

Teodoro Luque-Martínez

Professor of Marketing
University of Granada, Spain

University and Development: A Shared Commitment

Introduction

Playing a vital role in modern society, Universities must be equipped to be versatile and to manage change. They also need to improve their financial situation, use resources more effectively and efficiently, and implement new styles of management far-removed from collegial or bureaucratic models, moving instead towards models more in line with the New Public Management (NPM) approach (Hoods, 1991; López-Casanovas *et al.*, 2003). This shift requires them to wholeheartedly take on board new concepts, instruments and management tools. Universities are increasingly adopting terminology such as positioning, segmentation, communications policy, user focus, strategic planning, corporate identity and quality management. Similarly, greater levels of analysis are being witnessed with regard to examining and measuring management outcomes. In particular, fundamental questions are now being raised that demand answers — such as, for instance: What is the University's contribution to society? What impact does it have on its operating environment? How might the University's contribution to society be heightened?¹

¹ See:

COM(2009) 615 Final “Mobilising private and public investment for recovery and long term structural change: developing Public Private Partnerships”. Brussels, 19.11.2009.

COM (2002) 629 Final. “European benchmarks in education and training: follow-up to the Lisbon European Council”.

COM (2002). European report on quality indicators of lifelong learning. Fifteen quality indicators. Report based on the work of the Working Group on Quality Indicators.

COM (2003). The role of universities in the European knowledge society.

COM (2005) 152 Final (2005). Mobilising the brainpower of Europe: enabling universities to make their full contribution to the Lisbon Strategy.

In the early 1970s, the *American Council on Education* undertook a study, authored by Caffrey and Isaacs (1971), which was to have a tremendous influence on the analysis of economic impact amongst Universities. Increasingly these institutions have a major role to play in promoting economic development, indeed this is now expected of them. In this sense, Elliot, Levin and Miesel (1988), amongst others, consider that a complex, sophisticated methodology is required in order to achieve such a mission. However, long-term effects have often been deliberately overlooked, for example skills development amongst students, or the relationship between research and local industry, or impact on industrial location.

Our aim is to appraise how Universities can improve their contribution to society in a context (as is being currently witnessed) of increased competition and globalisation, characterised by greater student and teacher mobility, an increase in international collaborative research and knowledge transfer, or continual comparison of Universities using various ranking systems.

This approach is taken with a view to proposing a value-generation model for Universities. To achieve this requires a blend of a marketing and management perspective combined with an economic take on measuring the University's impact on its operating environment — and therefore its commitment to society.

1. Missions of the University

As the basis on which an argument can be developed, firstly the functions of the University need to be determined. On the one hand, in order to function, Universities need resources such as work, goods and services of different kinds, and facilities or supplies (of which in some cases it may be the largest consumer locally). On the other hand, Universities produce or generate results such as education (be it officially accredited or complementary or life-long learning), develop skills, generate knowledge via research activities or innovation and development, and contribute to enhancing the appeal of their city or location, amongst other outputs. Huggins and Cooke (1997) state that Universities act as centres of attraction, stimulate job creation, foster mobility, and have an intrinsic cultural and social effect described as 'quality of life'. Batten (1995) proposed the concept of *creative network cities*, focusing on knowledge-based activities such as research, education and the creative arts. Such 'creative cities' are able to generate a positive dynamic, with benefits arising from the synergies of growing and reciprocal interaction centred on exchange of knowledge and unexpected creativity. Smilor, Dietrich and Gibson (1993) put forward the notion of the entrepreneurial University, as a means of emphasising research activities, improvements in knowledge transfer, and a more proactive stance on regional economic development.

The traditional break-down of functions within the University into education, research and extra-mural studies is made complete by commitment to society and to

development. However, this has been further qualified and broken down on numerous occasions when referring to economic development. Hence the *American Association of State Colleges and Universities* (AASCU) outlined seven University functions active in the process of economic development (Elliot, Levin and Miesel, 1988). Goldstein, Maier and Luger (1995) identified eight functions of modern Universities – knowledge creation; creation of human capital; transfer of existing know-how; technological innovation; capital investment; regional leadership; production of knowledge infrastructure; and influence on the regional milieu — the last two of these eight being the least defined. Such a wide variety of functions produces myriad consequences, both economic in nature and also of other kinds. Therefore, rather than ‘making an impact’, Universities in effect make multiple impacts on their operating environment, as highlighted by Caffrey and Isaacs (1971). These authors submitted that, in order to achieve a truly comprehensive study of the economic impact of Universities, one should consider the services offered by the institution to its students, to its teaching, research and non-teaching staff, to visitors and to the community as a whole.



Figure 1. The different missions of the University and the new model of development.

One approach that embraces this complexity is that proposed by Felsenstein (1996). For this author, a University's contribution to the economic development of a metropolitan area can be seen in its 'backward linkages' relating to the relationships it has with local business, local government and local families, and in its 'forward linkages', through the effects it has on human capital, increase in knowledge and attractiveness of the local area.

In the case of Spain, the Ministry of Education formulates the University 2015 Strategy which places the emphasis on reviewing University missions, on people, on strengthening capacities and on connection with the local milieu.

University missions are largely comprised of training, research, transfer and social responsibility — in training, not only undergraduate and postgraduate but also practical and professional training that fosters entrepreneurs and generates technology-based businesses. At the same time this supposes social and cultural vitalisation, commitment to social policy and an environmental dimension.

Training and research should be directed towards the search for excellence and internationalisation, with master and doctoral schools and improvements in lines of research, competitive projects and collaborative research. Scientific and technological equipment and human resources will be needed to generate knowledge, specialised employment, and new businesses related to the knowledge economy — in short, a new model of development.

2. University and value-generation

In light of this outline of University missions in the current context, next there follows a description of how value can be generated. Here the connection with a marketing perspective, such as that of the American Marketing Association (2007), is self-evident. According to the Association, *'marketing is an organizational function and a set of processes for creating, communicating, and delivering value to customers and for managing customer relationships in ways that benefit the organization and its stakeholders.'*

In the case of Universities, value should be understood, in the widest sense, as the set of tangible and intangible effects derived from University activities. Marketing, when applied to Universities, refers to the behaviour embodied in the exchange between the various parties involved in the different missions of the institution. According to the perspective of Hunt (1983), University marketing is concerned with: — The behaviour of those on the demand side, users of University services or the target audiences of the different missions of the institution — how, where and why the different stakeholders (students, families, businesses and society in general) take their decisions. Within this, it is possible to distinguish between an individual perspective (considering services for the individual good) or from a social perspective (for the collective good).

- The behaviour of those on the offer side, who supply or contribute to delivering the different missions of the University — again, how where and why they take their decisions. This refers to Universities as entities or as University systems, but also to centres, departments, groups or different collective bodies that participate in making the offer a reality.
- The behaviour of the institutions that supervise or indirectly intervene in the University's services — when and why they act, how they act, and what the nature of their role actually is. This refers to agencies concerned with evaluating the quality of teaching and research, and agencies working on transfer projects or development.
- The consequences of these combined behaviours for society and the local milieu, and to what extent they contribute to improving social wellbeing.

These are the 'agents of value', and the way in which they act and operate shapes how value is generated. Measurement of the value generated links directly to the study of University impact. To study the various types of impact (be they direct, indirect or induced, short or long-term) requires measurement of management outcomes, or of the marketing mix applied by the University — in short the set of activities carried out in relation to those management variables that offer a degree of scope for action. Hence there are numerous studies that measure the University's overall impact of different kinds (Luque, Del Barrio, Aguayo, 2009), or that measure partial aspects, using the assessment of certain stakeholders only, such as graduates (Luque et al. 2008, Luque et al. 2009).

One means of simplifying performance measurement amongst Universities is the use of rankings. In the context of internationalisation, international rankings provide something of a guideline (albeit not without its limitations, although the aim here is not to analyse this) as to the relative position of academic institutions. One such example is the widely-accepted Academic Ranking of World Universities (ARWU) produced by Jiao Tong University in Shanghai. Other notable international rating systems include: *The Times Higher Education Supplement*, the University Web Ranking (which measures the internet presence of academic institutions), and the *Higher Education Evaluation and Accreditation Council of Taiwan (HEEACT)*.

3. Driving Universities forward: proposed model

To strengthen the role played by Universities and drive them forward, even to improve their positions in international rankings, different countries have witnessed various different initiatives being launched (AGHION, 2010): Great Britain (Technology Programme; «Nation Innovation»), Germany (Excellence Initiative), France (Plan Campus, Pôles de compétitivité) and Spain (University 2015 Strategy, Campus of International Excellence).

In Spain, the Campus of International Excellence (CIE) initiative has the following objectives:

- to foster teaching quality and adaptation to the EHEA, with a particular focus on internationalisation and achieving international excellence at Masters and Doctorate level;
- to create centres considered to be international benchmarks for excellence in strategic areas in order to generate transfer;
- to create knowledge environments, offering quality of life, environmental sustainability, student focus, and effective urban design, all within the concept of a social, didactic campus and, again, representing an international benchmark of excellence.

In summary, the aim is to improve the position of Spanish Universities within international rankings. Currently Spanish Universities are thus fully engaged in this initiative and are developing strategic plans with a view to heightening their international reputation for excellence. This is the case at the University of Granada, whose model is now addressed by way of a case study.

According to ESPON, it can be seen that Granada stands out as a significant node of knowledge in Europe and is one of the six largest such nodes in Spain, although its indicators of development and competitiveness still lie far behind those of the so-called European backbone, or European pentagon (London, Paris, Milan, Munich and Hamburg) and the Nordic countries. These indicators refer not only to the objectives of the Lisbon Strategy, and to those of the information society and innovation (patents), but also to those of economic growth or accessibility

The Project called BioTic Granada Campus represents a commitment to shared development. In other words:

1. The determined commitment of a strategic partnership composed of public and private players that bring a high level of shared involvement and a sense of shared identity around a common trajectory and model based on a set of differentiating strengths. The leadership provided by the UGR is further strengthened by three other partner-promoters specialised in research and knowledge transfer: CSIC, the Parque Tecnológico de Ciencias de la Salud and the Parque Tecnológico de Andalucía. Completing the partnership are key players from local and regional government, from other academic institutions, from figures from the innovation realm, from businesses and from key bodies such as representatives from the union world.
2. The development of an ‘intelligent’ project that seeks to learn and innovate at the same time as designing actions considered imaginative, that has a firm commitment to achieving international excellence and that places the emphasis on its own organising capacity. This is achieved by developing:
 - Teaching excellence, based on student-centred learning.
 - Research excellence, at the heart of attracting fresh talent and sharing knowledge.

- Graduate recruitment in the labour market.
 - Technology and knowledge transfer to improve quality of life, in close collaboration with economic agents.
 - A socio-economic model that is entirely new, thanks to its specialisation in Bio-Health-ICT, its connection with the local business network, its partnership approach and its focus on sustainable development, with a high level of training in human capital terms.
 - An urban teaching Campus offering creative spaces, as a social and economic driver.
 - Active Equality policies.
 - Excellent services that are fully accessible.
 - A key role in championing sports, based on a wide-ranging offer and the commitment to drive it forward — an offer that embraces mountain, sea and sports of all kinds.
3. Shared commitment, in the sense of an open and socially responsible proposal based on the approach taken the various partners with regard to their concern for accessibility (both physical and in terms of information), for sustainability in the design and management of the Campus itself, and for international cooperation, particularly cross-border. This is a participatory project, designed to foster mutual responsibility, with a special emphasis on student participation — both in meeting their study-related needs and also in supporting them post-programme.

In order to achieve these aspirations, a ‘road map’ or methodology is proposed which consists of developing the organising capacity (van der Berg, Braun, van Winden 2001; van der Berg, POL, van Winden, Woets, 2001) of the BioTic Granada Campus and strategic management of its resources and competencies.

The BioTic Granada Campus seeks to achieve, on the one hand, ‘intelligent’ cooperation, effectively combining the resources at its disposal thanks to working in partnership. On the other hand, it aims to build capacity, maximise benefits and contribute value to the distinctive competencies of the partnership that give it something of a competitive advantage (Grant, 2004), especially those related to the chosen strategic areas (BioHealth and ICT) that are central to the endeavour.

To this end², and following the approach outlined in Figures 2 and 3 of the conceptual model, the project starts out from a sound understanding of the general conditions of the local area with regard to the characteristics of its economy and its physical or cultural conditions. Although not part of the Campus itself, these factors influence how it will operate and indeed would do so in the context of any campus — for example public policy, the current economic or technological climate.

The project then takes into account the *specific characteristics* of the Campus, with reference to the quality, size and number of its various stakeholders, the level of de-

² *Resources alone are not enough — they must be organised and geared to achieving objectives. In essence this is about developing the organising capacity of the CIE so as to undertake the required actions and make the vision a reality, by means of intelligent planning combined with the will and the determination to see it through to completion.*

velopment and critical mass, and the degree of integration and co-operation between them. It also looks at the extent of business creation or at potential leading players who could act as business catalysts. In very few areas of Europe can it be said that a University offers such clear leadership based on its potential to drive economic development, or that a Campus of Excellence project could have such a strong multiplier effect as in this case.

The city of Granada and the surrounding areas are internationally renowned for their attractive, privileged location, an offer that combines proximity to both the mountains and the sea, with being surrounded by national parks and nature reserves that reflect a whole variety of different landscapes. Granada enjoys a magnificent historical heritage, a vibrant cultural scene and excellent quality of life, all in a medium-sized city with good service provision and a large young and student population.

In summary, some of the most outstanding characteristics of the BioTic Granada Campus are:

1. The Parque Tecnológico de Ciencias de la Salud (Health-Science Technology Park or HSTP), housing a considerable network of companies and other entities, represents a unique strategic project at both national and international levels
2. A significant drive in recent years to create knowledge-based businesses linked to the UGR or the HSTP.
3. Human capital:
 - Granada has, proportionally, the greatest human capital in Spain for a city of over 100,000 inhabitants, due to the high percentage of the population holding university degrees and doctorates.
 - The city has the highest ratio of students to inhabitants in the country.
 - It is one of the leading cities in terms of the average number of years its inhabitants have spent in education.
4. A city of attractive size and scale that offers a unique combination of proximity of the city, the mountains, the sea and national parks and nature reserves.
5. Exceptional historical heritage.
6. Tremendous variety of landscapes and climate.
7. A long and extensive university tradition.
8. A city with a wide range of services and cultural and leisure activities.
9. A city known for its quality of life.
10. Positive image and reputation, both nationally and internationally. In short, a strong international brand.

Alongside these general and specific conditions, the *organising capacity of the Campus* is essential in order to ensure cohesion and coordination of these factors, and thence added value for the development of the area. This organising capacity is allied to a shared vision and strategy, sound co-operation between the public and private sectors, political and grass-roots support, and clear leadership. Together these form the core elements that the BioTic Granada Campus takes responsibility for shaping.

The partnership is intended to be an ‘intelligent’ space geared to achieving different types of outcome, as shown in the Figure below. These outcomes are categorised as follows: academic-scientific; international profile; in terms of the business sector; in terms of the physical and urban aspects of the Campus; and in terms of its role in society.

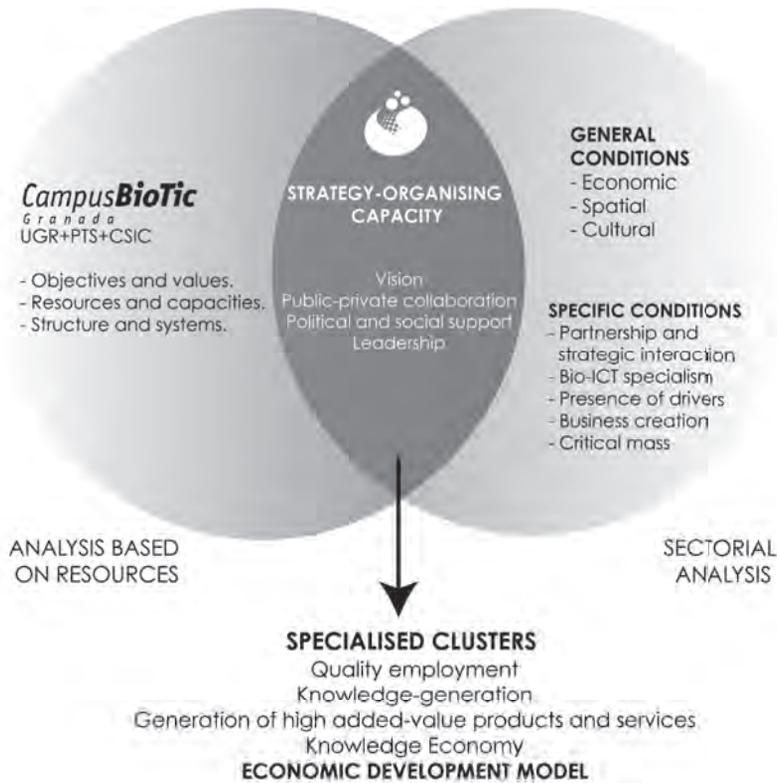


Figure 2. BioTic Granada and its participation in the model of sustainable development.

At the heart of this project are actions relating to teaching, training, R+D+I, and knowledge and technology transfer. With these as foundations, a new model of economic development is being built, with a clear international vocation to achieve excellence and with a Campus that is socially committed. The entire endeavour has a clear specialisation in Bio-ICT, with the full backing and involvement of partners.

Achieving excellence requires a strategy of: improving the teaching offer, adapting it to the EHEA; reviewing teaching methods and resources (both human and material); fostering innovative, practical training that is adapted to the new requirements of the EHEA; and promoting the international Postgraduate and Doctoral Schools to attract the best talent and achieve international renown for excellence. The latter is especially important in the priority areas of specialisation, namely ICT and BioHealth.

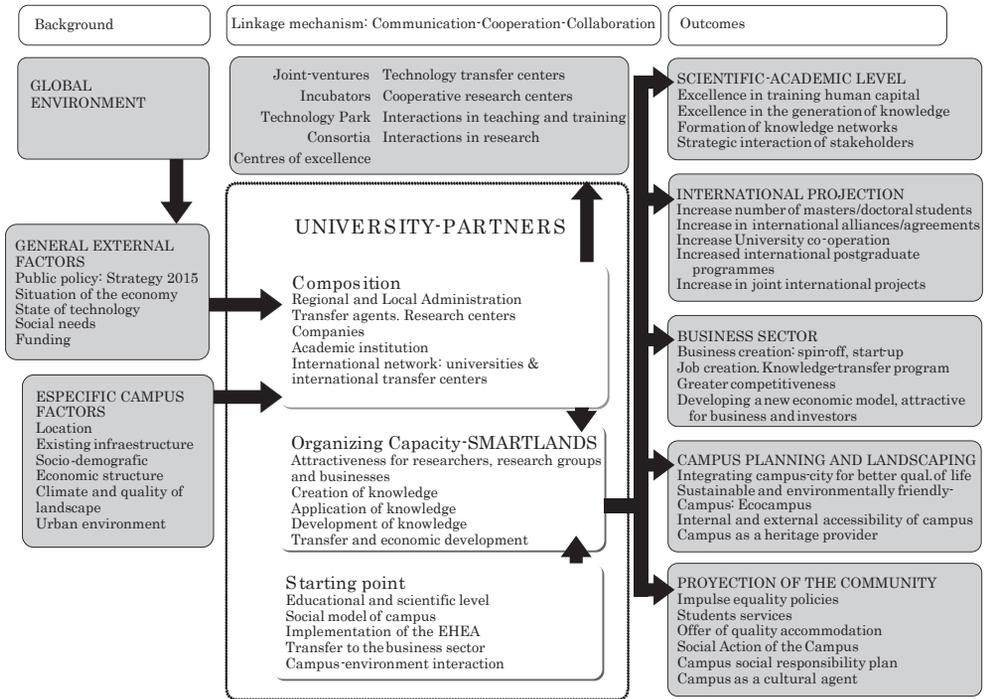


Figure 3. Conceptual model of BioTic Granada Campus .

In line with the figure 1 referred-to on improvements to teaching, firstly the aim is to equip existing R+D+I with more and better resources — in human resource terms, in organisational structure, and in management — to achieve research par excellence with even greater international recognition.

The key focus, then, is clearly to improve R+D+I and how it is managed, in order to adapt it to meet international levels of excellence. This of course also makes an impact in terms of visibility and internationalisation, and on the academic environment, in opening up the Campus to other agents and institutions. It also has an effect on the special areas selected, improving academic efficiency and enhancing appeal, retention and employability amongst high level researchers, whilst increasing output. The specific achievements will be:

- An increase in funding for research in the strategic scientific areas, with the aim of maintaining high levels of productivity, both in these areas and in other, lower-profile, areas of research.
- An improvement in infrastructures and scientific equipment, promoting the Scientific Instrumentation Centre and the Supercomputing Centre.
- Increased staffing levels amongst technicians.
- A newly-defined management model for R+D+I and its organisational structure at the Granada Bio-Health Campus.
- Efficient and effective management of the administrative processes supporting R+D+I.

— Increased international scope for research, developing collaborative projects as a result of the creation of specialised international centres, and the extensive relationships formed with international centres that have now signed formal partnership/collaboration agreements with the BioTic Granada Campus.

At the same time the aim is to strengthen the role of the University as an active agent of economic and social development within its sphere of influence. To achieve this, an overarching plan is presented that has as its two key pillars the valuing and commercialisation of knowledge. Hence, on the basis of identifying results and competitive capacity, actions will be carried out that are focused on: protecting them following prior valuation; evaluation of their commercial viability and potential exploitation; their promotion; the identification of business initiatives; and, overall, actively and rigorously putting a value on knowledge, for its subsequent transfer to the business base. Within this overall outline, external entities (businesses, knowledge agents, and so on) also seek to bring capacity, by contributing to spotting opportunities and offering resources fit for the proactive development of burgeoning technologies.

Scientific output, artistic endeavour, innovation, and economic development all have in common their dependence on the capacity to generate ideas and knowledge, plus the capacity to implement them. What economic or social activity can progress without the knowledge produced by Universities? Specifically, what radical innovation can occur without the help of that knowledge?

To make progress, then, in business-University collaboration and build lasting relationships, the following factors should be (and will be) addressed (Luque-Martinez, Aguayo-Moral, 2007):

- Providing resources and specialised personnel to be involved in the project.
- Spotting innovative potential amongst SMEs.
- Facilitating mutual knowledge between businesses and researchers. Gaining an understanding of demand, what is being offered, what can be expected of each party, and how they might operate. This is the first, fundamental step.
- Establishing communication channels, either formal or informal but with certain regularity, between the different parties. These first two issues are the seedlings of future joint research communities.
- Fostering genuine commitment, based on credibility and far-removed from opportunism.
- Generating confidence through shared values, good communication and joint experiences, alongside other ongoing activities (teaching, publishing or managing) that continue in parallel to collaboration.
- Imposing the minimum level of formality in the relationship. Maintaining open collaboration, but with a clear specification of rights as regards the results attained. Being specific and clear in exploiting results helps to avoid conflict.
- In seeking the economic benefits of joint working, it is important to consider how value may be maintained and generated for the various parties.

In short, BioTic Granada Campus embraces 190 specific action points, unique in their specialisation and of bespoke, original design — all geared to achieving objectives not only in teaching and R+D+I but also in terms of the physical transformation of the campus, accessibility, fostering internationalisation, and generating a new model of development.

Final reflections

In light of this, unavoidably brief, review, a number of key points are worthy of highlighting.

Universities play a major role in identifying and developing alternatives to the economic model. The call here is to take a leadership role in a common task shared by agents from both the public and the private sectors. Commitment to development of the milieu is a shared challenge.

The new international context characterised by increased mobility and competition is forcing Universities to reflect on their various missions and, above all, to adopt new approaches to University management in order to fulfil these missions effectively.

Universities must focus their management towards generating value for the different stakeholders, be this from an individual, group or collective perspective. In a similar vein, adopting a marketing approach involves studying behaviours on the demand side of the service, the offer side of service delivery, and the institutions that oversee the service, together with an analysis of the consequences that all of these behaviours have overall.

Within University leadership with regard to the development of the local operating environment, a particularly decisive aspect is to develop organising capacity for the cluster by means of an analysis of the resources and capacities available and based on certain strategic areas of specialisation.

Collaborating openly in both local and international contexts is a further factor that increases the scope for success.

Finally, undertaking monitoring of the agreed plan is necessary, along with measures designed to assess the different types of impact made by the University on its milieu, so that comparisons can be drawn between results over a given time period, or with other cases.

Abstract

Universities are undergoing significant transformation as a result of the information society and the globalisation process. This is provoking a series of changes in planning and in approaches to management, as well as giving rise to the need to measure results. Amongst the

various missions of the University should be a commitment to development and to value-generation.

Following an appraisal of the impact of Universities on their operating environment, a theoretical model is proposed and applied to a case study in which the University takes the lead on value-generation.

Keywords

University economic impact. University marketing. University mission.

References

1. Aghion, P. (2010): *L'excellence universitaire: leçons des expériences internationales*. Rapport d'étape de la mission Aghion à Mme Valérie Pécresse Ministre de l'enseignement supérieur et de recherche de la France.
2. Aghion, P., Dewatripont, M., Hoxby, C., Mas-Colell, A., Sapir, A. (2010). "The governance and performance of universities: evidence from Europe and the US". *Economic Policy*. January, pp. 7–59.
3. Berg, L. Van Der; Braun, E., Van Winden, W (2001): *Growth Clusters in European Metropolitan Cities. A comparative analysis of cluster dynamics in cities of Amsterdam, Eindhoven, Helsinki, Leipzig, Lyon, Manchester, Munich, Rotterdam and Vienna*. EURICUR. Erasmus University. Ashgate. England.
4. Berg, L. Van Der; Pol, P. M. J.; Van Winden, W., Woets, P. (2001): *European cities in the knowledge economy*. EURICUR. Erasmus University. Ashgate. England.
5. Batten, D. (1995). "Network cities: creative urban agglomerations for the 21st Century". *Urban Studies*, Vol. 32, No 2, pgs. 313–327.
6. Beck, R. Elliot, D.; Miesel, J., y Wagner, M. (1995). *Economic Impact Studies of Regional Public Colleges and Universities*. *Growth and Change*. Vol. 26 (Spring), pgs. 245–260.
7. Caffrey, J. Y Isaacs, H. (1971) *Estimating the impact of a college or university on the local economy*. *American Council on Education*. Washington.
8. COM (2009) 615 Final "Mobilising private and public investment for recovery and long term structural change: developing Public Private Partnerships". Brussels, 19.11.2009.
9. COM (2002) 629 Final. "European benchmarks in education and training: follow-up to the Lisbon European Council".
10. COM (2002). *European report on quality indicators of lifelong learning. Fifteen quality indicators*. Report based on the work of the Working Group on Quality Indicators.
11. COM (2003). *The role of universities in the European knowledge society*.
12. COM (2005) 152 Final (2005). *Mobilising the brainpower of Europe: enabling universities to make their full contribution to the Lisbon Strategy*.
13. De Boer, H.F.; Enders, J.; y Leisyte, L. (2007). *Public Sector Reform in Dutch Higher Education: the Organizational Transformation on the University*. *Public Administration*, Vol. 85, No 1, pgs. 27–46.
14. Elliot, D. S., Levin, S. L., y Miesel, J. B. (1988). *Measuring the Economic Impact of Institutions of Higher Education*. *Research in Higher Education*, Vol. 28, No. 1, pgs. 17–33.
15. Felsenstein, D. (1996): *The University in the Metropolitan Arena: Impacts and Public Policy Implications*. *Urban Studies*, Vol 33. No. 9, pgs. 1565–1580.
16. Goldstein, H., Maier, G., Luger. M. I. (1995). *The university as an instrument for economic and business development: U.S. and European comparisons*. In *Emerging patterns of social demand and university reform: Through a glass darkly*, edited by D. D. Dill and B. Sporn, pp. 105–33. Elmsford, NY: Pergamon.
17. Grant, R.M. (2004): *Dirección estratégica*. Biblioteca CIVITAS Economía y Empresa. Madrid.
18. HoodS, C. (1991). *A public management for all seasons?* *Public Administration*, vol. 69, Spring, 3–19.

19. Huggins, R.; Cooke, P. (1997): "The economic impact of Cardiff University: innovation, learning and job generation" *GeoJournal*, vol. 41, n° 4, pp. 625–337.
20. Hunt, S. (1983). "General Theories and the Fundamental Explananda of Marketing" *Journal of Marketing*, vol. 47, fall, 9–17.
21. López Casanovas, G., Puig-Junoy, J., Ganuza, J. J., y Planas Miret, I. (2003). *Los nuevos instrumentos de la gestión pública*. Servicio de Estudios "La Caixa", Estudios Económicos 31. Barcelona.
22. Luque-Martinez, T.; Aguayo-Moral J. M. (2007). *Universidad de Granada y Empresas: experiencias de colaboración*. Editorial Universidad de Granada.
23. Luque-Martinez, T.; Del Barrio-Garcia, S.; Aguayo-Moral, J. M. (2009). *Estudio del impacto de la Universidad de Granada en su entorno*. Editorial Universidad de Granada.
24. Luque-Martinez, T.; Del Barrio-Garcia, S.; Sanchez-Fernández, J. Ibañez-Zapata, J. A. (2008). *Estudio de los egresados de la Universidad de Granada. Cursos 2003/04 y 2004/05*. Editorial Universidad de Granada.
25. Luque-Martinez, T.; Del Barrio-Garcia, S.; Sanchez-Fernández, J. Ibañez-Zapata, J. A. (2009). *Estudio de los egresados de la Universidad de Granada. Curso 2005/06*. Editorial Universidad de Granada.
26. Luque-Martinez, T.; Del Barrio-Garcia, S.; (2006). *Plan Estratégico de la Universidad de Granada*. Editorial Universidad de Granada.
27. Ministerio De Educación (2010). *Estrategia Universidad 2015*. <http://www.educacion.es/eu2015>.
28. Prats, J., y Raventós, F. (director) (2005). *Los sistemas educativos europeos ¿Crisis o transformación?* Servicio de Estudios "La Caixa", Estudios Económicos 18. Barcelona.
29. Siegfried, J.J., Sanderson, A. R., y Mchenry, P. (2008). The economic impact of colleges and universities. *Change*, March-April, pgs. 25–29.
30. Smilor, R., Dietrich, G., y Gibson, D. (1993). The entrepreneurial university: The role of higher education in the US in technology commercialization and economic development. *International Social Science Journal*, Vol. 45, No. 1, pgs. 1–11.