staff,
 budget, professors
 created
 2003 FIT act revised:
 president into board
 2004 President
 reappointed
 2004 rectorate
 reorganized (4 VP)
 2004 first dean life
 sciences
 2004 learning center
 2008 President
 reappointed third
 time

introduced
 2004 technology
 management and
 humanities colleges
 created
 2005 student
 satisfaction survey
 2007 accreditation of
 all programs

chemistry from
 Lausanne (SVS)
 2001 NCCR quantum
 photonics (40,6 mio),
 mobile information
 (35,2 mio)
 2001 interdisciplinary
 institute of
 mathematics created
 2002 integration of
 ISREC signed
 2003 Doctoral school
 introduced
 2004 transfer of
 chemistry, physics
 and mathematics
 from Lausanne
 concluded
 2004 integration
 ISREC (Institute
 cancer research)
 signed by federal
 ministry
 2005 NCCR quantum
 photonics (29.1 mio),
 mobile information
 (33,9 mio)
 2005 partnership
 CSEM, Neuchâtel
 and IDIAP, Martigny
 2005 Blue Brain IBM
 2006 doctoral school
 for all PhDs
 2007 Acquisition
 IMT from Neuchâtel
 announced
 2008 integration of
 ISREC (cancer
 research institute,
 incl. NCCR
 molecular oncology)
 achieved

deans and rectorate
 2004staff satisfaction
 survey

7.2 Actors

7.2.1 From centralized planning to top down change management

The Ecole polytechnique fédérale de Lausanne was transformed from a engineering school into a research intensive technical university in a few years. In the framework of a national reorganization of the distribution of research intensive and costly disciplines, EPFL made a huge turn from 2000, when a new president came into office and major areas of activity of this technological university were rapidly reoriented.

Always elaborated a couple of years in advance, the strategic plans at EPFL follow the pace of federal legislatures and, accordingly, the four-year messages on support of higher education and research. In the period considered, the first strategic plan available concerned the period 2000-2003 (EPFL, 1997). It was prepared by the president and underwent large consultations within the school. It listed the main activities and developments of the institute of technology according to its different departments.

In 2001, immediately after his arrival in 2000, the new president was asked by the federal institute of technology board to revise this strategy (EPFL, 2001): he introduced the development of life sciences as a major reorientation of the school, the extension of natural sciences, which until then were overshadowed by engineering disciplines, moreover he proposed the establishment of a doctoral school and the introduction of tenure track to foster excellence in research.

The following strategic plans were prepared on a regular basis for the periods 2004-2007 and 2008-2011 (EPFL 2002; EPFL 2006). They were mainly organized according to faculties and reflected the planned evolution in terms of disciplines, in particular pertaining to interdisciplinarity in the life sciences domain. After an introductory broad analysis of the situation concerning the evolution of students and financial issues, they listed specific priorities and professorial positions to be open.

7.2.2 Introducing a vertical system based on delegation

EPFL is federally held, together with the federal institute of technology in Zurich (ETHZ) and other research institutes, which are part of the ETH domain. This domain is coordinated by a board composed by academics and representatives of economy, politics and society. Since 2003, when the 1991 Federal Act on federal institutes of technology was modified (Confédération, 2003), the president of EPFL has been sitting in the board as a full member *ex officio*. In a framework of a high degree of autonomy, budget allocation between the two federal institutes of technology in Zurich and Lausanne and the other four institutes is decided at this level, as the confederation grants a global budget for the whole domain (e.g. in 2007). Furthermore, issues of general interest such as the introduction of the Bologna reform (see section on education) and tenure track (see section on human resources policy) are coordinated by the board for the whole ETH domain.

As already mentioned in the introduction, the EPFL experienced a turning point in 2000, when a new president – and his new presidential team – was appointed by the federal government. In eighteen months, the twelve existing departments were merged into four faculties and a new fifth faculty of life sciences was created. By 2004 two interdisciplinary institutes of technology management and humanities were in place to complement the technological curricula. Accordingly, the internal regulations were modified, in particular, the body assembling the heads of department was dissolved.

From a more horizontal model of departments collegially acting and reporting to a president and a vice president, EPFL was transformed into a vertical multi-layer hierarchy comprising faculties, institutes, chairs and laboratories. Unfortunately the reporting of EPFL was very concise on this topic and it was not possible to reconstruct in detail the evolution of the institutes.

Table 35: EPFL faculties and institutes

	1996	2000	2004	2008
Departments	11	12	0	0
Faculties	0	0	5	5
Institutes	--	--	--	26
Sections	0	0	--	13
Interdisciplinary institutes	0	0	0	1
Institutes outside faculties	0	0	2	2

Sources: annual reports, interviews (partial reconstruction)

This table shows three important dimensions of the structural transformation of EPFL: first, departments were transformed into few faculties, second, sections in charge of educational programs were created within faculties as well as at corporate level. Finally, through this reorganization interdisciplinarity was enhanced, in particular by integrating soft disciplines provided by new institutes outside faculties.

“This “orthogonalization” aimed at triggering the emergence of new programs and degrees, without creating research committees or institutes.”

“If you have to manage an interdisciplinary unit, you need to have distributed power, and it is not always obvious how to set it up”

At the EPFL, several reorganizations took place after the arrival of a new president in 2000. First, he brought at the top of the university his own presidential team, so that the school passed from a president and a delegate for the educational affairs to a president, three vice presidents on education, research and logistics. In 2004, after the renovation of his mandate, the president reorganized his team and appointed four vice presidents: two for academic and institutional affairs, one for media and technology, and the vice president for logistics.

“It is difficult to restructure bottom-up, at a certain point you have to do it top-down, and this is what happened mostly. I would say that now it is becoming again [more bottom-up] because it was very participatory before [the restructuring]: there was a top-down phase, changes had to be carried out, the school was reorganized in less than one year and a half. It had to be relatively rapid, specific decisions had to be taken.”

“The new EPFL structure augmented ten times the distance between professors and the president. Now there are a few intermediaries, there are layers, some of them almost impermeable.”

The principle of “orthogonality” was introduced in 2002 in order to exploit more the synergies between education and research: the institutes remained competent for research, and sections were created, organized around main topics within faculties across institutes, becoming thus responsible for educational programs. This reorganization was intended to increase interdisciplinary coordination by establishing a certain number of new positions, like the heads of the different sections and the deans responsible for undergraduate and graduate education for the entire university. Thus, educational activities were centralized to a certain extent: at the level of faculty within sections, at the level of management under the new roles of deans for bachelor, master and doctorate.

Finally, since 2004, deans were appointed directly by the president, and have been delegated with competences such as budget, personnel (particularly recruitment of professors) and acquisition of third party funds.

It has always been vertical here. Before there was a vertical structure speaking to the professorial collegiums, now we have a vertical structure speaking to a subordinate boss, who speaks to professors, to employees.

Between 1996 and 2000 the school had a president, an engineer, and a vice president, while every department elected its dean in charge for a 2 year office. In 2000 a new president was appointed (as usual by the federal government): a titular professor and entrepreneur in the life sciences sector, who imposed his presidential team, which comprised an external vice president for research also coming from the private sector with medical education. Before his official coming into office, EPFL professors contested this new rectorate, judging inappropriate that both president and vice president came from medicine (and were not

engineers). Signatures were collected against this choice, however, the team, supported by the ETH board, started its office in spring 2000 with hardly any delay.

[against the new presidential team in 2000] it was a reaction by engineers, not very strong, this was the strength of the new president. He said: "I am the president, I stand by what I say". I think with that battle he won all the other battles. As he was able to resist in the beginning, he immediately broke down the system.

In 2004, a reorganization of the presidential office was carried out and an internal professor of physics became the new vice president for research.

The president carries a vision, this vision is coherent and needs to be explained, you have to explain a lot and then explain again. Then you have to take your decisions fast, implement them fast. You also have to provide leeway [to academic]. There were things which were not negotiable, for instance the reorganization of departments into faculties (...). On the other side faculty boundaries and how faculties had to be organized were negotiable. Hence, go fast and give room for development so that people have leeway to define some things by themselves.

These waves of restructuring and reorganizations were streamlined on one side through hierarchical structures that allow a rapid, "managerial" way of acting; on the other side the new academic administration was able to convince (some) groups of academics and build support to these major changes.

7.3 Evolutionary trajectory

7.3.1 Enhancing student enrollments under conditions of decreasing interest for sciences

Students evolution grew and reflected the average national trend. The share of doctoral students increased from around 13% until 2000, to 21% in 2004 and more than 23% in 2008 of total students.

Table 36: EPFL students evolution

	96-97	00-01	04-05	08-09
TOT	4470	5095	6493	6903
Share system	4.89	4.53	4.06	3.74
Growth rate		+ 14	+27	+6
4-year degree	3372	3768	949	0
bachelor	0	0	2239	3251
master	0	0	1380	1498
doctorate	583	695	1370	1618
Continuous + MAS + other	515	632	555	536

Source: FSO

The reform of Bologna was introduced for the Bachelor level in 2003, for the Master level in 2004 and was rapidly implemented, in fact already in 2005 no more students were enrolled for the 4 (or 5) – year diplomas. Similarly to other higher education institutions, it brought diversification to programs: before every department had its own curriculum, after, within faculties, different programs, managed by the newly created sections, were started.

This is a global trend, all of a sudden opposition against technique provokes a diminishing interest of students for these disciplines, students in the end are customers for universities, hence there is pressure again from the outside to change. Those in charge of strategy cannot ignore this external pressure... you can think that physics, chemistry and mathematics are very important, but if nobody enrolls, you can't do anything. Thus, both federal institutes of technology developed life sciences.

The increase of programs was also due to the integration, between 2001 and 2004 of physics, chemistry and mathematics from the University of Lausanne (so-called project SVS – Science, Vie, Société). In the course of the years, EPFL subject mix reoriented to include a strengthened basis of natural sciences in order to support, subsequently, its new faculty of life sciences.

Table 37: EPFL educational programs

	96-97	00-01	04-05	08-09
4/5-year curricula*	11	12	0	0
Bachelor	0	0	14	13
Master	0	0	18	21

Source: annual reports EPFL

EPFL didn't signal any particular interest in developing programs with other universities or within specific partnerships. However, in some cases, international partnership on specific leading programs was established at the initiative of professors, like the French-Italian Swiss Master on nanotechnologies for integrated systems.

Table 38 EPFL education profile (share of programs and system)

	Humanities	Social Sciences	Economics	Law	Experimental Natural Sciences	Medicine and Pharmacy	Building Sciences	Agronomy	Mechanic Engineering	Inter-disciplinary	Arts	Health Sciences
2000	0	0	0	0	22	0	32	0	46	0	0	0
%	0	0	0	0	8	0	21	0	7	0	0	0
2008	0	0	0	0	34	0	25	0	40	0	0	0
%	0	0	0	0	13	0	20	0	15	0	0	0

Sources FSO/Eumida

Table 38 shows the changing trajectory of EPFL educational profile: between 2000 and 2008 experimental and natural sciences augmented 12%, while engineering decreased 7% in

building sciences and 6% in mechanical engineering. The shares of the system are characterized by an increase of 5% in basic sciences, stability in building engineering and an increasing share in mechanical engineering. The maintenance of the position in engineering is explicable with the reorganization at system level, whereby engineering sciences have been concentrated exclusively in the federal institutes of technology.

7.3.2 From industry relations to basic research

The reorganization of chemistry, physics and mathematics in the French speaking universities was under discussion in the nineties. This project, then called SVS (Sciences, Vie, Société “Science, life, society”) was coordinated by the EPFL president with the other two rectors of Lausanne and Geneva and made public in 2000. It was then implemented by the presidential team in office from 2000 and was concluded in 2004: it consisted of the transfer of the three disciplines from the university of Lausanne to the EPFL. This happened actually physically simply by changing the boundaries between the two campuses, which are one close to the other in front of the lake Lemman. This reorganization at regional level started to change EPFL profile as an engineering school and opened the door to the subsequent transformations in its research profile, i.e. life sciences. From the interviews it emerged that the school management in the nineties was planning a consolidation of natural sciences but was not considering a straight forward evolution towards life sciences.

Medical engineering means developing instruments to put in your heart, in your ears, putting something in your head against Parkinson, for your eyes, teeth, this is medical engineering. (...) Hence all what is at the border with chemistry and biology: materials for artificial articulation, etc (...). In the beginning biology was intended to remain a competence in cantonal universities. However, now, there is a lot of biology at the EPFL, too.

With regard to policy makers, it is not possible to argue, according to interviews and documents, that a faculty of life sciences represented an objective deliberately selected already in the Nineties. It appears rather that the project SVS offered an opportunity, which

became apparent and was seized later on, towards the end of the Nineties, by the federal authorities.

Increasing basic research activities was a strategic goal of EPFL in the years 2000-2008. The indicator of competitive funding on FNS shows that the total amount of grants increased over the years: interestingly the biggest increase was achieved between 2000 and 2004 (plus 86%) in the first years of the strategic change, while from 2004 and 2008 research grants at SNF augmented by 16%. For a discussion on the evolution of the funding stream composition see the following section on finances.

Table 39: EPFL competitive funding FNS

	1996	2000	2004	2008
amount	16.4	20.6	38.3	44.5
Share budget	4.2	4.8	7.5	6.5
Share system	6.5	8.2	11.0	10.4

Source: FSO

As of doctorates granted, the table hereafter shows an augmentation, which doesn't match the augmentation of PhD students. In fact the share titles granted – total PhD students was 22% in 1996, 29,9% in 2000, then goes back to 18,1% in 2004 and 16,4% in 2008. It is not possible here to provide any explanation according to the available sources: this may reflect the evolution of PhD students, who increased massively, and structural capacity to have a PhD completed. A different account could be provided by the reorientation of doctoral studies, towards more interdisciplinary topics in life sciences, that may have required longer periods for their accomplishment.

Table 40: EPFL doctorates granted

	1996	2000	2004	2008*
PhD	128	208	248	266
Share degrees		28.9	30.8	27.6
Share system	4.7	7.4	8.8	8.3

Source: FSO *total degrees: Master degrees+PhD

The new strategy also aimed at coordinating the overall PhD production: in 2003 a doctoral school was created, which, from 2006, coordinated all PhD students within the EPFL. Accordingly, PhD students recruitment is coordinated at the school level and students are matched to a supervisor in the first twelve months (source: one interview).

Concerning strategic acquisitions of research grants, EPFL obtained two NCCRs already in 2001 in basic physics and information and communication systems, securing almost SFR 120 million of SNF funds over 8 years.

The intensity of research activities was supported by several acquisitions over the years: the previously mentioned project SVS, the partnership with Swiss Center in Electronics and Microtechnique in Neuchâtel, CSEM, in 2005; with IDIAP (institute on multimedia information and man-machine multimodal interactions) in Martigny as well as the Blue Brain project with IBM. In 2007 the acquisition of the institute of microtechnique in Neuchâtel was announced to be carried out in 2009.

EPFL policy is to absorb all you can absorb. In rankings it is a slope, like a business acquiring another firm, every year, so that it can show a rising curve, swallowing up another firm, from whose assets it can profit immediately. More time is needed for a firm to develop on its own. Through these acquisitions EPFL had its PhD students augmented, etc.

Moreover, the acquisition of the ISREC, Institute for research in cancer, started in 2004 and implemented by 2008, brought to EPFL a third NCCR on molecular oncology (SFR 42,8 million for the period 2005-2008).

7.3.3 Systematic implementation of US-like model of human resources policies⁷

The evolution of staff is rather striking in terms of professors, highlighting strong growth, in that professors augmented from 146 in 1996 to 250 in 2008. The introduction of tenure track for assistant professors in 2000 contributed to this evolution as most appointments regarded assistant professors. Although the tenure track was introduced in 2000 for the whole ETH domain, only EPFL introduced and used it systematically.

There isn't any more a chair planning made position by position. The approach now is very different, we say: we have strategic intentions, hence there are fields to be developed, then we recruit, but in a very broad manner; the best academics in the world are recruited, based on very broad profiles, then the real best ones can be selected.

Hence human resources policy shifted from planning chair by chair according to retirements and departures to the definition of broad profiles, to be fulfilled flexibly by the best candidates in terms of research track. The deans of the new faculties were granted recruitment responsibilities: in fact, even though applications were evaluated by commissions of professors of the faculty, the choice of the candidate had to be approved by the dean, who then submitted her final decision to the presidency. The candidate had to be assessed subsequently by the presidential team, who could still refuse her. Finally, the nomination is submitted for formal acceptance to the ETH board.

⁷ For a critical account of the “Americanization” of EPFL, see Zuppiroli 2010: 31.

Table 41: EPFL staff in FTU

	1996	2000	2004	2008
Tot staff	2341	2579	3294	3836
Professors	146	154	205	250
Other teacher	14	37	124	160
Intermediate corps	1486	1554	1964	2185
Tech/adm	695	833	1002	1241

Source: FSO

The new presidential team introduced clear paths for academic career at all levels. For professors three stages were set up: full, associate and tenure track assistant; while for the intermediary corps two positions were defined: senior scientist and titular professor. Accordingly, a dual path career is ensured in order to integrate “pure” academics and academics active in industry projects.

7.3.4 Solidly increasing all funding streams

The funding sources of EPFL mirrors its governance structure, whereas the confederation was the main funder. On one side, the increase in the share of third funding, from 22,2% to 26,3% until 2004, contributed to finance part of the growth of this school. On the other side, the various acquisitions between 2001 and 2008 were negotiated with the federal government in order to obtain the additional financial resources needed to deal with such integrations: according to one interviewee, the transfer of chemistry, mathematics and physics from the university of Lausanne (see section on research) brought to EPFL around SFR 50 million by 2004. On the other hand, the school proactively sought sponsorships with

private industry for chairs (e.g. Serono in life sciences), facilities (IBM in life sciences) and campus infrastructure (e.g. Rolex learning center).

Table 42: EPFL evolution of funding sources

	1996	2000	2004	2008
Tot budget	392.5	428.6	511.5	688.1
confederation	305.3	327.8	377.1	526.8
Third means	83.9	97.2	129.9	145.4
Student fees	3.3	3.6	4.5	5.2

Source: FSO

The overall budget increased over the years, by 9% by 2000, by 19% by 2004. In the period 2004-2008 the federal funds allocated to the domain of the institutes of technology grew massively, so that EPFL could enlarge its total budget by 34% from SFR 511.5 million in 2004 to SFR 688,1 million in 2008. On the opposite, in the previous years, until 2004, the confederation, through its ETH board, granted proportionately less: therefore between 2000 and 2004 the increase of third means contributed more significantly to the augmentation of the entire budget.

Between 2004 and 2008 third funds increased more moderately of 12%. This might be explained by the fact that the sound increase of federal funds covered the necessities of the university, which didn't need to search for further financing. However, between 2004-2008 there were less acquisitions than between 2000-2004 and this could also explain the decrease of third funds. Finally, EPFL share in the ETH domain increased 3%, this might be the outcome of constant calls for more favorable reallocation to EPFL by its president, as an interviewee asserted.

7.4 Discussion

Patterns

The EPFL shows a first strategic cycle from 1996 to 2000: on one side the school continued to maintain its profile as a highly reputed engineering school, focused on providing excellent education for professionals, mostly engineers and architects, ready to enter the labor market as highly skilled labor, and research activities predominantly based on the relations with industry. However, through the reorganization of the national science landscape in the mid nineties, new opportunities were surfacing: the transfer of mathematics, physics and chemistry from the university of Lausanne provided a transition, apparently unintended, towards life sciences.

This second strategic cycle started in 2000 and presents an outstanding degree of coherence of actions across the areas of activities considered, coalescing around a new impulse on basic research. First, structure and internal governance were centralized and made more vertical. The twelve departments were grouped into faculties and deans were delegated strategic functions concerning resource acquisition: attracting students, collecting research grants, as well as selecting professors. Education activities were reorganized around sections across institutes and coordinated at the executive level according to the three cycles. Research intensiveness was further supported by a thorough policy of tenure track positions. A national strategy of acquisition of research institutes was put in place to enhance growth of research activities.

Moreover, EPFL is a case for alignment of deliberate and emergent strategies, as the realized strategy coincided to a high degree with deliberate actions. When this was not the case – e.g. systematic integration of colleges of humanities and technology management or the promotion of further education (source: external assessments by OAQ and interviewees) – this seemed more a matter of (a certain) delay in the timetable than of a shift in strategy. As reported above, the degree of coherence over the five areas analyzed is very high and

issues of conflicting opinions by academics seemed not to have a significant impact on implementation of the strategy.

Actors

The case of EPFL, on the other hand, is an example of how a hierarchical structure can be molded by managers in order to pursue strategic goals and be made even more hierarchical. Strategy in this institution is centralized in the hands of the president, who deals with public authorities within the ETH board as well as in several other avenues – e.g. boards of directors in private or public firms. In so doing the EPFL president appears to act more similarly to a CEO of a multidivisional firm, concentrating on overall strategy and external relations, while functional competences are delegated to executives directly selected by him at key positions (deans). It is not surprising that the participation of academics to strategy is not very high, beyond individual or unit initiatives to promote or defend specific lines of research. However it shouldn't be neglected that the EPFL, between 1996 and 2000 possessed already characteristics of a vertical institution in comparisons to other higher education institutions. The president ruled over a smaller institution (see chapter 4 for data on its growth), more homogenous from a disciplinary point of view. An engineer among (mostly) engineers, he was able to manage EPFL by centralizing functions on his person: strategy, recruitment, finances were under his coordination and control. Nonetheless, a significant counterbalance was represented by the conference of the deans, an academic body where the heads of departments discussed together over issues of interest for the whole institution. With the reorganization of departments into faculties, in 2004, this body was dissolved.

At the EPFL, the president is also appointed by the funding authorities, like at UNINE, but the distance between them is bigger, in political as well as in geographical terms: between president and federal government in Berne there is an additional layer the ETH board. Moreover, the inner structure of this institute of technology has been traditionally more

hierarchical than in cantonal universities. Thus the academic community is more isolated as it only has the prerogative to meet and contribute to discussions in the school assembly, which hasn't any decisional power. Additionally, after the reorganizations of 2003 and 2004, the president acquired more power, by sitting in the ETH board – voting on budget allocation within the ETH domain – and by appointing deans.

Positioning

EPFL changed its position as an engineering school entering the crowded niche of research intensive universities, where the international dimension is essential. This new position was perceived as aggressive by other universities and cantonal authorities, as it reshaped the relational network within the organizational field, especially in terms of allocation of financial resources but also concerning shared norms and values in the Swiss higher education system. In fact EPFL imposed an mounting competition with the other federal institute of technology in Zürich, as well as with other cantonal universities, in a national system traditionally based on cooperation and distinctive niches. It did this by enlarging hugely its activities creating a new faculty and acquiring several research units, but also by profiting from a positive political constellation, pushing towards new forms of internal governance and aggressively enacting coordination and competition with peers with a distinctive power rationale (e.g. the perceived “hostile takeover” of the micro-technique in Neuchâtel).

As a matter of fact, this increasing dimension of competition had also internal implications: EPFL embraced the cause of life sciences reorienting in this direction its research activities on one hand, modifying its profile of an engineering school with mainly applied research and industry relations towards basic research. This had a strong impact on the position of the federal institute of technology, as international competition rapidly shaped the research activities of all the other faculties.

8 University of Applied Sciences of Southern Switzerland (SUPSI): being distinctive in a highly institutionalized setting

“SUPSI is a predator, when it sees an ecological niche, it has to expand towards it”.

“One of the critiques about SUPSI is that it is managed as a firm (...) We do strategy, we define objectives, the executive management splits them to the departments, where people are aware of the general strategy, allocation of human and financial resources is instrumental. Hence, yes, SUPSI is a firm, not a school. It’s a firm where education, research, technology transfer and project acquisition are carried out (...) We manage SUPSI like a private firm (...) we have a system of incentives.”

8.1 Patterns

Table 43: SUPSI summary of events and actions

Governance	Education	Research	Finances	Human resources policy
1997 -first president and executive director, - all functions centralized to executive management 2003 -second president and executive director (both external), - executive management restructured, - functional delegation to departments 2008 third executive director (internal)	1997 technical engineering and architecture, accounting, applied arts integrated 1998 social sciences integrated 2004 distance learning integrated by acquisition 2005 Bologna Bachelor introduced 2006 healthcare, theater, music introduced 2007 Bologna Masters introduced 2008 - teaching education integrated, -21 Bachelor and 14 Master	1997 existing institutes of computer integrated manufacturing and earth sciences incorporated 1999 institute of artificial intelligence integrated 2008 -four institutes created, -Research strategy and internal fund	2001 contract of performance introduced 2003 federal recognition 2008 federal recognition confirmed	1999 autonomy in HR management achieved 2003 professoriate regulations 2004 all contracts are based on private law 2008 -staff collective contract, -teaching/research career regulations

8.2 Actors

8.2.1 Planning according to federal requirements

SUPSI was created in 1997 following the federal act on universities of applied sciences, aimed at elevating, at different stages, upper secondary and tertiary schools at the level of higher education (Consiglio di Stato, 1996). From the beginning it was able to build on very different educational schools and research institutes already present on the territory, dealing with an constant growth rate, whose pace was decided by federal authorities, subsequently managed by the canton.

In relation with the period from 1997 to 1999 no strategic plan was available, so that the reconstruction was made possible through interviews: internal strategic documents reported the effort to build a new higher education institution out of scattered upper secondary and tertiary professional schools, as well as research institutes. The necessity of centralizing administration, finances, infrastructure and staff was a primary preoccupation for management. Moreover, actions aimed at building a solid offer of educational programs and at reaching critical mass with available research activities.

In 2000, identity, vision and mission were addressed, indicating the next step in institutional building and consolidation. However, the new executive director, arrived in 2003, launched a major reorganization of management and departments in a few months, accordingly the existing strategic plan was revised.

For the period 2003-2007 and 2008-2011 two strategic plans were drafted (SUPSI, 2001, SUPSI, 2005), about two years in advance, following the criteria provided by the federal office for professional education and technology: they stated mainly the objectives of the following rounds of integrations of professional schools, e.g. music, theater, health between 2003 and 2007. The process followed different degrees of involvement of SUPSI structure, as the first was centralized in the hands of the executive director and council, the second

followed more extended consultations within the school. Moreover, the federal office required a research strategy to all universities of applied sciences: SUPSI finalized its own in 2007, through an internal ad hoc working group, and fulfilled the requirements from the federal ministry of economics by identifying thematic commonalities across disciplines in order to develop interdisciplinarity.

In conclusion, strategic planning at SUPSI was undertaken by the school management, within the framework provided by policy makers at federal level, who defined general objectives such as educational offer and research activities.

8.2.2 Governance: from a university-based model to the “lean organization”

This university of applied sciences was born through the UAS act in 1997 and the cantonal university law by unifying four secondary schools and three research institutes previously part of the cantonal administration. Hence, the first period was dominated on one hand by the need to merge these schools in a single institution, on the other hand to achieve a joint understanding of its mission, as well as to develop a common system of rules.

I wouldn't say it was a centralized structure, it is negatively characterized. We tried to centralize all these aspects that needed to be centralized in order to be efficient. (...) We tried to give administrative and logistical support to education and research: it was a clear division of powers (...) we looked at the federal institute of technology Zurich as a model.

SUPSI is funded both from the federal authorities on the basis of students and research activities and from the canton where it is located. On one hand, the confederation indicated every four years which strategic priorities to implement, evaluated and recognized programs for all universities of applied sciences. This centralized coordination required large efforts of organization and harmonization of activities, as SUPSI had to report to Bern regularly to get approval.

SUPSI had alternate developments, in the beginning we started with enthusiasm for research, then external factors like accreditation and Bologna created unbalances at the administrative level, too heavy processes to which teachers had to be involved.

On the other hand, the school management was under the control of the cantonal government: the board was appointed by the cantonal government, and included the minister of education as a full member. The directors of departments (i.e. the “deans”) were nominated by the board, where only an academic (usually a professor coming from a “traditional” university) was present.

SUPSI had also its legal framework modified, as for all other UAS in Switzerland, according to the federal regulations requiring disciplines and fields between 1997 and 2008 to be integrated in the new universities of applied sciences. In 1998 it concerned social labor, in 2003 the health sector and in 2007 teacher education.

At its creation SUPSI was organized around a strong executive management. The team comprised a director and several vice directors in charge for key functions. These coordinated and controlled all activities in the different departments, organized according to fields.

In the beginning a decision was taken: here is SUPSI. But the schools were scattered in different places. Hence: now how is SUPSI going to become a university of applied sciences? The other question was: what does a university of applied sciences do? They only existed on paper, there weren't many examples to look at. In the law there was “research” but how much? What type? How many students do we have to attract? 300 or 2000? Nowadays one would look at the other universities of applied sciences as a model.

This centralized set up was perceived as needed to make so diversified schools and research institutes more homogenous. The main priority at SUPSI was the reorganization of the internal structure, personnel management and logistics, in fact each integrated school had its own staff employed with a different legal framework (going from public servant statute to specific public administration arrangements). Central administrators had to create a new contract policy and manage transition, under conditions of formally limited autonomy given the impact of previously existing regulations.

Table 44: SUPSI faculties and institutes

	1997	2000	2004	2008
Departments	4	5	3	5
Institutes	2	3	3	7
External institutes/departments	0	0	1	4

Source: SUPSI annual reports

In 2003, the new general director conducted a major reorganization: the existing five departments of construction, informatics and electronics, applied arts, business economics and social labor, were reorganized into three new departments: construction and applied arts, economics and social labor, innovation technologies. The general direction was dismantled and a new school direction was created with the general director and the heads of the departments as members. Hence executive management and heads of departments were unified into a unique organizational level. The school multidivisional structure into a matrix organization centered on an executive board composed by one chief executive and the directors of departments.

A university is made of people teaching and doing research (...). All structures like vice president research, education, continuing education had to be abolished: there must be an academic logic, teachers and researchers are in charge of everything, one bureaucrat is enough. A matrix structure was made instead of an executive management team.

While keeping central control on organizational strategy in the hands of the management, this reorganization provided departments with more autonomy concerning educational and research activities and thus promoted stronger bottom-up dynamics.

The restructuring in 2003 was an earthquake (...), some things worked out well, others were forced too much. The idea that every unit, every department would become a collector of all activities at SUPSI... practically every department is a small university of applied sciences responding entirely to all mandates. Then within these units, other subunits coordinate education, continuing education, research and services, and again within institutes...

An increasing complexity in coping with all tasks at the level of the understructure was the perceived drawback of the 2003 restructuring.

The first executive director was a former professor at the ETH Zurich and remained in office until his retirement, while the second had been a public manager and policy maker. He already had been secretary general at USI and remained at SUPSI four years, the time necessary to implement the reorganization. The third director, appointed in 2008, was a professor coming from within the school. As EPFL, the case of SUPSI shows how a strategy focused on reorganization was directly related to executive management, in that the first and the second directors firmly imposed thorough reorganizations to enhance their strategic objectives (creation of the school in the first case, consolidation and dynamizing in the second). The third director, upon his arrival started to assess functions and structure, again, in order to develop interdisciplinary research activities and consolidate a corporate identity by increasingly integrating academics into decision-making.

The members of the council were all external and mainly representative of the local industry, politics and society, with the exception of an academic from a Swiss university. The two presidents of the council, who were very active in keeping the relation between management and council, were directly connected to the specific actions during their office: the first (1997-2003) came from the federal administration and contributed to the establishing the school and complying with federal rules; the second, (from 2003) worked in organization and human resources in the financial sector.

8.3 Evolutionary trajectory

8.3.1 Managing expansion of education at federal tempo

Programs were accredited at national level, as the federal office for professional education and technology (OPET) evaluated and recognized curricula on a regular basis. In this

context on one side specific criteria had to be fulfilled concerning contents, organization and timing of programs, on the other uniformity was streamlined across the whole institution.

In 2007, the master level curricula were introduced for UAS: SUPSI created thirteen master programs in one year. However, some criteria of competition were introduced, as OPET determined, for example, a minimal number of students and provided resources by means of a separate, limited credit, which did not allocate resources according to the number of students (as for bachelor).

The numbers shown in the following table reflects the growth of the school: not only by integration of other institutions but by attracting new students, from both the canton and cross border regions in Northern Italy. However most interviewees agreed that these numbers cannot continue to rise, as the basin of students is not very large. As in the case of USI, the capacity of attraction of students from other Swiss regions is difficult for SUPSI: in fact UAS are more dependent on local characteristics such as different languages and specific labor markets.

Table 45: SUPSI students evolution

	1997*	2000	2004	2008
Numbers	215	862	1770	2695
System share		0.77	1.11	1.46
Growth rate			+105	+52
Diploma	215	783	1535	263
Bachelor	0	0	0	2089
Master	0	0	0	98
Continuous etc	0	69	235	245

Sources: FSO, *SUPSI annual report 1997

Building on the structures developed in the first phase, SUPSI was also able to manage successfully the integration of new sectors decided at federal level; health care schools, music academy and theater school were integrated in 2006, while the integration of the public teacher education was decided in 2008.

Table 46: SUPSI educational programs

	97-98	00-01	04-05	08-09
Diploma	4	5	3	5
Areas of 4-year curricula	9	--	--	--
Bachelor	0	0	0	9
Areas of Bachelor	0	0	0	21
Master	0	0	0	13

Source: SUPSI annual reports 1997-2008 (partial reconstruction)

Meanwhile, an expansion strategy outside the region was also launched with the integration with a distance education school and a physiotherapy institute, located in two neighboring cantons, a clear attempt to overcome the small size of the regional basin. According to one interviewee, by the mid 2000s, SUPSI had the ambition to create an Alpine university of applied sciences, emulating the multi canton basis of other UAS (e.g. North Western Switzerland and Western Switzerland UAS). However, allegedly the concerned cantons were not interested in such a partnership and this line of action was suspended.

According to federal requirements, programs were coordinated among the different UAS, so that overlaps could be avoided or synergies exploited, e.g. engineering and restoration, where there was the opportunity to do part of the program either in the German or French speaking parts of Switzerland. SUPSI also chose to differentiate from the other UAS, in that it decided to ally with USI for some educational programs (e.g. architecture).

Table 47 SUPSI education profile (share of total degrees and system)⁸

	Humanities	Social Sciences	Economics	Law	Experimental Natural sc.	Medicine Pharmacy	Building Sciences	Agronomy	Mechanic Engineering	Inter-disciplinary	Arts	Health Sciences
2000	0	21	0	0	0	0	34	0	45	0	0	0
Share	0	1	0	0	0	0	3	0	2	0	0	0
2008	0	14	46	0	0	0	1	0	17	0	22	0
Share	0	1	3	0	0	0	2	0	2	0	3	0

Source: FSO/Eumida

⁸ In the framework of the EUMIDA project, universities of applied sciences' disciplinary fields have been regrouped according to university criteria. This reclassification was validated by FSO.

Table 47 shows the trajectory of SUPSI educational profile according to granted degrees: it mirrors the integration of the different sectors from professional education. In 2000 social sciences (“travail social”) and engineering characterized SUPSI, while in 2008 economics and arts, newly integrated, were strongly represented with 46% and 22% of total degrees.

8.3.2 Striving to maintain a distinctive research profile

SUPSI mission was to provide applied research, technology transfer and services, therefore relations with industry and local players were stronger than in the case of cantonal universities.

Nevertheless, SUPSI had to seek a balance between education and research activities, since these developed quite rapidly, thanks to the already existing institutes of computer integrated manufacturing and earth sciences, integrated from the beginning, and the absorption of the institute of artificial intelligence in 2000. In 2002, research accounted for about 30% of the total budget, the highest share of all Swiss UAS, and, hence, its further development was not a strong priority nor a sensible goal, as discussions were ongoing at management level as of the equilibrium to reach in total research activities.

There was a lively debate on whether the maximum share of research on total activity should be 30% or 40% (...) in order to maintain financial sustainability: if research flourishes, costs increase. Now[research share] is much lower, as music, theater, physiotherapy etc. diluted SUPSI research capabilities.

Along the same line, stronger competition by other UAS led to further stagnation of research towards the end of the period considered.

Table 48: SUPSI competitive funding SNF

	2000	2004	2008
Amount	0.05	0.05	0.63
Share budget	<0.01	<0.01	0.9
Share system	n.a.	3.6	3.3

Sources FSO, *share of total funding devoted to UAS

In 2000, the institute for artificial intelligence IDSIA joined SUPSI – together with USI – contributing to research activities. As previously mentioned, SUPSI – like any other UAS in Switzerland – is not allowed to grant PhDs. However, a certain number of PhD students, formally affiliated to other universities worked at their doctorate at SUPSI. These research activities were conducted not only within research institutes, but also in laboratories and other units (e.g. materials science, restoration).

Finally, in 2008, a research strategy was established by an ad hoc committee of representatives of the different departments, in order to coordinate the highly differentiated research activities and promote cooperation between domains (SUPSI, 2008).

These kinds of explorations, like in industry, are not financed: the KTI (Innovation Promotion Agency) doesn't fund, the SNF either. So we said: how can we finance and follow these trails in order to be credible? Well, the only possibility is auto-financing.

In this respect, an internal fund to foster interdisciplinary research and explore new field through regular calls was set up and came into activity the following year.

8.3.3 Human resources policy by means of incentives and career differentiation

The evolution of staff in all categories mirrors the growth of SUPSI. However, the sharpest augmentation of professors, doubled from 2004 to 2008, seemed to be partly due to new procedures of appointment. SUPSI introduced quite severe requirements for the title of professor, to be granted after a fixed number of years in a teaching and research position.

Moreover, professorship did not entail a chair, but was established as an individual further stage of career within the school (SUPSI, 2008).

In this regard, the increasing number of professors shouldn't be overestimated, as the trend in other universities of applied sciences is even steeper.

The title of professor used to be honorific, it is still so except that now professors participate to the professorial council. (...) you are only evaluated on your attachment to SUSPSI, external recognition, contribution to the school. We are trying to integrate disciplinary evaluation. I am a SUPSI professor and that's it. (...) We are just starting to speak about chairs. (...) In any case there is no mutual recognition of professoriate among universities of applied sciences, SUPSI is the only one with full professors."

The specific mission of applied research implied different characteristics for achieving the title of professor, which were different from UAS to UAS and which did not involve the same mix of education and research activities. In fact classes load may reach 22 hours a week, whereas the competence of developing and maintaining industry relations was considered central.

Table 49: SUPSI staff in FTU

	2000*	2004	2008
Tot staff	229	316	501
prof	25	66	121
Other teacher	67	77	101
Intermediate corps	74	93	168
Tech/adm	63	80	112

Sources: FSO, *SUPSI annual report 2000, 1997-1999: no data available

The changes at the heads of departments and institutes between 1997 and 2003 (practically in all of them at least once) shows that the central administration was able to make

substitutions in this layer of management to carry out its strategy and reorganize the structure, leading, at the end of this period, to a more homogeneous organization made of three departments. Furthermore, the institution managed to concentrate its activities in just two sites from the four at the beginning.

This period was also characterized by systematic establishment of procedures, internal directives and personnel regulations. On one side, the pressure coming from trade unions for a better setting eventually turned into a new contract framework standardizing working conditions.

You can find talented people inside. A person grows in a milieu, in a trusting environment that doesn't reprimand immediately on mistakes, but that stimulates people. Trade unions consider firms negatively (...) They hate differentiated salaries. But a model like this can only exist in this way, it is not only an issue of money. If I believe in someone, I must be able to grant her a 6 months sabbatical, accordingly I am treating this person unequally (with respect to others).

On the other side, some general regulations for specific professional profiles were put in place: the statute of intermediary positions was further detailed towards some variety (junior research, senior research, teacher researcher, see SUPSI, 2008) as well as those for professoriate.

8.3.4 Finances between structural system constraints and concrete limitations

It can be seen from the table on the evolution of funding sources that the overall budget grew constantly. Looking closer at the single items federal funds grew less sharply, while the canton limited its financial support between 2000 and 2004, to increase it again of about one third in 2008. Third means point out a more important augmentation, since they triple until 2004, and increase more than 60% until 2008. The intercantonal agreement and student fees follow proportionally the increase in student numbers.

All what has been done to date is worth if some activities do not have to be closed only because one year break even is not achieved. How can a positive future be planned (...) if I am not able to cope with some small difficulties? But the federal funding system doesn't

admit that you put aside some million so that the day you want to open a new program you can afford it.

This funding mix shows SUPSI difficulty of getting financial sources from public authorities. In this context the discussions on the issue of overhead (and who pays for it) were a clear indication of the financial constraints with which SUPSI had to cope, adding at the relatively low numbers of students, which cannot allow further high paces of growth.

Table 50: SUPSI evolution of funding sources

	2000*	2004	2008
budget	34.4	49.0	69.7
confederation	9.6	11.8	14.5
canton	18.8	20.9	27.8
Intercantonal agreement	0	2.3	5.5
Third means	2.9	8.7	14.9
Fees	3.1	5.3	7.0

Source: FSO, * SUPSI annual report 2000

8.4 Discussion

Patterns

SUPSI presents two strategic cycles. The first relates to 1997-2003 and characterize the first years after its birth: all actions were deployed to establish a new higher education institution from a cluster of scattered professional schools and research institutes. Hence, central functions were addressed massively: structure was so shaped that centralization of human resources and finances was eventually achieved. This efforts aimed at ensuring education, which was developed with programs for undergraduate and professionals. These programs

already existed or had to be established brand new for steadily increasing numbers of students. On parallel, research was supported strongly on the basis of institutes' intensive activities. In this sense the first period featured a centralized governance in order to integrate diverse schools according to education – different disciplines, levels of programs, types of students; research – diverse degrees of intensiveness, human resources – different legal frameworks, roles and positions for staff; funding – as the federal government was establishing step by step severe and rigid criteria in this sector.

The milestone dividing this from the following period is the reorganization operated in 2003: as SUPSI process of coming into existence was considered concluded, the executive layer as well as the departments were restructured in order to dynamize the organization (2003-2008) and support further expansion in the Swiss higher education system.

As in the case of USI, all interviewees agreed on the necessity of these two steps: first a higher education institution is created and consolidated so that it can function on its own, e.g. reaching financial stability through the number of students; then activities are developed in order to support growth and completion of its activities. What differs from USI and UNIBAS though, is that, from the point of view of the organizational structure, SUPSI two phases did not develop one from the other, on the contrary, they were different and almost opposing: in the first centralization was the main goal, in the second decentralization was the primary objective. Looking at the degree of change between the two strategies, it could be questioned about the coherence of such reversing patterns and the efforts an organization to produce.

Actors

SUPSI structure was rather bureaucratic from the beginning as it adapted to pre-existing professional education and applied research where hierarchical structures were more acceptable than in academia. In the first period, the executive management was able to

formulate and implement strategy profiting from existing vertical lines of authority and control. The 2003 reorganization from a centralized executive management to the delegation of competences to departments suppressed a line of management (the executive managers in charge of education, research and the other functions), but produced a multiplication of responsibilities, as every department, and even every unit within, was in charge of all missions – education, applied research, technology transfer and innovation. This model led to some extent to increasing bottom-up dynamics, while the general direction coordinated activities and provided strategic coherence at the organizational level, as well as managing the interfaces between departments.

SUPSI governance is oriented towards the council, which appoints the general director and the heads of departments. In such a configuration, the political influence is rather strong, as the members of the council are representatives of the local society and the size of the canton makes distance very small.

Positioning

SUPSI entered a brand new collective niche of professional universities, thus contributing to further legitimation of a recently created form of higher education institutions. However, it distinguished itself in research and governance. First, it handled a peripheral position among UAS due not only to its geographical location and limited financial support, but also to certain similarities with traditional universities in terms of research capability. In this framework SUPSI competed and coordinated with universities rather than with other UAS, arising some tensions, internally and externally, because of the different missions granted. However, SUPSI trajectory, more than in the other cases, appears to be still in process: its tensions arose from its specific position within UAS but also from its closeness to cantonal universities, particularly to neighbor USI, to the point that attempts at building further on a common governance framework regularly emerged on the surface.

SUPSI, as a university of applied sciences, while it had to comply greatly to federal requests regarding education, had more leeway for research: in fact it was able to integrate existing research institute that constituted in the first years a solid basis of intensive activities. This allowed SUPSI to profile as one of the most research intensive UAS by focusing on ICT. However, even research activities are coordinated somehow by Berne, so that, for example, the UAS federal strategy of 2007 was devoted to fostering strategy and indicated general lines to follow: fostering interdisciplinarity by finding common topics under which different disciplines could group and profit better from synergies (see federal UAS strategy 2007).

III UNCOVERING UNIVERSITY STRATEGY

9 Patterns, actors and positioning

The aim of this chapter is to identify potentially generic models from the five specific cases presented, by cross checking the findings with the conceptual framework.

Accordingly, the three main dimensions of strategy – patterns, actors and positioning – are addressed in order to identify the similarities and differences in major developmental paths.

9.1 Implementing change: building formal organizations and managing strategic reorientation

Patterns of strategies concentrate on the two core activities in the university setting, i.e. education and research, while central functions like human resources policy and finances are functional, in different manners, of these patterns. Governance deserves a separate treatment as it is not only instrumental to a pattern and its strategic focus, but it also frames multiple actors' roles and positions in strategy processes.

Pattern 1: constructing university as a formal organization

In accordance with Brunsson and Sahlin-Andersson (2000), the first pattern identified relates to the construction of the university as a formal organization. It can be observed in three universities, USI, UNIBAS and SUPSI, whereby the first and the third have been newly created as higher education institutions, while UNIBAS has been transformed into a formal organization following the reform of the regulatory act in 1995.

This pattern entails a series of actions that aim to thoroughly change the nature of the university by coherently linking all activities. The strategic focus, which is detectable in all three cases, addresses in the first phase education, then, in the second phase, research. According to the documentation and interviews, there is a general understanding of the importance of these activities and on their sequencing in order to establish the university as a proper organization with identity, hierarchy and rationality (Brunsson and Sahlin-Andersson, 2000) .

Strategic focus on education has several meanings: first, it indicates that universities developing into formal organizations consider it a necessary condition. For instance, enrolled students have to be able to achieve a degree, then because education structures the organization of universities into units and subunits according to curricula. Second, education is a major sector of competition for resources, i.e. students. In particular, in the Swiss higher education system, the number of students is important in order to get federal subsidies, while cantons have different funding schemes based on the total number of enrollments.

In all three cases observed education was a deliberate strategy decided by central governors and shared, to different degrees, by academics. Moreover, in a second stage, the introduction of the Bologna process was a further (external) element which has made higher education institutions focus on education: the reorganization of curricula into Bachelor and Master levels has had a direct impact on the structure of the disciplines (ergo faculties) and the competitive dynamics to attract students, e.g. students have to be attracted twice, in the first instance for the bachelor and again for the master.

Table 51 Pattern 1: constructing university

	Education	Research	Support function	Milestone
USI	1996-2004	2004-2008	Human resources policy	2004 creation of informatics
UNIBAS	1996-2006	2006-2008	Finances	2006 second canton
SUPSI	1997-2003	2003-2008	Governance	2003 reorganization

As for research, this strategic priority is understood as the natural step to build the reputation and further differentiate itself within the organizational field. Thus, as educational activities are consolidated, research has to be fostered in order first, to complete the range of activities which are appropriate for academia, second, to build and strengthen a specific profile for scientific competition, be this at a national or international level, or both, according to the disciplinary fields.

In short, education is the primary focus for universities when establishing themselves as organizational actors, i.e. they legitimize themselves in the eyes of public authorities and the community, while research is fundamental in order to develop and build a specific profile to broaden the scope, both nationally and internationally.

The three cases – USI, UNIBAS, SUPSI - articulate this pattern differently according to their specific boundary conditions. At USI human resources greatly supported the education-research pattern, which was possible due to the university having been built from scratch (an exceptional case in the Swiss landscape). The staff themselves were therefore instrumental in sustaining the development in education (i.e. experienced professors from other higher education institutions were hired) and research (systematization of appointing procedures to shared academic standards and assistant professors).

At UNIBAS, finance plays a central role in the education-research pattern. In a highly regulated human resource management framework, it is not surprising that UNIBAS

enhanced its strategy pattern through a function that turned out to be more flexible and easier to modify. Hence, UNIBAS increased its financial streams, by reaching political agreements between the historical funding canton (Basle-City) and neighboring canton Basle-Land. This key strategic move was deliberately planned over time, and was organized and coordinated by a larger constellation of actors, as policy makers were able to match their policies of higher education with broader political relationships between cantons (which in Switzerland act like states). UNIBAS's pattern demonstrates that for a traditional, historical university embedded in a densely interconnected institutional setting, strategic options have to be shared among different constituencies and endorsed (or enhanced) by funding authorities.

Finally, the SUPSI case presents features that are similar both to USI and UNIBAS: like USI, SUPSI was newly created, thus profiting from a certain degree of freedom in constructing itself as an organization, even though different conceptions are observed (university-like in the beginning, matrix afterwards). However, this flexibility in structuring around the need of education first, research second, was framed in a highly institutionalized setting where the subjects of education, timing for strategic planning and priority setting are centralized by the federal authorities for all applied science universities. Hence, SUPSI concentrated its efforts on sustaining education and research by focusing on reorganizing its internal governance.

This pattern for constructing a university could be applied to other similar cases, where a university is newly established or when from a quasi public administration unit it is reorganized in a formal organization. Of course, it should also be taken into consideration for other cases where the sequence education-research does not reflect any of the conditions presented in these three cases. In this instance, it would be relevant to know what strategic priorities are taken into consideration.

In conclusion, when a university is transforming itself into a formal organization, the pattern of strategic actions present the sequence education-research, whereby education drives the first phase of structuring, and research enlarges the scope of activities.

Pattern 2: Reorienting strategic activities

The second pattern of strategies identified relates to major strategic reorientations, whereby a university profoundly modifies its existing profile and reorganizes itself according to a new strategic objective. With a significant difference in the degree of strategic voluntarism, the University of Neuchâtel and the EPFL both reflect this pattern.

This pattern of action focuses on research activities: on one side, reorientation is planned, organized and is emerging through rethinking research according to the existing profile; on the other side, research is conceived as the driver around which all other activities are organized to enhance and support change⁹.

A substantial difference between these two cases is the degree of agency and, respectively, of environmental influence. At UNINE the pattern of action in the first period persisted in a strategy based on research excellence which was becoming unsustainable for many reasons: the size of the university was too small, public authorities were not willing or capable to sustain growth, the new national landscape introduced unfavorable funding schemes based on the number of students. Thus this university became vulnerable to external influences and had to reorient its activities reacting to rapidly shifting conditions. An reorganization of disciplines was carried out in a few years and its research profile changed focusing more on other fields (e.g. in social sciences) and cancelling some of the disciplinary areas which were developed successfully in the previous decades (e.g. geology, micro-technique). The

⁹ Also in pattern 1, the second stage, which focuses on research, shows the active support to research by the other sectors of activities. However, the main goal is different: for USI, UNIBAS and SUPSI research strengthening is functional to broadening the scope, nationally/internationally, in a framework of organizational expansion. For UNINE and EPFL research reorientation addresses re-positioning in competitive markets.

reorganization of research entailed not only the modification of the profile of the university, but also the restructuring of educational programs and a financial relief.

Table 52 Pattern 2: strategic reorientation

	Research	Research	Support function	Milestone
UNINE	1996-2002	2002-2008	Finances	2002 New Act
EPFL	1996-2000	2000-2008	Education - HR policy- Finances	2000 New president

On the opposite, EPFL features a case of strategic intentionality: the reorientation towards life sciences of this engineering school was decided by the federal authorities, and subsequently implemented by the new president and his team(s) in a few years. The evolutionary path of this technical university is rather impressive, as actions unfolded coherently across all sectors of activity. Hence, on one side, educational programs, and the consequent capability to compete for students, were modified by making of interdisciplinary programs a priority (e.g. engineering and biology). On the other side, human resources policy was reorganized according to international standards of excellence, like the introduction of a tenure track system that impacted human resources planning and management.

These difference may be explained by the specific profiles of UNINE and EPFL: while the first had financial constraints and increasingly lost its political foundation within its local territory; EPFL, on the contrary, was supported by federal authorities and could profit from almost complete autonomy from the political sphere. Hence: the relation with funding authorities is here representative of a major strategic dimension: EPFL is in this sense an

example of powerful and central actor who has leeway and means to act coherently towards an intended objective.

In conclusion, when a university reorients its activities, the pattern of strategic actions focuses on research, in order to position itself differently in relation to competitors. Finances and human resources represent essential dimensions to address.

9.2 Actors in a shifting configuration: the instrumental side of governance

The role of actors is central to understand how deliberate and emergent strategies unfold, accordingly it is discussed in order to provide generalizable roles of rectorate, boards, faculties and to depict how organizational structures have molded in the framework of strategy.

Rectorates

All rectorates have changed their structure, with the exception of USI, where a single person is in charge of coordinating university activities. In the other universities the members of the rectorate share key functions, such as education, research, technology transfer, institutional affairs. At UNINE, UNIBAS and EPFL the role of the rectorate was strengthened by means of new legal frameworks, centralizing further competence (see below the next section). On the reverse, at SUPSI from 1997 to 2003 key functions were centralized at the level of the executive management, after the reorganization only an executive director was left, while the heads of departments both manage their departments and are in charge of central functions within the executive direction.

In three higher education institutions (USI, UNIBAS, SUPSI) the rector is appointed directly by the university council, while at EPFL and UNINE, public authorities traditionally hold this competence. Reflecting the managerial trend in higher education (Amaral et al 2003),

the terms of office has been brought to a four year mandate renewable, the rector can also come from other universities - it is mandatory at USI -, or even be non academic (UNIBAS, SUPSI). UNINE had an external rector between 2004 and 2007, at UNIBAS the internal was preferred to the external candidate by the academic senate in 2006, however the vice rector for research came from another university. EPFL always had an internal president, nonetheless, since 2000, some of the members of the rectorate came from the private industry (vice president for research 2000-2004 and vice president new technologies 2004-2008).

Councils

University councils reflect, too, the managerial trend in universities (Braun and Merrien, 1999). All five institutions have a council which acts as a board of trustees, where members are mostly external and in charge of guaranteeing the long-run viability of the university by protecting its reputation and revenue sources.

The members of these councils are mainly stakeholders coming from larger society sectors such as politics, economics, and culture. These members are related to the local territory of the university in the case of UNINE, UNIBAS and SUPSI, whereas at USI there is a stronger presence of academics from other Swiss universities and Italy. The ETH board is made of different personalities at Swiss level. Moreover, it has specific characteristics as it governs both EPFL and ETHZ as well as four research institutes. Deans are also present ex officio in USI and UNINE councils, while USI and EPFL presidents also sit in the university councils.

The presence of different actors at different levels within council deserves attention: USI concentrates all levels executive, oversight and academic with a council president that is also president of the university, the cantonal minister of education in charge and the deans; UNINE includes the deans and four representatives of the academic community; EPFL, since 2003, has its president as a full member with voting rights; SUPSI has only external

members, inclusive the cantonal minister of education. UNIBAS has also only external members with some members appointed in order to represent both cantons of Basel-City and Basel-Country since the establishment of this body in 1995. The political authority appoints all members at UNIBAS and SUPSI, the majority of the members at USI and UNINE (i.e. except for the deans and the representatives of the academic community).

As of the duties of these councils, these carry out relevant tasks such as providing university strategy (planning, organizational and staff affairs etc.), goals and objectives, and foster relationships with political entities (Kehm and Lanzendorf, 2006).

Faculties

Faculties are the main organizational units at the understructure level. They are featured according to several dimensions: organizationally they represent the biggest subunits according to human and financial resources; from a governance point of view they traditionally have the largest competence in decision-making on academic affairs, namely on content of courses of study and professorial appointment.

Restructuring of faculties took place in two different ways: top down, as managers sought to create new layers within the hierarchy (like the departmentalization at UNIBAS), to transform a multidivision into a matrix (at SUPSI). As of roles and tasks, new competences have been granted to deans in the attempt to create a more vertical chain of command (at EPFL). Another crucial change in the structure enforced by academic administrators are new faculties, established ex novo in order to widen the educational and research offer (USI, EPFL, SUPSI).

On the other side, changes in structure may also happen with the opposite movement, i.e. bottom up, as they can be caused by scientific dynamics, as the creation of new faculties by separation from existing ones, e.g. the case of economics and social sciences (UNINE, UNIBAS).

The deans are elected by professors within their faculty at USI, UNINE and UNIBAS, at EPFL until 2004, since then they were appointed by the president, and SUPSI, where the council “hires” the directors of the departments (see University Act).

Regarding academic senates, in the most recent higher education institutions they weren't even created (USI, SUPSI), at UNINE and EPFL they contribute to discussions and are conceived as advisory bodies. On the contrary at UNIBAS the senate (Regenz) maintains an important strategic task, as it elects the rector, who is then to be confirmed by the university council.

Implications of governance on strategy making

In all cases strategies are elaborated by academic administrators, this being one of their key tasks, especially after the legal reforms of the Nineties, which granted increasing institutional autonomy to universities. At the same time, strategies unfold beyond this planning stage only if subscription of the academic understructure is achieved and, at the same time, the political authorities agree with the general objectives. This has a significant impact on the different phases of strategy making, as it depends on different degrees of autonomy from the state on the one hand, on the power to decide and act within the university on the other hand. Moreover, central authorities have to be sensitive and able in order to integrate bottom-up developments in the organizational strategy, and exploit unforeseen opportunities.

Academic managers have to reconcile their action according to the strength – or weakness – of their own position in relation with their nominating powers. The internal governance of the five institutions can be looked at by focusing on the position of rectors, i.e. their roles and relations, as they are (formally) in charge of strategy. It is particularly significant to understand how they are appointed, in that this provides important insights on the power granted to actors, for example in making and implementing a strategy. In the previous

section it was described how rectors have to deal with different relationships and leeway: they can be designated, elected or proposed by the political authorities (EPFL, SUPSI), by the university councils (USI, UNINE), by the academic community (UNIBAS). The rectors themselves, in turn, are not entitled to intervene in the deans' appointment, with the only exception of the EPFL, whose president not only appoints deans since 2004, but also has the definitive say on professorships.

Table 53 Actors configurations and strategy processes

Type of governance	Shared	Hierarchical	Political
Characteristics	Management and academics participate in university decision making	Management takes decisions and delegates	Balances of power exist between and among academics and central administrators
Locus of deliberate strategy	Formal bodies	Academic management and deans	Rectorate
Emergent strategy	Contacts between academics and management	Upwards filtered individual initiatives	Originates outside university
Strategy selling	Personal communication	Restructuring , staff turnover	Imposed
Cases	USI, UNIBAS	EPFL, SUPSI	UNINE

This table generalizes the findings: three models of governance have been detected from the five cases: a shared model where central administrators and academics participate to strategy formulation, a hierarchical model where management conceives university strategy and a political model where on one side management is formally in charge of the strategy, and the different groups negotiate within and among each others. This models have different implications for the unfolding of strategy in general, for the intermingling of deliberate and emergent strategies in particular. This indicates the different positions of actors: in the shared model strategic planning is the result of internal consultations hold in formal bodies where members of the rectorate and academics discuss together. This happens in the deans'

conference (deans and president), in the board (president and deans with external members), in faculty councils and in planning committees. The encounter between deliberate and emergent strategies takes place in the framework of intensive contacts between school management and academics: multiple, repeated, easy to organize meetings represent the primary manner according to which strategy is communicated, discussed, integrated, modified.

In the hierarchical model, represented by EPFL and SUPSI, the management takes strategic decisions and delegates to the lower levels (deans) the implementation of a general direction of the school. This additional layer between academics and central administrators, entails increasing distance and difficulty to discuss strategy directly between managers and academics. A direct consequence is the lower involvement of the latter in strategy process and a different role for management: strategy making is centralized over it and emergent strategies cannot be directly taken into consideration: accordingly a filtering system is in place, which implies a (more) difficult access to the executive management and the impossibility to create coalitions advocating academic interests in formal bodies. Under these conditions it is not surprising that a strategy is “sold” within the university not by means of intensive communication but by restructuring. Hence, reorganizations can be implemented without big opposition due to formal governance structures, strengthened by staff mobility and turnover, which hamper the formation of coalitions of academics.

Finally, the political model is here represented by UNINE, where in a situation of subtle balances of power among groups of academics, a (formally) strong rector is responsible for strategy formulation and implementation. These two dimensions of governance appear to render strategy processes impossible without disruption. On one side tensions and conflicts may arise among academics, on the other side between academics and management, pushing the university to immobility. For these reasons the deliberate strategy is doomed to failure and emergent strategies cannot originate from within but characterize themselves as external pressures imposing changes in strategic orientation. Of course this description of the

implications of the political model on strategy processes doesn't reflect the complexity of the reality in the concrete case, it intends more to put forward a generalized and simplified making abstraction from the existing data.

Actors mobilization of governance structures in strategy processes

This section intends to shed light on how actors are able to profit from their position, from the structures and opportunities provided to intervene into strategy making. On one hand it features the overall governance framework in which academic administrators initiate university strategies by intentionally deciding on objectives and allocation of means (deliberate strategies), on the other hand it focuses on the balance central governors have to strike in relation to external demands and academic power (emergent strategies).

Management driven reorganizations

Four of the five higher education institutions considered underwent significant internal restructuring carried out by management. The university of Neuchâtel restructured twice its rectorate, in 2001 and 2008, by distributing more clearly the tasks among the rector and his vice rectors, as well as by integrating new administrative positions to reinforce management. The role redefinition aimed in general at having the academic leaders able to fulfill appropriately tasks such as strategy, external communication, budget and coordinate education and research.

While USI management complied with federal authorities and developed rather harmoniously its disciplines, UNINE underwent systematic state intervention and was accordingly less free to develop its profile. UNIBAS, within a state given framework, tried to carry out change by modifying its structures consequently: through a new chart and reforms of rectorate and by means of accommodating emergent discipline-driven changes with the creation of faculties of economics and psychology. Structure and governance are

powerful instruments in the hands of management to reorient the EPFL: in-depth and extended reorganizing took place within each function (presidential office, faculties, education and research, doctorates, continuous education and colleges, central services). SUPSI expanded its structures according to the federal schedule of integration of professional schools, as any other UAS in Switzerland. However, in 2003, with a new team in office, SUPSI was able to undertake a major restructuring, transforming itself from a multidivisional to a matrix organization.

Reorganizations also have a political dimension and can be aimed at changing existing balances of power: at USI the power of academics is counterbalanced by a council where the deans represent the minority of voters; at UNINE the rectorate were in a difficult position as they underwent the state control as well as the powerful faculties of humanities and sciences. However, it shouldn't be forgotten that such internal balances have also shifted as new faculties have been created (USI, UNINE). The planned reorganizations of the understructure had different outcomes, at UNIBAS the departmentalization wasn't very successful in contrasting the traditionally powerful institutes; at the EPFL and SUPSI, reversely, the departments were considerably reengineered from different perspectives such as contents, organization of teaching and research, hierarchy, and centralization vs. delegation with the explicit goal to deter inertia and strike the perceived fiefs which were resisting institutional change.

State driven restructuring

All the higher education institutions considered had their structures changed by law. The state governed two types of major structural changes: on one side by delegating competences to higher education institutions the funding authorities empowered them in order to become more autonomous. USI and SUPSI were created by law in 1995 and 1997, UNIBAS was given a new legal act and new structures in 1995. On the other side the

horizontal expansion by new faculties had also to be approved by the political power, i.e. by the parliaments, in the case of USI, UNINE, and SUPSI.

Universities participated at different degrees to the discussion leading to changes in the legal framework. USI management shared decision-making with the canton on how to reform the internal structure in 2002, the UNINE rectorate was consulted on how to frame both laws of 1996 and 2002, while academics could be also integrated institutionally (via the senate) or individually, e.g. as experts in law, and in ad hoc working groups. The same happened for UNIBAS in 2006, while at EPFL the president participated directly at the ETH board deliberations as a consultative member until 2003, and thereafter as a full member.

To understand the involvement of academics in such changes, the small size of Switzerland, and accordingly the tiny dimensions of the cantons, should also be taken in to consideration. It is not unusual that academics and policy makers share common educational paths in local schools (or university). Moreover, they meet regularly at social and cultural events where issues concerning higher education can be informally discussed. This is particularly the case for Neuchâtel and Basle, whose universities have a significant number of local and resident academics. The network of these relations is dense and provides a broad framework to raise issues, achieve common understandings on problems and opportunity to seek alliances.

Only at USI there was no major reform of roles and tasks at the management level. Academics were able to trigger change only at UNINE and at UNIBAS, however, exclusively with respect to the understructure, as they actively promoted separation and regroupings of faculties and disciplines, e.g. the location of the social sciences, accordingly of economics and psychology.

Not surprisingly, the state is responsible – through emanating legal frameworks and approving new faculties – for changes in all HEIs considered. Management (council and rectorate) enhanced change throughout the institution at UNINE, UNIBAS, EPFL and SUPSI, promoting reorganizations at the different levels and the creation of new faculties.

These changes in the structure of the five HEI's reflect a linear and systematic intervention by the state and the academic administrators to render the academic organization more suitable to the strategic objectives defined, as it has been showed in chapter 4. This spans from an attempt at creating a more efficient university, or one that is more apt at achieving the defined goals, such as reinforcing interdisciplinarity or research activities. Nonetheless, academics can also intervene in the structuring of the university, as we have seen, when they promote a different organization of disciplines within the faculties.

The findings highlight significant aspects relating to the implications of actors' positions and strategy making. First, they present some boundary conditions for a rector to exercise his power and design a strategy. For instance, on one side, she has to be fully supported politically at UNINE, EPFL and SUPSI, academically at UNIBAS, while at USI academic and political support are handled within the council, chaired by the rector/president. A rector has to come to grips with different levels of academic autonomy and power with respect to her actions. This is the case especially for UNIBAS and UNINE, followed by USI, while there is almost no such preoccupation with more hierarchical structures such as SUPSI and, particularly, with EPFL.

Second, the different reforms observed show an attempt at coordinating these diverse and loosely coupled parts: on one side councils and rectorates have strengthened their roles and taken up additional tasks of coordination, on the other hand changes in the understructure reflect the attempt to coordinate and control the complexity peculiar of such organizations. This has been pursued by means of establishing new layers in the hierarchy in order to break inertial equilibrium, e.g. departmentalization (UNIBAS) and coordination of education at managerial level (EPFL). But also by reorganizing the different disciplines within faculties (EPFL, SUPSI) or by modifying the role and tasks of the deans, transforming them as academic administrators responsible for a field of disciplines (EPFL). In other cases, thanks to limited size, academic administrators have controlled complexity by keeping the organizational structure as simplified as possible (USI).

Third, changes of central bodies – councils and rectorates - reflect increasing centralization. As universities change their role and become formal organizations, thanks to the augmented institutional autonomy from the funding authorities, specific functions like strategy, budgeting, evaluation are grouped in the hands of central governors. The degrees of centralization vary from case to case and seem to be connected to the existing structures: these can provide actors with different leeway to implement reforms, or, as in the case of academics, to respond with inertia in order to prevent change to take place.

Nevertheless, the analysis of the patterns of decision and actions presented allows to identify unachieved structural changes. These partially realized strategies primarily concern the reorganization of faculties and in particular the attempt at restructuring institutes, either by grouping them into bigger units with more critical mass (departmentalization at UNIBAS), or to downsize or close them (UNINE, UNIBAS).

Furthermore, the creation of institutes outside faculties, as an attempt to foster research in specific fields and enhance interdisciplinarity, have achieved limited results in traditional universities (UNIBAS, USI).

9.3 Positioning through differentiation and compliance

In this section the undertakings of the five cases considered are compared. First, the organizational strategies are cross-analyzed according to the dimensions of the niche. Second, the relations developed within the niche are inquired. Finally, organizational actions are considered according to the higher education institutions' behavior as differentiation or compliance.

Education

The five cases also reflect variety in their educational profile. The general growth of social sciences and economics is not reflected proportionally, mainly because of the newly created universities of applied sciences, which rapidly built their position within the higher education system, like SUPSI for instance. EPFL, on the other side, augmented clearly its share in experimental and natural sciences, reflecting its reorientation towards life sciences. It is noticeable that only UNIBAS among the cases selected developed interdisciplinary degrees.

The sector of education clearly shows a turning point in the entire organizational field: the Bologna reform was signed by Switzerland already in 1999. The five universities acted (or reacted) with different timing and paces to this “coercive” event, displaying diverse degrees of adaptation. UNIBAS started a similar education reform before Bologna (s. institutional strategy 1997) and was able to introduce some bachelors already in the academic year 2000/2001 and some masters in the following year 2001/2002. Second to introduce the bachelor was USI, in 2001, confirming its profile as an innovative university, EPFL introduced it in 2003, achieving the complete implementation of the two cycles in 2005, first in Switzerland, when no more students enrolled for the traditional 4-year diploma. UNINE lagged behind and started bachelor in 2005, as well as SUPSI, whose pace though was centralized federally, as all other Swiss UAS. The speed in which the Bologna 3+2 was introduced, mirrors the capability of the HEIs in responding (pro)actively to environmental requests.

The Swiss higher education system grew during the whole period considered in terms of students, as it almost doubled to around 160'000 students in 2008 (see chapter three on the context). However, as universities grew from ten to nineteen HEI's, competition, too, augmented. In this perspective USI and SUPSI outperformed, while UNIBAS grew above system average between 2004 and 2008. Only USI and SUPSI augmented their share in the system; there are several reasons: new higher education institutions naturally growing in the

beginning, but also universities attracting more students, USI because of specific profile, SUPSI as a university of applied sciences (thus following the general trend for Universities of Applied Sciences).

On the other side, cooperation in programs with other HEIs and at different levels (bachelor, master and graduate) have been created or reinforced between individual universities or in regional networks. However, even if poorly attended disciplines could better profit from resource sharing – it is the case for example of the protestant theology network in French speaking universities - these partnerships remained rather weak and produced modest results in terms of structural synergies. With regard to EPFL, this school did not build any specific cooperation at national level in this respect, but developed international cross border programs in some specific disciplines, like microelectronics, devoted to foster excellence, while USI and SUPSI, situated in the same region, built some significant initiatives bridging education across different types of HEIs, e.g. architecture programs.

Research

The strategic actions taken with respect to research focused primarily in extending the activities through new faculties, by building partnerships and making acquisitions, whose scope and avenues depended on strategic capability and institutional autonomy. This was done in a framework where in particular the federal government, but also (some) single cantons, were supporting strongly a reorganization of the scientific landscape in Switzerland, especially relating to the expensive disciplines of sciences, medicine and engineering.

New faculties were strategically created by USI and EPFL. The first established a faculty of informatics, focused on software engineering, as a way to position more as a “hard science” university and conform to normative models under political and financial restrictions. The second built a faculty of life sciences in order to focus on a promising field, catalyze a lively

small and medium enterprise sector in the region and position itself from an engineering school to a research intensive university.

The share of doctoral students in comparison with the total amount in the system shows that UNIBAS and UNINE regressed over the period considered. This is certainly due to the entrance of two new universities granting doctorates (USI and University of Lucerne). However, in the same period EPFL almost doubled its share, confirming its trajectory towards a (internationally reputed) research intensive university.

Significant acquisitions and enlargement of its organizational perimeter were made by the EPFL, that integrated chemistry, physics and mathematics from the nearby university of Lausanne between 2001 and 2004, allowing the federal institute of technology to reinforce its basic sciences and substantiate a new orientation in the life sciences. Moreover, the integration of the Swiss Institute for Research in Cancer (ISREC), was also a strategic acquisition in the life sciences direction, bringing a high amount of resources in terms of competitive funding e.g. NCCR in molecular chemistry. EPFL also acquired the institute of micro-technology of the University of Neuchâtel in 2007. In the reorganization of the national higher education landscape, this was the last engineering institute placed out of the federal institutes of technology, under such conditions the EPFL was able to negotiate favorably its transfer, in that the canton pledged several million Swiss francs for investments to renovate the facilities, due to remain in Neuchâtel).

On the other side, SUPSI grew by acquiring existing schools and research institutes in the local territory. This strategy complied with the centralized federal requirements, concretely dictating the pace and the disciplines to be integrated. However, SUPSI could profit from some research intensive institutes like ICIMSI (computer integrated manufacturing) and IDSIA (artificial intelligence). UNINE also integrated existing institutes such as the Swiss forum for migrations that eventually supported the intensification of research activities in the social sciences area.

The process of reorganization of sciences was initiated and coordinated at federal level, as the national science foundation launched in 2001 the program of National Competence Center of Research (NCCR) in order to consolidate and institutionalize partnerships under the coordination of a leading house. These programs, based on funding of several million over a eight-year period, could be open to those institutions which have a sound research track: Neuchâtel has one in plant biology; Basle one in nano- technologies and one for arts and aesthetics, as well as one in behavioral sciences; EPFL in basic physics and information networks and further inherited an NCCR in molecular biology from ISREC. Competition among universities grew rapidly in the disciplines of sciences: on one hand the federal authorities aimed at reorganizing the system by concentrating into a certain number of institutions the most expensive fields, on the other side struggle for students and funding was intensified by new instruments of the national science foundation like the NCCRs. In this context the biggest universities could acquire new resources for supporting their growth and being able to claim their occupation of specific segments of sciences.

In summary the reorganization of the higher education landscape, provided a framework in which HEIs could find opportunities to grow (EPFL) but also introduced new threats to their traditional position (UNINE). This reorganization was pursued through different tools like the new university act of 1999 introducing a formula based funding (30% on research activities), the NCCR programs, and the ad hoc financial incentives to transfer specific disciplines to other institutions through the Swiss University conference, the national political coordination body of the cantons and the confederation. However, the possibility of negotiation among the parts (federal and cantonal authorities and academic administrators) should not be underestimated, as in all cases – except UNINE – these were eventually concluded based on a consensual agreement from all sides.

Human resources

All HEI's have augmented their share of foreign professors, but with varying results: USI, EPFL and SUPSI are well above the system average (USI reached 71% in 2008; EPFL 57% in 2008 against a system average of 45%; SUPSI¹⁰ 34% against UAS average of 19%). This can be partly explained, for USI and SUPSI, by their position near the border, which facilitates exchanges with neighboring Northern Italy. However, it is not the case for UNIBAS, which is also in a border region with France and Germany (even though it augmented its share of international professors to 50% in 2008). EPFL seems to reflect more a trend towards an international profile linked to being a research intensive university. This emerges clearly by looking at the several different nationalities represented. UNINE indicates a more local profile, with most faculty being Swiss (21% in 2008, however rapidly increasing from 11% in 2004).

All higher education institutions introduced the tenure track, UNIBAS since 1998, EPFL since 2000, USI since 2004 and UNINE since 2005. The case of SUPSI is different, as teachers and researchers may have, through a collective contract introduced in 2008, a tenured position without being subject to the severe requirements of the evaluation procedures for assistant professors.

The introduction of tenure track is important according to two aspects: on one side it allows universities to attract young promising academics in the national and international markets. In fact this instrument was considered very innovative in Switzerland as it implied a completely different management of human resources, but also that a university goes on competitive markets to attract specific academic personnel in order to improve its research activities. On the other side, universities comply with external requirements related to the discourse on increasing competition: in fact in six years all five universities introduced a tenure track, even though one might question if the tenure track is as useful at EPFL – an

¹⁰ Professors in Universities of applied sciences have different career paths, accordingly they are presented separately by FSO

international research intensive technological university – or at the faculties of humanities and social sciences in other smaller HEI's.

Finances

All universities tried, with different objectives, means and outcomes, to increase their funds in the period considered. The actions taken by the universities consisted on one side to comply with external demands: thus they all introduced the contract of performance between 2000 and 2005, and, for the new institutions USI and SUPSI, they tried to match the requests by the canton and the confederation in order to comply and get the subsidies.

On the other side actions were taken to modify the funding mix: as for finances, the struggle for financial resources is more visible in terms of indicators, as the sophisticated funding mechanisms at national level enhanced, since the application of the new university act, increasing competition to acquire students (70%) and develop research (30%). On the other side, funding which comes from the cantonal authorities appears to be more negotiable and based on historical patterns; however, tensions and financial cuts can be threatened and are sometimes applied, like in Neuchâtel in 2005 and 2006. This has made the universities more vulnerable and has pushed them to make some adjustments (like suppressing chairs and institutes), while it shows on the other side that the issue of education and research outcomes is less essential than local political support.

Features of compliance can be observed in finances in that all HEI's had the contract of services introduced to regulate in a new fashion the relation with the funding authorities. Moreover, the university federal act of 1999 introduced some competition as it shaped the level of subsidization according to the number of students (70%) and research activities (30%). This had a strong impact on competition among universities in connection with students and constrained the leeway of some of them (in particular UNINE and SUPSI). However, differentiation patterns have been also detected: first, USI decided to elevate

student fees and thus has become the far most expensive Swiss university, UNIBAS was able to profit from a enlarged financial basis integrating a second canton as a funding authority, EPFL, in the first years of 2000 increased massively its third party funding, which were then incorporated with a significant growth in federal funding, partly achieved thanks to repeated advocacy by politicians and policy makers at national level.

Table 54 Positioning models

Niche dimension	Rationale	Resources	Horizontal relations	Cases
Education	Differentiation	Students	Coordination	USI
			Competition	UNIBAS
Research	Differentiation	Research grants	Coordination	SUPSI
Education/Research	Differentiation	-Students	Competition	EPFL
		-Research grants		
		-Staff		
	Compliance	-Students	Competition	UNINE

Table 54 summarized the main positioning models observed. They illustrate how the five universities positioned themselves within the Swiss higher education system. It is relevant to underline it again, as positioning is relationally characterized and hence depends primarily on the levels of analysis selected. Hence, a university differentiating its research profile at a national level may very well be complying to international standards of excellence (see hereafter the case of EPFL).

Three types of positioning have been observed: the first focuses on education, the second on research and the third on both academic core activities. The primary rationale for positioning according to educational activities is differentiation: both USI and UNIBAS strove, within their boundary conditions, to build and consolidate a profile that integrates the Swiss

landscape, by means of specific funding mix the first, through quality enhancement the second. Accordingly, students represented the key resources addressed: however, the underlying dynamics in terms of horizontal relations (i.e. with other higher education institutions) were opposite. Besides local resident students, USI searched for international students both across the border and on the wider scale from all over the world, thus not competing with other Swiss universities. As a result due to the fees for foreign students being double those for national students, USI was able to generate important financial streams, in a way which remains unique in Switzerland (USI had in 2008 59% foreign students and only 9% from other cantons, FSO). UNIBAS on the contrary, succeeded in increasing the numbers of students from other cantons, thus improving its financial streams dependent on federal and intercantonal subsidies (students from other cantons: from 33% in 1996 to 44% in 2008, FSO).

The second positioning model is represented by SUPSI, which privileged research. The federal coordination of universities of applied sciences imposes integration of disciplines, timing, strict financial criteria to all these higher education institutions, de facto requiring compliance for all these types of institutions. Hence, the only possibility to differentiate significantly for SUPSI was through its research activities. This was carried out by differentiating by building on a specific research profile. This was possible according to the opportunities provided by the environment (acquisition of existing institutes) and by developing internal capabilities over time. Hence, SUPSI attempted at coordinating within the system by establishing a niche, whose specificity could allow for obtaining research grants and sustain further developments.

The third type of positioning concerns both of the university core activities: education and research. This positioning model concerns UNINE and EPFL and, reflecting the discussion on patterns, it emphasizes, from a different perspective, the opposing forces underpinning the trajectories of these two higher education institutions. EPFL positioned itself within the higher education system by substantial differentiation in education and research, in so doing

it attracted different resources, such as students (e.g. foreign students raised from 28% in 1996 to 42% in 2008, FSO), staff (share international professors grew from 52% in 2004 to 57% in 2008, FSO) and research grants by competing with all other higher education institutions. Hence, like for UNIBAS in the case of students, positioning through differentiation doesn't necessarily induce coordination for resource acquisition. On the opposite, EPFL could shake the entire organizational field introducing competition dynamics that were almost unknown in the Swiss landscape. Along the same line, EPFL major acquisitions in order to sustain and develop its growth in new sectors, were conducted (or perceived by other actors) as aggressive, accordingly as manifestation of pure force by a powerful university. On the other side, UNINE also went through a major repositioning in terms of educational and research profile. Driven by conditions of competition, it shows how this university succumbed to these forces and was eventually able to comply with environmental pressures, e.g. the national reorganization of technical disciplines.

10 Conclusions

This work shows that universities are able to produce organizational strategy by engendering coherent patterns of actions over time which are the result of different combinations of deliberate and emergent strategies. On one hand, strategy is constructed by multiple actors, central administrators, academics and public authorities, who are embedded in positions resulting constraints and opportunities within existing governance structures. On the other hand, strategy shapes a portfolio of activities that has an impact on university connections with the environment. It affects its position by modifying its institutional profile and trajectory over the years. Furthermore, strategy unfolds different degrees of agency, as universities intervene and change the linkages they hold with public authorities, pursuing compliance and funds, and other universities, targeting students, research grants and staff through relations of competition and cooperation.

10.1 Addressing the research questions

a. What are the characteristics of organizational strategies in HEIs?

HEI's are able to take actions that present coherence and that are recognized by relevant actors as being strategic, i.e. aiming at organizational objectives considered as significant. Coherence can be observed across five areas of activities such as governance, education and research, as well as human resources policy and finances. A strategy focuses one of these areas and coherently unfolds actions in the other areas. This means that, for example, if research is tackled, the other activities should support it and human resources should be accordingly managed, by increasing the number of tenure track assistant professors, like at

USI or EPFL or by devoting a special internal fund to promote specific research projects, like at UNIBAS or SUPSI.

The findings show different patterns of strategic actions according to three aspects: first, the five higher education institutions developed distinctive strategies focusing different core activities. In this perspective, academia core activities, education and research, represent a major concerned area; however, strategies emphasizing governance, finances and education have also been detected.

Second, strategies reflect different degrees of coherence, measured by looking at the consistency of actions across the different key activities. In some cases, strategic sectors have been enhanced and supported by other organizational areas (e.g. research supported by human resources), while in others, university actions incongruously evolved across the different organizational technology and central functions. The issue of incoherence is related to a third aspect, concerning change in strategy: this can be deliberately decided (e.g. after consolidation of education, a university intends to develop intensive research) but it can also be the unintended result of incoherence of actions over time (e.g. when tensions and conflicts are difficult to reconcile).

A decrease in the level of coherence entails contradictory organizational actions: they can contradict each other and strategy can hardly unfold, as university leeway is more and more constrained and purposive action by academic administrators gets limited. According to the findings, in case of important and persistent incoherence (like at UNINE, which focused on developing some disciplines but wasn't financially sustained to realize it), there is room for a change in strategy, which will be endorsed by new or raising actors able to profit from or build new opportunities to advocate different interests (in the same case, the interim rector in accordance with the cantonal government).

There are some indications that duration of strategies may be relevant, as shorter periods cannot provide the necessary stability and continuity, e.g. at UNINE, where core strategic

decisions changed after two years. Nonetheless this should be observed over longer periods of time and possibly over a larger sample.

Structure and governance appears to be a relevant area of activity for strategy and strategic change, actually all milestones dividing the different cycles relate to structure: not only the creation of a higher education institutions but also the new or revised legal frameworks, the establishment of new faculties, reorganizations and the arrival of new executive teams.

Research emerges as a major driver for profiling, in that it determines a specific position, which is consistent with and sustainable to the university, and which takes into account other organizations' positions at different levels within the higher education system.

b. What is the role of actors in strategy making?

Strategy as coherence of actions is directly connected to the role of actors and on the different modalities according to which they converge: the five cases reflect a high degree of variety, shaped by governance structures, which frame the context within which managers, academics and policy makers take action. However the relation between actors and governance is reciprocal, as the first may be able to mobilize the second by triggering and sustaining change of structure in order to support their own interests.

The findings presented in this chapter show that all universities have changed their structures in the considered period and that there are different actors in such structural changes. This implies that managers have to seek compliance with legal framework on one side and accommodation to academic demands.

Moreover, strategic structural change has different degrees of diffusion according to internal governance and power relations; in this perspective traditional universities have changed less at the level of the understructure, while the federal institute of technology and the university of applied sciences underwent major restructuring.

Besides structural and governance change carried out by the state and discipline dynamics, also deliberate strategies have scope for changing structures: this has been characterized by the search for leverage in order to obtain desired goals, to introduce increasingly control and coordination and to respond to external demands.

The impact of structure on strategy, centers on the role of rectors as the interface between external and internal organizational dimensions. Their strategic capability is certainly framed by the existing structure and governance, i.e. by the combination of balances in which they are located with respect to funding authorities and academic community. However, their understanding of these structural conditions may allow for some leeway by leveraging on their role as mediators, communicators and actors of organizational politics. Hence, a sensible awareness of their positional strengths and weaknesses is determinant in carrying out strategy processes.

Values and norms also govern these processes: as structure and governance reflects and endorse the internal culture(s) of the academic organization, they also define what is feasible and legitimate to do according to the organizational identity. It has been observed that such changes are possible: they can be incremental or abrupt depending on the structure and the internal governance shaping the decision making, so that, in two opposing examples, UNIBAS continuously adjusts its understructure according mainly to discipline driven dynamics, while EPFL changed its identity by a through reorganization stretching over all levels and functions.

Actors' convergence on strategy is framed by their positions at different levels. These positions imply opportunities and limitations according to the roles attributed and the relations that can be potentially established. Besides, they can vary over time: observing organizational structure and governance different types of change are detected. Changes in the relation with the state towards increasing institutional autonomy; changes at the level of governing bodies (council and rectorate) whose powers can be also augmented, and changes

in the understructure, whereby new units are created or the organization of the core activities – education and research – are more or less centralized.

These changes are triggered by the actors themselves: first, the funding authorities frame the legal framework at intervene at different degrees: changing the relation with the HEI in terms of institutional autonomy, deciding on the internal governance structure as of academic administrators and understructure. Second, academic management is also able to modify the internal governance by means of decisions and new regulations. This is possible at different extents: from partial or thorough reorganizations of the structure of disciplines to the modification of roles of deans and faculties. Finally, academics within higher education institutions may initiate organizational change, e.g. by promoting scientific fields that eventually become faculties.

Factors of convergence can be summarized in three main points. First, as boundary conditions, governance and structure determine the framework in which actors move and take action. Leadership is a key dimension as it determines how academic administrators communicate, coordinate, negotiate, integrate and adapt strategy. Second, this can reflect different features: a powerful president in a small university handling subscription to strategy by intervening in the different networks of communication; a highly reputed academic capable of handling several fragmented interests within the university and find coherence to manage the relation with funding authorities; powerful managers using instrumentally vertical structure and centralized governance. Third, the dynamics of science evolution provide a platform in which academics produce their strategies and negotiate, bottom up, the integration of their objectives into the deliberate strategy. However, when there are severe conflicts, convergence of actors is disrupted and time is needed to establish a new convergence – and a new strategy.

In conclusion, the different actors, endorsing disparate interests and strategically significant initiatives, align where deliberate and emergent strategies encounter. The modalities through which, eventually, the realized strategy is carried out depends on governance structures: in a

shared governance personal contacts and intensive communication accommodate convergence; in a hierarchical organization central administrators have leeway to restructure and implement deliberate strategies; in a political model, when negotiations among different groups are not possible due to high degree of tensions or even conflict, strategic change is imposed by external forces.

c. How do higher education institutions position in their environment?

The examination of university positioning has identified different institutional trajectories: all five schools have changed their position within the higher education system, locating in a distinctive niche. In so doing, they have displayed different degrees of agency by transforming strategically their context to acquire resources, e.g. relations with public authorities have been modified to increase funding, poorly accepted institutional profiles have been legitimized and already occupied niches have been claimed.

The relations an organization develops within a specific niche exist at multiple levels: the focal organization handles relations of competition and coordination relate to the population level and mirror population dynamics, symbiosis is developed between different organizations located in other places of the organizational field. Hence, strategic agency is also a matter of being active on different levels of the niche and being capable to shape overall coherence.

Our five cases show that each HEI has changed its position over the period of time considered, four growing according to almost any indicator (USI, UNIBAS, EPFL, SUPSI), one stagnating or even shrinking (UNINE). The impact of strategies is evident: patterns of actions are consistent and recognized by the main actors, who also share the relation between objectives defined (or the positions ambitioned) and actions taken. The accomplishment of a strategy is reflected in university positioning in a sustainable niche, as

it has been posited at the beginning of this chapter. In fact the case of incoherence also corresponds to a (temporary) missing location on a durable position (UNINE).

Such changes in the organizational field can reflect a variety of characteristics. First, the position itself from peripheral to central (Basel, EPFL) from central to peripheral (Neuchâtel), brand new position in the periphery (USI, SUPSI). Second, university profiles can be modified: from generalist to specialized (UNINE), from education and applied research to research intensive (EPFL), from specialized to generalist (SUPSI) or they could intensify and consolidated the existing one (Basle as a generalist university) or establish itself within a specialized profile (USI). The HEI's have achieved this with different degrees of agency, by which they have been able to transform (parts of) the existing conditions or to adapt to a suitable position.

Moreover, the findings show that these are (successfully) created not only in terms of markets and so-called industry segments, but also by means of enhancing a common understanding of values and norms that permit a shift in the recognition of the constitutive features of the university: HEI's may be able to consider different types of resources and claim diverse markets by selecting and axing on specific aspects of their organization so that they position in almost unique ways: offering distinctive mixes of programs and research activities, establishing new types of governance and of funding streams, acting as pioneers in newly constituting organizational forms, establishing a network of alliances allowing for demarcating and claiming a specific niche.

There are different scopes of agency, as universities could pursue their strategies with different levels of impact on the organizational field diversity. First, by shifting their organizational boundaries they modified the network of actors through partnerships and acquisition; second by incrementing their resources they changed the relations in terms of competition (see for ex. the NCCR programs), they legitimated sponsorship. Hence niches are selected with different (combinations of) strategies by which a HEI may legitimize new

norms and values, pioneer hybrid organizational forms, differentiating through partnerships participate to intense increased competition, use dynamics of power.

In conclusion, strategies are a balance of differentiation and compliance. Strategic options are constrained as universities have to fit according to different environmental dimensions: economically, they have to prove to be sustainable and efficient in order to gather further resources from the funding authorities; culturally they have to conform to normative models and systems of meaning share within the field, politically they have to cope with different configurations and be able to provide coherence with respect to policy makers.

10.2 Contributions and outlook for further research

Extending the sample

This research takes into account five HEIs in Switzerland, which have some specificities: its federal structure has allowed me to look into different types of universities: cantonal, federal and cantonal/federal. Its binary system allowed also for a comparison between traditional universities and universities of applied sciences. Each HEI considered had a different type of relation with its funding authorities (which are also different among themselves) and further represented variety under many angles: the three national languages, peripheral and central cantons (less and more urbanized), richer and poorer cantons, institutional age, size, budget, subject mix. This variety is reflected in the five universities selected. Hence, it would be relevant to investigate different national higher education systems, in order to see how the boundary conditions here discussed can be further applied and how different settings entail diverse results. This could be also done in a comparative perspective. The biggest Swiss universities (UNIZH, UNIGE, ETHZ) were not considered. This for different reasons: the first didn't provide internal strategic documentation, the second was undergoing a huge reform, adopting a new university act implemented at the beginning of 2009 and still in an

introductory stage. As for the ETHZ, its trajectory is very stable, also because it is among some of the best institutes of technology in the world, according to different rankings. Of course, more than five cases (over a total population of nineteen HEIs) could have been considered, but, also from a quantitative point of view, 26% still represents a good sample (37% if one considers that two UAS were created only in 2007).

Investigating university third mission

Moreover, this specific study has concentrated on education and research. Yet universities have been developing their third mission – services – and a long list of activities that are presently considered very important such as technology transfer and innovation (see for instance Gulbrandsen and Slipersaeter, 2007). Not all HEIs are activating on this at the same pace, but it could be interesting to look into these specific strategies in a specific set of academic organizations to look to how change is produced and on how much it is changing the organizational characteristics. Furthermore, there could be an interesting avenue for highlighting differences between traditional universities and universities of applied sciences and how they differentiate and converge (Kyvik and Lepori, 2010; Kyvik, 2004).

Methodology has been also developed in order to highlight this approach: how strategy may be detected and analyzed in non-profit organizations. As most literature posited that universities are not able to produce their own strategies, an empirical device had to be produced to really verify whether strategies were actually missing. The search for patterns (and their verification) by significant actors has modified the approach to strategy: beyond rationality as purposive action by management, strategy is the result of collective undertaking, where different groups, that get modified over time, contribute to the how (processes of strategy making) and to the what (content of strategy), constantly discussing, mediating, interacting, negotiating and compromising among each other and under existing conditions within the organization and in the broader environment.

Organizational change

There are different ways to carve out niches, moreover, our results show that these are (successfully) created not only in terms of markets and so-called industry segments, but also by means of enhancing a common understanding of values and norms that permit a shift in the recognition of the constitutive features of the university. Hence it may be meaningful to investigate how universities change (see for ex. the concept of entrepreneurial university by (Clark, 1998). HEIs may be able to consider different types of resources and claim diverse markets by selecting and axing on specific aspects of their organization so that they position in almost unique ways: offering distinctive mixes of programs and research activities, establishing new types of governance (thus of funding streams), acting as pioneer in new organizational forms (as the case of the university of applied sciences indicates), establishing a network of alliances allowing for demarcating and claiming the entire niche (Santos and Eisenhardt, 2008).

System diversity and differentiation processes

HEI's have a variety of strategic responses that can be used according to the internal features, the governance framework and the possible positioning and portfolio. This study show that in higher education organizational fields, academic organizations are not responding to environmental demands (mainly coming from governments) with isomorphic attitudes. On the contrary, within specific constraints and opportunities, universities act in very diverse manners, actually portraying a high degree of diversity and differentiation processes, within the strategic endeavor itself (see Meier, 2008: 85 for universities as strategic actors; Hardy and Maguire, 2008 on institutional entrepreneurship; DiMaggio and Powell, 1991 for an introduction of agency in highly institutionalized settings; Huisman et al., 2007 for diversity in higher education systems).

It would be relevant to look at how higher education organizational fields differentiate or converge focusing on the action of individual organizations (see Frølich et al., 2010). University strategy has impacted on the diversity of the system: it has framed university trajectories in distinctive ways, influencing their internal features, reshaping actors positions and governance frameworks, reconfiguring the entire organizational field. Between 1996 and 2008 two HEIs were born and established, one university changed from a research intensive profile into a more education oriented institution, one became an internationally highly reputed research intensive university and another consolidated its sustainable position by reinforcing its political support. All five universities compete on the different markets and coordinate through strategic partnerships that were actively searched.

In conclusion, a reference to Gavetti and Rivkin (2007) is made concerning research on strategy, managerial endeavor and time dimension. The authors state:

(...) a perspective that reflects the reality of managerial behavior; that respects both the reasoning power of managers and the bounds on their rationality; and that permits organizations to change, but within realistic limits. Our perspective employs the variable time to frame the question of strategy's origins in a distinctive way. (...) A focus on time allows us to synthesize and extend the evolutionary and positioning models of strategic search.

This work aims at offering a framework combining both strategy processes and positioning results in order to foster understanding of the evolutionary path of universities which unite internal dimensions (patterns and actors) as well as external outcomes (positioning) with a broader significance for the population and the organizational field.

11 List of documents

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