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## Unfolding Strategic Management Practices in Leading European Technological Universities

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## ***Abstract***

### **Unfolding strategic management practices in leading European technological Universities**

This paper explores the study results conducted in the framework of a LLP-European project on the field of university modernization that carried out a survey amongst leading European universities in Science and Technology. The focus of the study was to better understand how strategy is developed within these universities, which tools are mostly used and how the strategic management processes are organized and implemented. The paper is framed to analyze the fundamental questions being examined: how is the strategy definition process in these universities like; what tools and models of strategy development and monitoring are used; how they assure that strategies are implemented and aligned; what supporting instruments are at place and how do universities establish the feedback mechanisms of the strategy development and ensure organizational learning from this process. The paper explores these central questions and sets forth a comprehensive discussion on the main practices trends and perspectives.

# Unfolding strategic management practices in leading European technological universities

## Introduction

Problems with strategy implementation in universities have been closely linked with the way institutional strategy development is carried out. For instance, Gregory (2008) argues on two views which strategy making in higher education can be differentiated. On the one hand, there is the view of strategy as “consistent pattern of action”, on the other, there is the view of strategy as a “tool of management control”. From the former view strategic development is long established in universities but from the latter view it is a fairly recent phenomenon reflecting a shift from collegiality to managerialism in higher education.

The long established view of strategic development in universities is reflected in Mintzberg and Rose’s study (2003) which tracks the realized strategies of a prominent university over a century, bringing forward that there was remarkable stability in the aggregate, however nothing revolutionary change in strategy ever occurred. According to them, this may be explained in some of the terms most popular in business today: “empowerment”, “venturing”, and especially “knowledge work”. Consequently while the typical university may seem very different from the typical corporation, its behaviour may in fact contain sobering messages for the strategic management of businesses. In respect to the specific type of technological driven universities, this paper deals with the examination of how do they frame their strategic management, taking into account the strategic management discipline applied to the higher education field, especially in the current context of pressures for competitiveness and more impact and value-driven for the higher education systems and the society in general.

Therefore, a survey has been applied to 13 institutions distributed across 9 European countries including Sweden, Belgium, Italy, Portugal, Spain, Germany, France, The Netherlands and Finland. The sample criteria when choosing the institutions for the survey application have tried to select the most representative technological institutions within those countries. The focus of this survey was to better understand how strategy is developed across these universities, which tools are mostly used and how strategic management processes are organized and implemented. The overall study results allow drawing a general picture of the universities strategic management structures, including in it the problematic involved in the process of defining, implementing and reviewing the institutional strategy embedded in their specific and wide-ranging context. Accordingly, the findings of this study have been framed to answer some fundamental questions:

- How is the strategy definition process in the leading universities in Science and Technology like?
- What tools and models of strategy development and follow up are used by these universities?
- How do universities assure that their strategies are implemented and aligned? What supporting instruments are at place?
- Who are the actors leading the strategy definition and implementation process?
- How do universities establish the feedback mechanisms of the strategy development process and ensure organizational learning from this process?

This paper is organized into four main parts. Firstly, on the basis of a brief overview of the academic literature on the strategic management of higher education institutions, an overall approach to this subject is presented, followed by a description of the research design and methodology of the study. The third part deals with the exploration of the survey results, discussing aspects of the strategy definition process (e.g. : process formalization and strategy document categories; planning timeframe, planning cycles, planning levels and scope, actors involved, strategy main elements, methodologies and models used, as well as leadership and participation issues). Also it is discussed the institutional strategy development and alignment process; dealing with issues such as: scope, institutional elements aligned to strategy, methodology and instruments supporting the strategy implementation and alignment, identification of key success factors and constraining barriers. Furthermore, it is also

explored the strategy monitoring mechanisms and feedback processes along with the learning outcomes being established, which includes the examination of aspects concerning with tools in use to support these processes, their flexibility, as well as how the revision of the strategy development process is conducted. Finally, the fourth part deals with the discussion of the study results in light of their empirical and practical implications.

### **1. Strategic Management in higher education: past development and current challenges**

Adapted from the fields of business and non-profit management, strategic management approaches have evolved distinctive and important elements in order to function successfully in higher education. For instance, Meyer (2002) stated that most strategic management approaches represented a more managerial shift arising from the need of boundary setting: ‘as “higher education” comes to take on a rainbow of meanings, university leaders need to define and redefine what kind of activities should be “inside” or “outside” the organizations boundary. Central administrators now engage in decision-making about the university’s aspiration level in terms of selectivity and visibility, its core competencies (selective excellence), its long-term mission, and short-term goals as they identify key competitors and allies. Clearly such a marked change has not gone without challenge. Strategic action requires a degree of central steering and organizational unity for which the university, with its tradition of weak central governance and collegial (consensual) form of decision-making has typically been ill equipped (Meyer 2002, p.540). However as academic institutions become more businesslike in their operations, so the tools and techniques of this world are duly assimilated by university managers particularly as regards the distributions of resources.

Furthermore, Yokoyama (2006) starkly contrasted this trend of business like as being one shift from collegiality (characterized by academic value, trust, informality and minimal hierarchy) to managerialism (characterized by formal hierarchy, lack of trust and strategic management). Gregory (2008) also stated that this shift from collegiality to managerialism may be seen as another aspect of strategic planning development failure attributed to a lack of understanding that strategic development processes operate at different systems levels. Additionally, this shift represents the disconnectedness between different systems parts (managerial seeking to control the parts rather than granting maximum autonomy because they cannot be trusted to act in the interests of the whole).

As Gregory (2008) puts forward, in the academic environment an example of this may be the existence of a strategic plan being seen to be the physical evidence that the subject group had decided on its strategic plan to which it could be held accountable and that could be used for the purpose of management control; but this is to give the document a dubious ontological status. As such, in exploring the strategy development process in the context of higher education, if done from a purely methodological perspective is, argued by Seddon (2008) to use a popular phrase “tool headed”. Moreover, it represents a failure to approach the process systemically by neglecting the essentially historical and social embeddedness of the system involving consideration of purpose both in terms of the people involved and the wider context.

Amongst the management tools applied to the university context, one of the top popular has been strategic planning. As noted, during the last decades, strategic planning has been regarded as a necessity for higher education institutions to meet a situation characterized by changing environment and increased competition. In the European context, both authorities and higher education institutions in many countries see strategic planning as a useful tool to handle shifts in the environment and growth in market competition. In like manner, when the need to reform higher education institutions has been on the agenda, strategic planning has been regarded as a useful tool. The general processes of strategic planning and budgeting is manifested at the operational level into rigid workload allocation schemes that significantly impinge on the day-to-day working lives and professional freedom of academics.

Within the strategic development process in universities, alignment is one key aspect when exploring the concept of strategy implementation effectiveness (Sullivan & Richardson 2011). The importance of aligning strategic planning and assessment to achieve institutional effectiveness is increasingly recognized by higher education leaders (Hollowell et al. 2006). In particular, there is growing evidence that today's higher education organizations can benefit from a strategic planning model that integrates an organization's mission and vision-based strategic planning initiatives with practice and outcomes assessment at the unit level (Middaugh 2010). Such a model includes ongoing environmental scanning and scenario planning, clearly framed strategic outcomes aligned with individual and team performance outcomes, the creation of a culture of continuous outcomes assessment, dialogue, reflection, and an adaptability to change (Aloi 2005; Hollowell et al. 2006; Morrill 2010; Wieringen 1999).

Additionally, administrative and educational support units have become increasingly engaged in the development of annual goals and objectives at the unit level. However, these efforts are not always aligned with institutional strategic planning goals and objectives (Sullivan & Wilds 2001). Many of the challenges associated with creating a culture of assessment have been identified in the literature associated with student learning (Palomba & Banta 1999; Suskie 2004), but it seems clear that the same challenges apply to the creation of a culture of assessment in administrative units (Hollowell et al. 2006; Middaugh 2010). In this vein, according to Sullivan and Richardson (2011) leaders in higher education can keep strategic plans vital through promoting and valuing individual contributions, connecting performance evaluations to specific strategic plan goals, and keeping shared unit and institutional strategic plans relevant and actionable.

Essentially, strategic management as a particular form of management; should be participatory, critical, forward-looking, leading towards institutional policies which seek essentially to enhance the potential for change in an university. This potential depends on skills, the principles governing the conduct of all parties concerning, the organization and management methods and the network of relations and their quality. Thus, strategic management strives to introduce and sustain a capacity for adaptation, and collective learning about change at all decision-making levels. It relies on organizational methods, on a solid and clear commitment on the part of administrators in new courses of action, which is an integral part of appropriate methods of leadership. It encourages decentralized initiative, modernization, innovation, personal involvement, but also co-operation, the exchange of information, and network activity, with a constant concern for quality and the widest possible propagation of evaluation methods and quality standards.

As mentioned, there is no standard strategic management model (Sullivan & Richardson 2011). Each university possesses its own form of government, structures, traditions, experience, problems to be resolved, individual persons, means, capacity to manage and, in particular, its practice of leadership and use of management tools, such as strategic planning. In this sense, looking into the crucial dimensions of strategic management in universities, brings the conviction that universities strategic management should be done with a permanent eye on their specific organizational environment and as a result, special attention goes to the astonishing power of networking: more and more a modern university appears as a set of overlapping networks kept together by a broadly shared mission. On the following parts of this paper, the research methodology and the main results are described, compared and discussed.

## ***2. An approach to the research design and methodology***

The focus of this study was to better understand how strategy is developed within the leading European universities in Science and Technology, which tools are mostly used and how the strategic management processes are organized and implemented in this type of institutions. Thereupon, in the framework of a Life Long Learning Programme ERASMUS with the support from the European

Commission, the universities from the application of the survey were selected based on the use of the variables taken from the QS University rankings subjects<sup>1</sup>.

We have used the subject of Engineering and Technology by applying filters of region (countries and partners associated with the ongoing ERASMUS project) as well as other filters criteria employed by the QS such as academic reputation, citations per paper and H-index citations. The chosen institutions were examples of well ranked universities in their respectively countries.

The following table shows the main description of the universities involved in this study:

Table 1: sample size characteristics

University	Country	Nº of students	Status
Tec 1	Spain	37.783	Public
Tec 2	Belgium	41.255	Public
Tec 3		27.310	Public
Tec 4	Sweden	13.600	Public
Tec 5	Portugal	10.864	Public
Tec 6		20.000	Public
Tec 7		2.300	Private
Tec 8	Italy	26.000	Public
Tec 9	Germany	30.000	Public
Tec 10		23.905	Public
Tec 11	France	5.300	Public
Tec 12	The Netherlands	7.118	Public
Tec 13	Finland	19.993	Public

As can be observed in the previous table, the sample is mostly comprised by public institutions, with varied institutional size (from small to medium). The questionnaire included twenty five questions (open and closed), which were divided in four main parts:

- i) Exploration of the strategy definition process;
- ii) Examination of the institutional strategy development and alignment processes;
- iii) Identification of the monitoring process;
- iv) Exploration of the feedback and learning processes outcomes.

The application of the questionnaire has been done electronically as well as in some cases it has been applied during a visit to the institutions on the framework of the ERASMUS co-funded project activities. The sample comprised of one response per institution, fulfilled by a representative of the top management team, quality or planning office. The survey was treated with descriptive statistics, from which the outcome analysis of the results are followed discussed.

### **3. Overall description of the study findings**

Table 2 provides an overview of the main variables compared across the institutions concerning their strategy development processes.

<sup>1</sup> Launched in 2011, the annual QS World University Rankings by Subject is a comprehensive guide to a range of popular subject areas. Now in its 3rd year, the rankings series reveals the top 200 universities in the world for 30 individual subjects.

Table 2. Main trends of strategy development in the Leading European Technological Universities

Strategy definition process	<i>Type of strategy document</i>	Strategic plan ranked as most used tool
	<i>Strategy horizon</i>	Between short and medium term (average 4-5 years)
	<i>Level of maturity</i>	Vary. 46.2% ascertained only one cycle
	<i>Use of consultancy services</i>	Largely carried out by internal departments
	<i>Elements included in the strategy definition</i>	Less included aspects were related to issues of diagnostic analysis (scenarios), monitoring and follow up (performance indicators, control panels). Information on economic impact and supporting structures were less addressed as well as communication mechanism.
	<i>Methods supporting strategy definition</i>	Swot analysis ranked as most used method (84.6%)
	<i>Agents involved</i>	The overall picture acknowledged the leadership of the rectors with implication of the Executive team, board of directors and general manager. Institutions also recognised on the basis of 69.2% the involvement of students, administrative and academic staff in the definition process
	<i>How strategy is approved</i>	The strategy formulated was validated either by the university board or by the university council
	<i>Strategy scope</i>	The majority of the institutions (92.3%) reckoned that the strategy was formulated at the unit levels (presence of formalized strategy documents)
Strategy development and alignment	<i>Elements aligned with strategy</i>	The most ranked elements aligned with strategy were internationalization, human resources policy and annual university budget.
	<i>Tools supporting implementation and alignment</i>	Varied considerably. The highly ranked tool was management by objectives. Institutions have acknowledged the use of more than one tool in combination
	<i>Factors influencing positively implementation</i>	Building of shared strategic visions and inclusion of a follow up processes
	<i>Factors influencing negatively</i>	Feeling of daily workload and resistance to change in different academic community profiles
Strategy monitoring	<i>Responsible for strategy monitoring</i>	61.5% included a strategy follow up process. In 38.5% a strategic committee has been appointed responsible for the entire process.
	<i>Tools employed</i>	Performance indicators systems and reports mainly used. Also combination of different tools (e.g. tableau de bord; action plans or Dashboards) with less degree.
Strategy feedback and learning process	<i>Dynamic and Periodicity</i>	Varied considerably. Some do it annually, but mostly it coincides with the top team mandate.
	<i>Effectiveness and outcomes</i>	Different concerns (more visibility within the academic community; new tools integrated into the institution information system, merger of different management system to create higher coherence and commitment; more communication of results and visibility into the annual report; more facilities for data gathering and calculation of key performance indicators, more systematic dashboards, more exploration of changes in the external environment and reflecting policies as results of this exercise, better integration of organizational and contextual elements into the institutional strategy).

As ascertained in table, concerning the strategy definition process, one of the first elements that came out was that the totality of the universities reckoned having structured a strategy definition system. All institutions confirmed to count with ongoing implementation of strategy documents. Looking into the way these documents were designed, it could be observed that they were drawn in different formats. Most of these documents were structured as a strategic plan, but also there were institutions that elaborated it in form of government plan, presidium strategy or a development plan. The strategy documents of the sample of universities have demonstrated that the universities are developing their strategic vision framing it in longer term (e.g. more than ten years), but also in short and medium



periods of time, between three to five years. In the majority of them, the period covering the strategic documents comprised between 5 to 8 years.

The experience of the institutions concerning strategy development is reflected in the number of cycles these documents comprehended, that is, the number of documents being elaborated and implemented. As such, when analysing the frequency of planning cycle's existent across the institutions, it was interesting to observe that nearly half of the sample acknowledged being in the middle of a first cycle strategy document implementation. Only one institution endorsed a large acquaintance with the development of more than five cycles of development of planning documents. As regarding scope, the documents accounted for both generic and specific strategies. The specific and generic strategies were related to different issues such as quality, ICT, language, human resources, internationalization, ethical and gender policies as well as aspects more related to the core business of the universities such as education, learning and research policies. It is interesting to note that the most integrated element found in the strategy definition were issues related to aspects of internationalization, human resource policies and institutional annual budget. This aspect might reflect the institutions concerns of their international competitive profile, the relevance of attracting and maintaining talent as their resource sustainability capacity. The documents also included at some extent, assessment and accountabilities frameworks, even though in some cases they were restrictive, incomplete or still not well consolidated. These aspects are very important, especially concerned with enhancing a collective learning and building a culture of assessment.

The definition processes were conducted in different periods; mostly of it comprehending between four or five years, with some regular updates, typically within two years. These processes were generally the result of a formal process, based on general ideas and directions. The definition was mainly a top-down procedure, yet in some cases it was further open to discussion and debate throughout different organizational levels. The degree of participation and engagement is found to be a relevant shared concern between the institutions. These concerns are also connected to similar arguments in the academic literature which highlights that universities are more able to achieve a higher alignment of its institutional strategy through the establishment of a greater connection between the organization levels with its planning and assessment processes (Sullivan & Richardson 2011). The element of external consultancy was rarely used, however when employed, it was provided by other higher education institution and connected with giving support during the elaboration of the universities first strategy cycle.

Typical elements of strategic planning model, such as mission, vision, strategic lines and objectives as well as SWOT analysis were found to be mainly included in the universities strategy documents. Other aspects and tools such as the construction of scenarios, performance indicators, information and communication system, follow-up and revision were also appraised, but with less extent. On the other hand, issues more related to the social, political and economical aspects of the strategy, as well as the distribution of responsibilities were not clearly ascertained. SWOT analysis was found to be the common tool in supporting the definition process, whereas industry analysis, market studies or strategic maps were less or rarely applied. Yet it is also interesting to highlight that some innovative tools were being introduced, as was the case of the blue ocean strategy.

The engagement effectiveness is a clear concern, as the universities acknowledged that there is an apparent need to achieve a greater integration of the institutions management systems as a way of orchestrating more coherence around the institution. Additionally there is the concern of achieving a clear organization of the work to be done in the definition process, foreseen implementation activities, responsibilities and roles. This is also in consonance with the arguments provided by Meyer (2002) upon the organizational unit, which states that decision-making in universities has been always ill equipped, given the fact that designing a strategic planning only as a "top tool" can fail to achieve the aim of the organizational unit and alignment.



Dashboards and management by objectives were the most common tools used to support the university policy and alignment, reinforced by the employment of indicators of performance to control the objectives. The key success factors related to the strategy implementation accomplishments were associated with achieving a shared strategic vision, integration of management and other organizational systems, as well as assuring the effective follow-up of initiatives. On the other hand, there were two important aspects that were found to negatively affect the success of the strategy implementation, namely the resistance to change and the potential increase of the workload. These negative aspects can be related to an argument provided by Gregory (2008) who stated that resistance to change or the vision that the strategy activities are seen as very heavy workloads can be result of a lack of understanding of the strategy process itself or also the result of an important disconnectedness between the different organizational systems parts.

### **3. Further discussion**

On unfolding the strategic management in these types of universities and engendering an examination upon its trends and perspectives it was possible to observe that there were higher co-occurring issues across the analyzed institutions, specifically concerning the way strategy documents were conceived, implemented and revised. The definition of the strategy was tied with the vice-chancellor term of office and the horizon differed across countries, mostly comprising periods of four years. It is difficult to parse out the changes foreseen by the strategy planning process, due to the fact that the content of the universities strategy should be deeply examined contrasting with the institutional context, however, it was possible to identify that the outcomes of the strategy definition process were very intensive in the production of complementary and supporting documents such as vision documents fulfilling a long term horizon to the planned institutional strategy. This was the case of institutions in Sweden, Germany and Finland.

In the Finish case, there were a provision of different strategic documents, that included the elaboration of a detailed plan for the university merger with a research center, which has been followed by the preparation of a plan for institutional advancement that included a follow up plan foreseen the horizon 2017. This development plan was further complemented by a strategy paper with a five-year horizon. This case reflects the reality of most all the analyzed institutions, due to the fact that it could be observed an important complementarity of strategic documents as outcome of the institutions strategic exercise.

Concerning the main motivation for carrying out these types of strategic thinking and strategy development processes, the questionnaires were not very illustrative on this matter, however, due to the specificities of some of the strategic documents being mentioned, it was possible to observe concerns related to some specific drivers reflected in the documents, such as economic sustainability and transparency: development of sustainability plan (Spain), programme of accountability and integrity (Italy) and resource allocation principles (Finland).

Additionally, issues of external drivers and influences by the governance system could be reflected on the elaboration of target agreements between the university with the ministry of science (Germany), joint strategy signed with the higher education and research ministry and an academic strategic plan with the Engineering Assessment agency (France) or the funding by objectives achievements (Spain). It is difficult to parse out if the elaboration of the strategy follows deeply revolutionary changes or are very much concerned by the funding problematic.

Perhaps these previous aspects may be contrasted with the scope of the strategic documents. In some contexts the strategy definition process evolved in the elaboration of detailed and specific strategy documents such as: quality, sustainable development, IT policy, language policy, internationalization, human resource, communication, ethical, scientific publication and gender policies (Sweden) or

specific strategic plans per each pro-vice chancellor area -Research, education, internationalization, etc. - (Belgium). Nevertheless, in other contexts perhaps the strategy documents were more general in its scope.

When reflecting about the emergent trends within the higher education sector and this relationship with the university strategy practices, concerns for a higher integration of policies at the system level with institutional individual strategy practices (Spain), deeply and ongoing exploration of relevant changes and external environment with the elaboration of steering policy as a result of such process (Germany) were some issues observed referring to external drivers. Internally, concerns were more related with achieving a more visibility to the strategy work within the institution different organizational levels (Sweden, Spain, Portugal), better definition of the performance indicators and follow up mechanism (Germany, France, Portugal) and more sensemaking and commitment work (Sweden, Italy) on the relevance of strategy development.

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