

# Functions of competitive intelligence, entrepreneurship and self-evaluation in universities. Core items on a matrix structure to design portfolios focused in knowledge transference for higher education institutions

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**Abstract:** The aim of this paper is to explore the application of functions of competitive intelligence to the assessment of universities by means Portfolios. Portfolio in this paper is understood as a tool to management, quality assurance, assessment and accreditation of knowledge transference (KT) processes in higher education. A central issue is the link between core organisational actors and measurement needs of achievements in their missions. This paper presents a portofolio structure proposal constituted by core items on a matrix structure.

Keywords:

# 1 Introduction

“The entrepreneurial university”, a new paradigm resulted from evolution of old university model (Etzkowitz et al. 2000) is based in a broad engagement between universities, industries, government and society to provide commercial or social benefits in a multi-way negotiated flow of knowledge. This engagement promoted in countries with competitive economies is mainly focused in the production and transference of knowledge (KT) from universities for mutual benefit but also is concerned with the strategic management of institution resources to push this transference.

The emergence of the new entrepreneurial accountability has pushed the governments and institutions involved in higher education into research and implement new systems for measuring the relationship, the performance, the efficiency of universities. However the evidence is critical: a lot of data, a lot of models, a lot of ways to be entrepreneurial, and a great difficulty to make comparative, and definitely a great complexity that means the application of indicator system proposed for homogenized scenarios.

The proposals of indicator system models to the management and assessment of universities are increasing very quickly in the last decade. A rich literature has developed exploring inputs and outputs indicators of first, second and third mission of universities involving the KT processes in universities: learning-teaching, diffusion and production of knowledge in research and selling or transfer knowledge.

A great obstacle in the management and assessment of universities' activities is to provide timely and meaningful feedback loops on performance, efficiency and potential both to students, to teachers, to researchers, to innovation and academic managers at higher levels to transforming universities into KT and entrepreneurial organizations capable of using their experience to improve.

If we understand competitive intelligence (CI), as the set of actions for retrieving, gathering, analysing and distributing information that provides a better understanding of the organization's strategic position, the universities are developing (or must develop) functions of CI.

The new model university need to identify and to assess actors' university progress by means structured set of scaffold assessment focused to use their knowledge base, analytical, practical and creative skills and attitudes and wisdom/based, to become society's leaders.

## 2 E-portfolios to management and assessment of universities

In the core of functions of competitive intelligence, the set of difficulties to measurement, accountability and valuation of KT and consequently to support university activities and missions is a critical question for academic and policy authorities for several reasons:

The KT processes are extremely important mechanisms for generating incomes.

- Their implementation generates more knowledge
- The measurement and valuation of KT is currently a criterion for allocation of resources in Higher Education sector (RAE, HEIF fund in UK).
- The universities that focused their activities in KT processes acts as a regional innovation organizer

Consequently, KT indicators have become a key question to guide scientific and technology policies but also for economical and social agents. The core debate focuses on this paper is related to the following question:

- "How does entrepreneurship push KT processes by means ePortfolios? Or "How do ePortfolios contribute to KT quality measurements in higher education?"

From a standard conception and traditional use, portfolios and e-portfolios are a purposeful collection of work that illustrates efforts, progress, and achievements. On university application, they have been addressed to student or teachers. Portfolios provide a means for students to learn to manage their own professional development because they provide a straightforward means for students to collect evidence of professional or generic graduate skills, and proprietary certification (Cooper, 1999; Cooper & Love, 2000, 2001, 2002).

However, in order to provide online, timely and meaningful feedback loops on performance, efficiency and potential in all KT processes where educational actors are involved, E-portfolios could be extended to different phases of higher education cycle both to students, to teachers, to researchers, to innovation managers and to academic administrators to transforming universities into KT and entrepreneurial organizations capable of using their experience to improve. E-portfolio is "a reflective tool that demonstrates growth over time" and "uses digital technologies, (...) a database or hypertext links to clearly show the relationship between standards or goals, artefacts, and reflections" and the "evidence of achieving the stated standards or goals" (Barrett, 2004).

Why couldn't extend their application to researchers and educational managers to show the evidence of KT achievements?

Recent changes in the operating environments of education institutions, that have educational and assessment implications, are favouring the use of portfolios in assessment for stakeholder groups other than students: "The broadest and most sophisticated approach is to design and evaluate potential online portfolio assessment systems in terms of all the stakeholder constituents impacted by the designed outcomes. These include: Students attending the course, Teaching staff, Course coordinators and designers, Academic line managers, University upper level managers and administrators, Government agencies responsible for funding and managing higher education, Potential employers of students attending the course, External assessors and moderators of the course, Field supervisors in practicum courses, etc." (Love and Cooper, 2004)

### **3 Portfolio of KT processes achievements in higher education: a proposal of core items on a matrix structure**

What is the achievement growth into KT processes that we need put in evidence in higher education cycle? What are the agents involved?

The demands that correspond to the three standard missions of universities include duplicate activities and knowledge processes related:

- Learning / Teaching
- Research-knowledge-extension-diffusion / Knowledge-production
- Entrepreneurship-management / Social-and-economic balance.

In the following table we can see the items of the portfolio proposal to assess the actors and the achievements into the KT processes involved in higher education. The proposal is constituted by a selection of core items on a matrix structure.

*Table 1: Portfolio items of KT processes to university actors' & achievements' assessment*

| Category of core items |           | Learning                 | Teaching  | Research   | Applied research                                 | Transfer & entrepreneurship                                  | Social Engagement                         |
|------------------------|-----------|--------------------------|---|--|--|--|---|
| Actor involved         |           | Learner                  | Teacher   | Researcher                                       | Research groups                                  | Transfer office  | Academic manager                          |
| Quantitative           | About     | Subject Knowledge        | Subject Structure                                     | Specific & generic topics                        | Applicability of IP                              | Availability of IP   | Social actions                            |
|                        | Reference | Final marks              | Courses   | Articles   | Patents  | Licensing  | Public Contracts                          |
| Qualitative            | About     | Graduate Skills          | Techniques & methods                                  | Scientific trends                                | Current technological trends                     | Needs of curriculum alignment                                | Competitiveness & potential factors       |
|                        | Reference | Competences              | Long Life training                                    | Scientific References                            | Partners in Projects                             | University ranking   | Local, regional and national improvements |
| Structural             | About     | Professional job         | Interest of university & sector & Edu_public policies | Interaction innovation items and actors involved | Strategic developments: Government & Entreprises | Position in Industrial, government's initiatives and project | Network of social & public action         |
|                        | Reference | Practices and experience | Innovative projects                                   | Research projects & PhD                          | R&D transnational projects                       | R&D programs   | Institutional accords                     |

We can read the contents of this table as follow: The portfolio to assess learners could be developed under a quantitative, qualitative or structural way, focusing in subject knowledge, graduate skills and professional job. This assessment could be implemented by means an online feed-back system constituted by a collection of work that illustrates efforts, progress, and achievements. The references to valuate the succeed processes involved are the marks, the effective showed competences and the practices and experience.

## 4 Conclusions

The engagement between universities, industries, government and society to provide commercial or social benefits is based in a multi-way negotiated flow of knowledge. Entrepreneurship can push KT processes by means ePortfolios and contribute to KT quality measurements in higher education. The new model of university need to identify and to assess actors and achievement into university progress focusing the analysis in their knowledge base, analytical, practical and creative skills and attitudes, etc.

E-portfolios could be extended to different missions of higher education cycle: students, teachers, researchers, transfer offices, and innovation managers. The portfolio structure proposal is constituted by a selection of core items on a matrix structure that involve these objectives under quantitative, qualitative and structural perspective.

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