



# Organisational Model and Organisational Information Systems: The Case of a Public Portuguese University

Professor Carlos Zorrinho and Paulo Resende da Silva  
Center for Studies and Training in Management (CEFAG) and  
Business Department, Évora University  
Largo dos Colegiais, 2, 7000-803 Évora, Portugal  
phone: 351-266-740892, fax: 351-266-742494  
[czorrinho@uevora.pt](mailto:czorrinho@uevora.pt), [pfs@uevora.pt](mailto:pfs@uevora.pt)

## ABSTRACT

*The actual context of educational sector, induced by the end of some boundaries and the information and communication technology, demand new approach on university management. Think the university in terms of organisational theory and understand the different organisational models that guide each university and try to identify the information architecture that support the organisational model is one of the key to adapt the university to answers to the new tendencies. So, this paper try to analyse the Portuguese public university in this subject area and the innovation of management systems on university, with the support of adequate information systems, to each particular institution, that answers to the higher education institution organisational model.*

## 1 INTRODUCTION

Universities in all countries are face to serious changes in their positions in society and face a totally new competition, not only others universities, but also new competitors. The new demands from the knowledge market induce great changes on the organisational and management model, in one side, and on information model that supports the organisation, an the other side.

These changes, without any clear end positions, have different inputs, and are induced by three forces: political, social, and informational/technological.

Some work in the higher education field identified tendencies that university needs understand to capitalise [1, 2, 3, 4]. These tendencies can be reduced to five categories: the *restructuring of the economy* for new kinds of competitiveness, *changing role of the state* and the role of public services, *shifting demographics* and the new migrations process, new information communication *technologies*, and *increasing globalisation* and open the boundaries and the markets.

Our object study is the Universities and the analysis units are the organisational theory (how they modulate through the mission, the role and competency delegation from society), and the information systems (how they modulate or building her architectural).

This papers describes research in progress and analyses how the Portuguese public university should build the organisational model and how this model drives information architecture.

## 2 RESEARCH DESIGN

The new challenges put on the education sector and the *revolution* on information and communication technology created some particular needs in organisational and management contexts.

Universities will need innovative management systems, with the education sector, is the problem that the Portuguese Universities need to answer to the actual context and previous evolution to Education Sector in coming years.

How to built the correct information systems to support the higher education institution organisational mode is their big problem.

We need to understand the organisational and the management systems which will drive the change and/or adapt to internal needs of the university. Then we can build the adequate (in a general case) informational model to support the organisational model.

In order to build the models we need to visualise the university in two different dimensions. The first reality beginning on particular university knowledge logic with yours distinct decision freedom liberty and action – the curriculum, the learning process, and the research; and, secondly, they should need organise and building your particular structure in management and administrative units.

This work use the following methodology option:

- 1st Begin with documents analysis, and with information from the organisations members (rector board team, senior managers, deans and other important actors). This is an intentional sample, which represents the University. Semi-directed interviews will be used as well questionnaires and work maps.
- 2nd This is not experimental methodological approach, with a particular qualitative orientation, across triangular technical resources.

## 3 EMPIRICAL APPROACHES

We can look at the higher institution in a different manner, and study the organisational model by analyzing the leadership practises, the strategic options, the internal vision of the environment and the roles of the university in society, the internal structures, and others specials issues of analysis.

Universities are “knowledge management” organisations and they should define their business process to consolidate the information store. They should also manage the way they receive, store, generate and disseminate the knowledge.

The university organisational model should place the knowledge management, the learning and pedagogical management, and the innovation and research management as the central emphasis of their first approaches. The second approach should place a central emphasis on the academic community, the professors/teachers, the students and the staff support and other auxiliary members. The third approach should look at the university government, the internal services and the administration. The fourth approach should analyse the professionalisation, democratisation and individualisation.

To find answers to our research design we start with the conception of two frameworks the support the methodological choices. This means, we assume some analytical perspectives that answer in easier way to our methodological option and orientation.

So, the two analytical perspectives can should answer to the two analysis units – Organisational Theory and the Information Systems.

One of the frameworks is the result of individual research with the support of four theoretical conceptions – university role, information systems impacts, systemic and behavioural approach, and resources theory [5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22] (see figure 1) .

The second framework is the Zachman Framework [23], building from the IBM BSP, and very disseminate framework on information modelling of the company information systems.

Using these two frameworks , we should be able to understand the university including its environment, the Information Systems needed in the university, and the Management structure of the university. We should also be to identify the macro-processes and associated activities, and to assess the organisational variables with structural impacts on Economics Units – the strategy, the organisational culture, the power/leadership, and the formal structure [5, 15, 18, 20, 22, 23].

This kind of analysis answers to the major works and studies on the field of higher education when different authors make your personal analysis on basis on strategic planning, restructuring, resources allocation, innovation and entrepreneurial universities [4].

#### 4 PRELIMINARY FINDINGS

The higher education institutions and the university in particular, should know that they are facing new challenges, social, political, economics and technological.

To respond to this, the university should find the references that make some guarantees of resource management, the higher quality level, demanded by society in general, and creating the incentives to the job.

This means that university should understand two realities. First, is that existing some knowledge logic that structure in three ways, in three processes - learning, research and knowledge. Second, the university should be organising in management and administrative division or units.

The two realities are built on different cultures; this means that each group have your cultures and subcultures that create some conflicting. The academic and professional need some freedom to works and without pressures and constraints versus administrative values when rules and regulations are the basis of their jobs [4][5][6][7][8][9].

The information model of university is intrinsic with the university model and has a very important (and are determinant by) the information technology.

The information technologies give the opportunity and enable the higher education institutions to learn and study internal processes, market and customer [4, 16, 22].

To study the Portuguese university we select three different data and information inputs.

With the three kinds of inputs we try to build the two frameworks and the major model, the organisational and the informational framework.

First, we interviewed the social actors that have the power and the leadership in the organisation, management and the information technologies on university - the chief executive office, the chief information office, the vice-rector or the pro-rector, the scientific board president, the pedagogical board president, and professors who work or research on this subject.

The second methodological strategy is a questionnaire that all the actors that I interviewed. Completed with this instrument we can find answers to the same question identified in last paragraph, but using international modelling.

Third, we shall analyse internal documents, such as the strategic plan, the Rector discourse in the university day, the student, professors and staff dates, the university policies, the computer strategy, internal studies on management and information systems, etc.

The reality of the information systems in the university are more dire. In general, with some exceptions, the university does not have any informational strategy, and has not t analysed the key processes. They have taken a reactive position to technology . The development of information technology is casual and not integrated, and the impacts of the information system is not evaluated.

The reason for this is that the university does not have a clear development strategy, the information systems are not considered critical factors to the university and hence there is less staff available to develop the systems.

#### 5 CONCLUSION AND FURTHER WORK

The goal of this research is to understand the organisational and informational model of the university, including the new challenges to the university and the perceptions that the university administrators have about the university and it environment. We have some important previous conclusion.

The university have a large work on the field of strategy, of management change, of staff adaptation, of clear informational needs, and understanding what is organisational strategy, what is the information system and information technology, what are the key-role of this and what are the critical success factors.

This situations give to us some important direction and issues to furthers works, not only in this specific subject matter, but in others fields of university works.

This is a progress research project that have special aim, this is a doctoral project. So, the big further work is give a answer to the problem that I have, trying consolidate and validate the hypothesis, and give some perspective to the context of Portuguese public university on this field of work.

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#### REFERENCES

- [1] M. Gibbon [et al.]. *The new production of knowledge – the dynamics of science and research in contemporary societies*. London: Sage Publications, (1994).
- [2] Peter Coaldrake. "Some challenges confronting higher education" in *Strategic asset management for tertiary institutions*. OECD. PEB Papers. Paris, pp. 23-26. (1999).
- [3] Unesco. "Tomo I - Informe final". World Conference on Higher Education - Higher Education in the Twenty-first Century: vision and action. Paris: 5-9 October 1998. <http://unesdoc.unesco.org/image.pdf?em=13-07-01>.
- [4] Barbara Sporn. *Adaptive University Structures: an analysis of adaptation to socioeconomic environments of US and European universities*. Higher Education Policy Series 54. London: Jessica Kingsley Publishers, (1999).
- [5] Kenneth C. Laudon and Jane P. Laudon. *Management Information Systems: organization and technology in the networked enterprise*. Sixth Edition. Upper Saddle River: Prentice-Hall, (2000).
- [6] Burton Clark. *Creating Entrepreneurial Universities: organizational pathways of transformation*. Oxford: IAU Press/Pergamon, (1998).
- [7] M. D. Cohen, J. G. March and J. P. Olsen. "The garbage can model of organizational choice". *Administrative Science Quarterly*, 17 March, pp. 1-25. (1972).
- [8] Richard Hall. *Organizations: structures, processes, & outcomes*. 5<sup>th</sup> Edition. Englewood Cliffs, NJ: Prentice-Hall, (1991).
- [9] J. Pfeffer and G. R. Salancik. *The external control of organizations: a resource dependence perspective*. New York: Harper & Row, (1978).
- [10] Fremont E. Kast and James E. Rosenzweig. *Organization and management - a systems and contingency approach*. New York: McGraw-Hill, (1982).
- [11] Garreth Morgan. *The images of organizations*. London: Sage Publications, (1986).
- [12] G. M. Bull [et al.]. *Information technology - issues for higher education management*. Higher Education Policy Series 26. London: Jessica Kingsley Publishers, (1994).
- [13] William H. Bergquist. *The four cultures of the academy*. San Francisco: Jossey-Bass Publishers, (1992).
- [14] Henry Mintzberg. *Estrutura e dinâmica das organizações*. Ciências de Gestão - Gestão & Inovação - n° 4, Lisboa: Publicações dom Quixote, (1995).
- [15] Joseph Morabito, Ira Sack and Anilkumar Bhate. *Organization Modeling: innovative architecture for the 21st century*. Upper Saddle River: Prentice-Hall, (1999).

- [16] Clark L. Bernard, Sandra L. Johnson and Jillinda J. Kidwell. *Reinventing the University: managing and financing institutions of higher education*. New York: John Wiley & Sons, (1998).
- [17] Robert Birnbaum. *How Colleges Work: the cybernetics of academic organization and leadership*. San Francisco: Jossey-Bass, (1988).
- [18] Melissa A. Cook. *Building Enterprise Information Architecture: reengineering information systems*. Upper Saddle River: Prentice-Hall, (1996).
- [19] James Dunderstadt. *A University for the 21<sup>st</sup> Century*. Ann Arbor: University of Michigan Press, (2000).
- [20] Lars Groth. *Future Organizational Design: the scope for the IT-based enterprise*. Chichester: John Wiley & Sons, (1999).
- [21] Diana G. Oblinger and Richard N. Katz. *Renewing administration: preparing colleges and universities for the 21<sup>st</sup> century*. Bolton: Anker Publishing, (1999).
- [22] OCDE. *Gérer les Stratégies de l'Information dans l'Enseignement Supérieur*. Documents OCDE. Paris : OCDE, (1996).
- [23] Stevens H. Spewak. *Enterprise Architecture Planning: developing a blueprint for data, applications and technology*. New York: John Wiley & Sons, (1992).
- [24] Mary Jo Hatch. *Organization theory: modern, symbolic and postmodern perspectives*. New York: Oxford University Press, (1997).

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