

Networks & Financing in UAM

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Prof. Salvador T. Porras¹
stp@xanum.uam.mx

Prof. Regina Leal Güemez²
rlg@xanum.uam.mx

Departamento de Economía
Universidad Autónoma Metropolitana Iztapalapa
Av San Rafael Atlixco 186, Col Vicentina
Iztapalapa, México, D.F. 09340
México

¹ Salvador T. Porras is a professor at Universidad Autónoma Metropolitana Iztapalapa, where he acts as Head of the Research Group in Organisation Studies, Department of Economics. His PhD was granted at the University of Technology Sydney; his research orients basically towards the study of organisational networks, higher education institutions and comparative industrial public policy.

² Regina Leal Güemez is a professor at Universidad Autónoma Metropolitana Iztapalapa, where she acts as Head of the Research Group in Models and Information Systems in Management and Economy, Department of Economics. Her posgraduate studies were in the Business and Management School of the Universidad Nacional Autónoma de México; her research orients basically towards the study of models and systems, information technology and higher education institutions.

Networks & Financing in UAM

Higher Education Institutions (HEI) in Mexico depend financially from subsidies provided by government, subsidies that have been reduced considerably in recent years. HEI did not have the need to obtain external resources because their relation with the government people allowed them to access different resources. The relationship was one of mutual dependence because both HEI and government needed each other. However, globalization and economic conditions have had an effect in the relationship. Now, HEI have been forced to relate with other organisations not only in the education sector but in the productive and social as well.

It will be presented the case of the UAM Iztapalapa (UAM-I) because it represents a case that could be taken as a model for other HEI to follow. The analysis will be presented through the presentation of the collaborative agreements established by UAM-I with other organisations.

Networks & Financing in UAM

In a global world, organisations have to deal with different markets; different environments that give shape to their structure and strategy for survival in complex worlds. Marginson and Considine (2000) consider that there are two basic factors in shaping universities: changes in the public policy, and changes in economy and culture oriented towards the formation of global systems. The changes in public policy consider that some sectors including health and higher education are seen as a waste by neo-liberal policy makers. Thus, higher education institutions (HEI) have observed a reduction in their budget coming from public finance. Short-term benefits have replaced the long-term utilitarian vision of social benefit. In this context, the international 'best practice' spreads out conquering markets and the ideologies of politicians. Information technology has played a very important role in the diffusion of this vision, that has led to many HEI losing their social objectives, converting them into the maximization of the benefits, like any other commercial organisation.

The notion of time-space (Lash & Urry, 1994) has changed with globalization; the use of fast means of communication, such as the Internet had an impact on decision making. In global environments, national organisations coexist with global agents. Cultural aspects experience continuous changes, reinventing themselves constantly. Identities are questioned and new forms emerge. Universities like any other higher education institutions, open their doors to adopt new strategies which will combine their social orientation with the characteristics of economic organisations.

The use of Internet and e-mail are media for international collaboration in research and development, and teaching, as in the cases of 'virtual' courses. Long distance education is a strategy for various universities in the world (Universities in Australia are a typical case, most of them collaborate with local partners for teaching locals). Moreover, HEI have to establish links with other organisations, not only from the educational sector but with economic, social and government sectors as well. There is a need for organisations to establish collaborative relations with other participants; organisations have to build network

type relations. Networks have been studied in diverse areas, such as systems and marketing, industrial geography, in supplier-customer relations and in the higher education sector.³ In this context of globalization, universities have to look for new forms of organisation (Urry, 2002).

Different researchers and entities have already proposed networks of higher education institutions. In a very influential publication Gibbons et al. (1994) proposed a new model for higher education of which the characteristics include:

- Knowledge production will be produced as a result of the interaction of many agents.
- Transdisciplinary: this means that research and teaching will take place across discipline, as opposite of the current disciplinary, primarily cognitive model.
- Heterogeneous: where people having different background will participate. The current model is characterised by the existing homogeneity in its research groups.
- Non-hierarchical: based on networks of academics and strategic alliances for R&D as opposite to the current hierarchical model that tends to preserve its form.
- Socially accountable and reflexive where collaboration between practitioners will be basic for the model in opposing to the individualistic model existing.

Gibbons et al. (1994) consider that to be competitive in a global economy, there is a growing need for new knowledge that can be easily accessed and where information technology plays an important role. The increasing costs of R&D had made it impossible be carried out only in-house, R&D has to be conducted in different places; thus organisations

³ For more details in the areas in which networks have been studied refer to: Burnes y New, 1997; Forsgren et al. 1995; Grabher 1995; Håkansson 1989, 1992; Johannisson 1987; Larson 1992; Piore y Sabel 1984; Powell, Koput y Smith-Doerr 1996; Provan y Gassenheimer 1994; Putnam 1993, y Uzzi, 1996, 1997

have established collaborative relations with other organisations. In such conditions, organisations have to innovate constantly to be competitive. Collaboration thus takes place in a very competitive situation, combining both resources and lack of resources. Those that do not have enough resources come to those that have resources in excess.

UNESCO has also proposed actions to carry on the process to transform the higher education system. The outcomes of the World Conference for Higher Education organised by UNESCO in 1998 present the challenges for higher education in the world, and they suggest that higher education institutions have to establish links with private organisations, to get the necessary funds to achieve their goals. It is in this context that the higher education system in Mexico is proposing its vision for the new century.

New Organisations in Higher Education

New concepts such as ‘University of Excellence’, ‘University of Technology’, ‘Corporative University’ and ‘Virtual-global University’ appear in the scenario. In the re-emergence of organisational learning, the movement of Corporative University (CU) takes place. This type of organisation does not require the edification of a physical campus for developing its activities; this is a virtual entity, a center whose existence is not manifested in a visible structure but in the functioning of a network interchanging knowledge allowing the organisation to achieve its mission. Such ubiquity allows corporative universities to function virtually, at any time and any place; this organisations constitute the umbrella for the continuing learning programs, and a balance for the cultural interchange (Carrillo, 1995). Example of the CU are the hundred of enterprises in United States which actually have a campus or aside buildings for school, university, institute or education center.

UC is distinguished for its particular world-class efforts for training all levels of workforce in the skills needed for being successful in their current jobs, and for adapting to future requirements.

According to Castells (2001), it is required to re-structure the educational system based in interactivity, the personalization and the development of autonomous learning and thinking

capacity.

The University prioritizes two concepts: globalization and technological innovation, from which emerge three large strategies for the important changes that take place in Higher Education as related to knowledge, market and management (Robins & Webster, 2002).

In recent years the quantity of knowledge has grown in an explosive form with an unclear definition about the most important knowledge; the knowledge based on 'pure' research or knowledge related to the activities of copyright and solutions for common problems that generate lucrative earnings. New careers have emerged such as the study of business and management, marketing and information sciences, which have been installed in universities; arguing that they satisfy productive and utilitarian needs. It is impossible to ignore in these examples the contribution in knowledge production which private corporations and media organisations have made (Robins & Webster, 2002).

Global knowledge has been globalised and it is associated with skills that knowledge workers already possess, such as: capacity for abstraction, system thinking, experimentation and collaboration, all in order to identify and resolve problems. Thus, Universities are focusing on increasing and promoting 'transfer skills' (without content) related to: analytical abilities, communication and problem resolution, aiming to generalize the forms of knowledge and expertise, thus freeing it from the local context (Robins & Webster, 2002).

Referring to market, it deals with university teaching and researching as part of a specific market where students are considered as consumers or customers, incorporating accounting and management systems or the trend to individualize salaries and contracts, in each faculty. A clear example can be observed when corporations finance the building of university facilities such as laboratories, halls, classrooms, theatres; financing particular R&D and so on. The entrepreneurial vision has increased notably in higher education; such types of organisations are consolidating alliances with other organisations aiming to secure a competitive position in the new market of global education (Robins & Webster, 2002).

New managerial and business styles emerge focused in a corporate managerial system. The

old system based on the 'director' has been substituted for the centralized work of a group of managers, according to the business plans, and with the establishment of, clear objectives and performance criteria. The objective of this new form of management is to convert the higher education in flexible organisations, and get quick response to the changes of global competition (Robins & Webster, 2002)

With the new information and communication technologies, emerge the concept of 'virtual university'; information revolution results in the diffusion of a global society interconnected by communication networks. For universities, this brings the necessity to be connected with their environment and their autonomy will spread towards the new social relationships. In fact, universities are adjusting rapidly to the emergence of a new mode of production and are integrating themselves into the triple helix, constituted by university, industry and government (Etzkowitz & Leydesdorff, 1997). This perspective suggests that universities are becoming an important actor of the market (Delanty, 2002)

In fact, the HEI can't survive as isolated organisations, because in this global world, universities depend not only on the funds provided by government, they have to look for multiple external resources, including contracts with industry for research and development, tuition fees and donations (Delanty, 2002).

Since the resources assigned for higher education are becoming more and more scarce, and HEI is demanding more subsidies, government has reacted by forcing universities to be more competitive, establishing productivity indicators for having access to more resources. Universities have diminished their costs via subcontracting and expanding their learning areas, and creating and promoting courses belonging to the university (Delanty, 2002).

Higher Education and Financing in Mexico

In Mexico public financing to higher education has been one of the most important topics in the institutional agendas through proposal formulation for increasing the amounts, to design better distribution forms and managerial efficiency of the institutions. However,

public funding for higher education has not been enough for attending the increasing needs of an expanding system which must change and adapt itself constantly to satisfy social needs (ANUIES, 2002).

The budget assigned to HEI has suffered variations according to the economic conditions of the country; in the eighties, funds assigned suffered the effects of the government crisis. In the early nineties things changed until the crisis of December 1994, when the country collapsed. From 1998 to 2001 a slight recuperation began for HEI; however, the budgets assigned are still too small for satisfying public demands on higher education. Besides the lack of financial resources coming from the government, the population is increasing, so the competition among HEI and with other education levels is more and more fierce (ANUIES, 2002).

Budget for HEI goes to public federal universities, universities of technology, public state universities, public state universities with support, higher institutes of technology, and technological institutes. From these, public federal universities receive 67% of the federal budget for higher education (ANUIES, 2002).

According to ANUIES (2002), in the last four years, funds for HEI have had a real growth (in 1998 funds represented 0.60% of the GDP, in 1999 funds represented 0.59%, in 2000 0.63% and for the year 2002 funds were 0.67%). The aim is to fund 1% of GDP for higher education in 2006. Public universities must deep in their reforms, and academic and administrative improvement. Thus, it is more and more important that HEI find other financial sources for obtaining extraordinary resources, that allow them to achieve their goals.

Universidad Autónoma Metropolitana and External Financing.

UAM was created in December 1973 “as an decentralized State organ, with juridical personality and its own patrimony (UAM, 1992). This institution is formed by three independent but interrelated Units: Azcapotzalco, Iztapalapa and Xochimilco. Each Unit works independently from the academic and operational point of view. Each one of them is

in charge of the creation of their own programs, the development of research projects, and cultural diffusion and in the way they operate their own budgets. There exists also a General Rectorship, which works as a director instrument of the institution; this organ, the legal representative of the University, is in charge of controlling budgets, etc.

According to the Legislation of UAM (UAM, 1992), the functions for which UAM was created include:

- The offering of higher education courses for degree and masters and doctorate,
- The organisation and development activities for humanistic and scientific research, attending principally to the national problems, and
- The preservation and diffusing of culture

It is based on these basic activities that UAM has established a set of relationships with other organisations, relationships that have gradually created new ones, modifying existing relations and canceling others. In the existing context of globalization, now more than ever, university requires the interchange of knowledge, technology and resources that will allow its adaptation to the environment.

UAM established relations with other organisations by means of collaboration agreements with public and private institutions with diverse objectives, like development and transfer of new technologies, the promotion and development of multi disciplinary research groups, in topics addressed to meet specific social problems, the promotion and support of research projects for obtaining economic resources and for strengthening and extending community participation of UAM in the problems of its social environment.

There are various ways of establishing links based on legal figures where the characteristics of those agreements are established such as participant institutions, the time frame of the agreement, the type of agreement specific or general, name of participant academics, amount of resources involved, and the product or final result expected. Some of the agreements are: collaborative agreements, agreements for cooperation, service offering,

donations, co-editions, etc.

Specifically, the Universidad Autónoma Metropolitana-Iztapalapa has established collaborative agreements with other organisations since 1982, when the Division of Basic Sciences and Engineering started to work with a private organisation, Industrias Resistol (IRSA). This has been one of the most important relationships in the history of the Campus (Álvarez, 1995).

This agreement represented the beginning of a new era in the relation enterprise- university for forming researchers in the field of private chemical industry. The enterprise recognized and supported the basic functions of the university: the formation of human resources, and the generation and diffusion of knowledge. On the other hand, the industry had the advantage of always having a continuous source of researchers and had a stable link with research of its own interests and objectives (Álvarez, 1995).

From 1988 a five year term agreement was established IRSA-University in which three public institutions participated (Universidad Autónoma Metropolitana, Universidad Nacional Autónoma de México and Universidad de Guadalajara) and Industria Resistol. The cost for the enterprise was one million US dollars and the goals were to form professionals in the area of polymers which advise the enterprise directly and to develop a conjoint research and development area. Towards the end of the agreement results were very positive, the number of researchers and postgraduate students specialized in this area was increased; other institutions were involved in the project (Materials Institute, The Physics Institute from UNAM, and CIQA); there were extraordinary funds from federal government; a research line was consolidated for an industrial area and the basis for the industrial-academic group were created (Álvarez, 1995).

From this experience with Resistol, a series of agreements were signed with other enterprises including:

YEAR	ORGANISATIONS	GOAL OF THE PROJECT
1988	RAYCHEM; high technology enterprise based in California (private)	Support postgraduate programs; economic income, international diffusion of the research results
1988	CYDSA, enterprise that develops technology aiming to eliminate pollution through biological treatment (private)	Inter-disciplinary study and support postgraduate programs, international diffusion of the research results
1990	CONDUMEX, (private)	Support six research areas; multi-disciplinary project; support postgraduate programs, economic income, creation of a development and research center parallel to such of the industry
1990	IMP, Instituto Mexicano del Petróleo (state-owned enterprise)	Support conjoint research projects, human resources formation, support postgraduate programs
1991	NOVUM (private)	Support postgraduate programs, economic income
1992	Polymer Research Center Program (private)	Support research lines; support postgraduate programs, economic income
1995	Resistol-CONACYT-UNAM-UAM-UdG-CIQA	Multidisciplinary macro-project; support research lines, human resources formation, support postgraduate programs, economic income

As the Campus experienced various options for establishing relationships with industry, alternatives multiplied approaching other institutions; public and private, national and international foundations that provided substantial funds for the university as shown in the number of agreements established during the period 1998-2002.

Number of agreements established by UAM-I with other organisations

ORGANISATIONS	1998	1999	2000	2001	2002
Public entities	28	28	33	32	36
Services	8	12	17	21	16
Private enterprises	12	15	27	10	15
Editorials	3	8	2	6	13
Universities	29	19	17	27	12
Continuous education courses	18	23	14	17	10
Associations	35	23	5	13	9
Donations	2	1	2	4	2
Total	135	129	117	130	113

Source: Informe de Actividades 2002. UAM-I

According with the Activities Report (2002, UAM-I), considering that the budget for UAM-I per year is around \$100 millions, the amount of external resources obtained by the university is considerably important.

YEAR	CONACyT	FOMES	AGREEMENTS AND CONTRACTS	TOTAL
1998	\$ 22,487,744	\$ 28,083,410	\$ 11,101,693	\$ 61,672,847
1999	10,714,200	22,566,750	21,083,197	54,364,147
2000	26,479,214	23,688,460	49,734,257	99,901,931
2001	2,797,694	20,509,920	7,759,129	31,066,743
2002	27,444,090	17,323,700	38,264,809	83,032,599

Source: Informe de Actividades 2002. UAM-I

It is important to mention that at least during the last year the tendency in the number of sponsored agreements (which represented an economic income) with respect to non-sponsored agreements (which do not represent economic income) changed, in 2002 for the first time the total of sponsored agreements being more than non sponsored agreements

Agreements	1998	1999	2000	2001	2002
Non sponsored	70	72	67	82	51
Sponsored	66	66	51	49	62
Total	136	138	118	131	113

Source: Informe de Actividades 2002. UAM-I

Two institutions represent a very important source of funds for the Campus, these are PEMEX and the IMP (Instituto Mexicano del Petroleo). These institutions contribute to at least 50% of the total external resources received by UAM-I.

ORGANISATION	1998	1999	2000	2001	2002
PEMEX	13.42%	65.32%	12.57%	0.00%	54.21%
IMP	38.96%	13.27%	68.45%	32.36%	1.86%
OTROS CONVENIOS	47.62%	21.41%	18.98%	67.64%	43.93%

Own elaboration based on the Informe de Actividades 2002. UAM-I

Conclusion

Currently, funds for higher education have acquired a great relevance because higher education institutions play more and more an important and strategic role in the country. Thus, society has to provide enough funds for higher education institutions because the state has to consider that such funds represent an investment for the national future.

Owing to the knowledge generation produced also by private enterprises (corporate universities for example), HEI are losing their privileged position of 'authorized' knowledge, so external relations with other organisations allows not only obtaining the necessary funds for survival, but also to keeping in touch with their markets for interchanging information, attending requirements for new products, application of new technologies, and development of innovative programs for new disciplines, while maintaining their competitiveness.

For the first time in 2002 the total of sponsored agreements were more than non sponsored agreements; for the benefit of the development of their activities, the UAM should sustain and improve this trend.

While external resources to UAM have been constants in the last five years, it is important to increase its amount, besides UAM requires to diversify its relations with other organisations and not to depend basically on two organisations: PEMEX and IMP.

Actually, the main challenge for UAM-I is to get enough resources to educate professionals who have a commitment in the endless learning of new skills to enter the competitive market places. Besides, the university should create strong collaboration networks with several organisations to be part of the global characteristics of the educational market.

One alternative that UAM-I hasn't explored is the relationships with the e-learning industry joining the University base of content and expertise, with the content and resources, of the major publisher, the technology and support of the software industry, to deliver the right mixture of in person and online options. This cooperation is the best way to ensure that an advanced new generation of content is actually built.

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