

CHAPTER

17

University 2.0: the University as an economic and social Driver

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INTRODUCTION

This paper intends to renew certain paradigms that tend to limit the vision and functions of universities and advance towards the University 2.0, a scheme focused on society and that brings about concrete changes. The University 2.0 works in two great aspects: economic development models and social development models, in collaboration with state government, federal government, private businesses and foundations. By way of example, a description is provided of the case of the Tecnológico de Monterrey System, which has performed a long series of adjustments to become, besides a world-quality educational institution, a decisive agent for social change in Mexico.

In the construction of a commitment with the communities in which our universities are inserted, several challenges must be faced. Certain paradigms must be left behind because they tend to limit the vision and functions of universities and we must advance towards University 2.0, a scheme focused on society and that brings about concrete changes.

With this objective, the set of modifications applied to the organizational structure of a university, the activities and vocation of an educational institution must focus on a radical and visible transformation that brings it to become a new type of institution.

On this path towards strengthening its commitment with society, the Tecnológico de Monterrey System has carried out a long series of adjustments that, over the years, have brought it to be, besides a world-quality educational institution, a decisive social change agent in Mexico.

The Tecnológico de Monterrey System is comprised of four educational institutions:

- The Monterrey Tech Institute, which has 31 campus with 102,832 students in classes taught by 8,500 faculty,
- The TecMilenio University, comprised by 33 campus currently serving 29,012 students,
- The Virtual University, which with a scope that includes 63 countries, serves 13,312 postgraduate students and 129,870 students in social and entrepreneurial programs, and
- The Tec Health, which congregates a school of medicine for close to 2,000 students, research centers, collaborative medical services institutes, a hospital and a health care center.

Among its most relevant activities, it performs an important task through its Research Centers, which employ 2,300 researchers, of whom 272 are members of the National Researchers System, and that are assembled into 126 work groups. The work of these groups generates on average, annually, 42 applications for patents in the areas of biotechnology and life sciences, sustainable development, information and communication technologies, manufacturing and design, mechatronics automotive and aerospace, entrepreneurship and family businesses, management, public policies, education, social sciences and humanities.

Throughout its history, the Tecnológico de Monterrey System has adapted its strategies not only for offering quality education, but also for aiding Mexico in facing its day-to-day challenges.

CHARACTERISTICS OF THE TRADITIONAL UNIVERSITY

In this section, rather than the common approach consisting in disapproving of traditional education by means of the simplification of its characteristics under reductionist points of view, an attempt is made to distinguish certain behaviours that the university has maintained over time and whose existence is not justified. Thus, far from the intention of describing the traditional university as a set of mistakes, it is pertinent that some of the traits that characterize it be recognized.

Among the habitual activities performed by a university, three are highlighted: education, research and extension. Generally, the quantity and quality of the graduates are used as results indicators for the first of these activities; for the second, the quantity and quality of publications, participation in forums and patents obtained; for the third, the number of participants enrolled and, therefore, revenues obtained.

In this sense, it is necessary to note that the visible results of these activities, that is, the aforementioned indicators, reveal a strong tendency to focus primarily on the immediate context where the traditional university exists. The preceding means that the impact that students have on society is restricted almost exclusively to the effect that they can have once they have graduated from the institution, and not before. By this same token, knowledge generated from the work performed by their researchers is, at the most, published in prestigious journals in the corresponding disciplines, participation in international forums is performed in front of academic colleagues, and patents, in the best of cases, seek to highlight the achievements of the applicants, with a limited interest for positively impacting society. Finally, it is convenient to state that traditional universities see extension work as an additional source of revenue, and not as an opportunity for collaborating with social change.

The previous characteristics, in such a manner combined, offer a panoramic view of the nature of the traditional university that is based on an essential trait: its isolation with respect to the society in which it exists and to which it owes itself.

In the face of this scenario, Rosovsky (2002) comments: “External influences on the university have multiplied and they are penetrating its activities with increasing frequency. Government and business are the major sources of influence.”

The traditional university fulfils those functions in accordance with how it was conceived, but requires deep critical questionings: are the graduates the only path through which a university must aspire to transform the world? how fruitful for humanity are the investments in research that universities carry out? what are the obligations that all universities must fulfil with respect to the community that have created them? in what sense must the mission, vision and purposes of a university be adjusted with a view to its resolving the issues of the period in which it operates? Before this situation, and in a more optimistic tone, Rosovsky clarifies the following:

“To summarize: the ivory tower does not describe the modern research university: learning and service are always present. External influences are becoming more powerful for many different reasons: the power of government, the search by commercial interests for knowledge within the academy, the perpetual need for more resources within the university, and not least — the opportunity for individual faculty members to make economic gains.”

Even, and with respect to the case of Harvard which, also according to Rosovsky, can be applied to other universities, this author states:

“As defined pejoratively, the ivory tower is a myth, because in modern institutions of higher education there has always existed tension between service to the public and

more contemplative scholarship. What the historian Bernard Bailyn (1991) wrote about Harvard a decade ago remains true for many universities in different parts of the world". "Harvard has never been an ivory tower, a closed universe of scholars talking to scholars and students. It has always been, has had to be, open to the world, responsible to its founding and governing community — hence in the service of society — and yet at the same time devoted to the demands of learning for its own sake. That balance between learning and service is the heart of the institution and it has shifted in emphasis from time to time."

From the previous questions, with the crucial nuance provided by Rosovsky, who establishes a fertile platform for a new paradigm, this reflection offers a series of proposals integrated under a single concept: the University 2.0.

THE UNIVERSITY 2.0

Weber (2002) retakes his concepts of *responsiveness* and *responsibilities*, to speak to the duality faced by the university's missions. *Responsiveness* refers to that immediacy which has been spoken to before; this is, it is expected that the university educates professionals prepared for the challenges of the moment, both in the economic aspect as well as in the public sector, and that it offers programs that ensure access to university for the greatest possible number of students, among other conditions. As is palpable, answering society's demands implies more than teaching or research; nevertheless, it is necessary to address the other pole of the duality posed by Weber, and that implies assuming a crucial responsibility with the society where the university is located:

"Universities are one of the oldest surviving institutions, clearly older than modern States. Moreover, they remain practically the only institution able to secure and transmit the cultural heritage of a society, to create new knowledge and to have the professional competences and the right status to analyse social problems independently, scientifically and critically."

The difference then, between *responding* and *being responsible* lies in that, in the first case, universities must be receptive to what society demands of them, while in the second, they must have the ambition to guide insights and proposals for the benefit of society.

Differently from the traditional university, and in concordance with Weber's ideas, the concept of University 2.0 that is proposed in this document, although supported on the same bases, brings each of them to transcend the limits set by the previous model between the activities of an educational institution and the social flow within which it operates. In this manner, the University 2.0 prolongs the effects of education, extension and research

towards environments that are beyond the traditional context and have impact on different components of the environment where it functions. This relationship of the University with society, based on the urgency for the integration of priorities and the need for designing educational programs based on what is posed by society, the market, the importance of the research, is described by Williams (2002) in the following terms:

“If the university leaves its graduates generally unprepared for the responsibilities of citizenship, what will be the consequences? College graduates should be prepared to lead lives of civic engagement in addition to individual success. If we are ignorant of our history, government and the fundamental ideals and values that distinguish our society, we cannot be good citizens. Education has been the best predictor of civic involvement, and higher education now serves as the nation’s most important common ground and is essential to the future of a democratic society.”

Along this same route, the activities of the University 2.0, on the basis of education, research and extension, educate students as citizens with significant knowledge, which is ready for being applied in the appropriate contexts and with ethically focused intentions and purposes, program their extension offerings with a social focus, direct their research work, as well as their publications, participation in forums and patents generation, towards the formulation of pertinent developmental models.

But, beyond that production, and due to said efforts towards transcendence of its work, the University 2.0 generates developmental models appropriate to the context in which it finds itself. These models are, primordially, the core of the institution’s work, and, due to that, are replicable by other instances, easily maintained for their permanence and, in general, simple, as well as being generated and owing their permanence to a scheme that, by means of alliances, ensures constant evolution and therefore, its usefulness for each community.

CREATION OF DEVELOPMENT MODELS

The University 2.0 carries out these alliances, the basis of its functioning, with private enterprise, governmental instances and international foundations with which it interacts in long-term relations, clearly established and organically articulated in such a manner that they produce palpable and measurable results.

Among other attributes, this scheme ensures that the developmental models generated are sustainable and transferable so that their use can be extended, with the necessary adaptations, to a great variety of contexts. Among them, the Tecnológico de Monterrey System has concentrated its efforts in fostering two developmental models: economic and social.

Economic development models

With the participation of the state government, the federal government and private businesses, the Tecnológico de Monterrey System is carrying out two main efforts for bringing about Mexico's economic development: the Technological Parks and the Strategic Business Opportunities Observatory:

The Tecnológico de Monterrey System currently has 16 technological parks, to which five, under construction, are about to be added. These parks are structured based on a series of different participating groups that are working in a physical space that includes certain components.

The participating groups are comprised of students, graduates, entrepreneurs, businesses and faculty; these groups carry out their developmental activities in physical spaces that include three components: a section destined to incubating companies, an accelerator for the same and an area destined to facilitating the *landing* process, thanks to which companies are able to establish operations in Mexico.

On the other hand, the Strategic Business Opportunities Observatory is an information system that has the objective of identifying, in each region of the country, those products and sectors with high market potential. This instance, thanks to a vast information platform, drives the creation of businesses and regional economic development by means of products and services such as the *Anatomy of the economic clusters with the greatest impact on Mexico's development*, *The competitiveness of the Mexican States* and the *Identification of strategic opportunities for the development of each Mexican state*, whose contents are published and made available to users by means of different schemes.

Social development models

The social development models, equally transferable and sustainable, have a set of participants appropriate to their purpose: state government, federal government, private institutions and foundations. In this sense, the Monterrey Technological Institute System has concentrated its attention on two fundamental strategies: the Community Learning Centers and the Training Programs for Basic Education Teachers and Administrators.

The Community Learning Centers maintain a strong orientation towards extending quality education throughout the country with support from a technological base (*e-learning*) which contributes sufficient capacity for carrying the Tecnológico de Monterrey System's programs even to places with very difficult access by any other means. As an added value, these centers have facilitated the creation of businesses in different states of Mexico.

From the year 2001 to date, the Tecnológico de Monterrey System has opened 2,329 centers of this type in Mexico, the United States, Central and South America. As result of this work, quality education has been provided to 254,423 persons in these countries, with highly relevant impacts.

It is convenient to highlight that the tutors in these centers, who, in a responsible and solidary manner carry out the most important processes in this effort, are Tecnológico de Monterrey undergraduate students.

On the other hand, the Tecnológico de Monterrey System has devoted itself, using on-line programs and with the support of the Tecnológico de Monterrey's campuses throughout Mexico, to offering training programs for Basic Education Teachers and Administrators of the Mexican governmental educational system, with the objective of supporting their development and increasing the quality of their performance. Among these programs' main achievements are three diploma level courses:

- The Diploma level course in Educational Quality and Teaching Skills
- The Diploma level course in Significant Learning of Mathematics using the PISA and ENLACE approaches for secondary education, and
- The International Diploma level course in Teaching Competencies Monterrey Tec-Cambridge.

Under this heading, between 2006 and 2010, training was provided for 52,129 participants from the different official schooling levels.

CONCLUSION

When facing the high demand of current challenges, governments focus their efforts on what is urgent and on corrective solutions; given this situation, universities must direct their own efforts towards what is important and to preventive solutions.

With the firm conviction that education is the basis for development, the Tecnológico de Monterrey System has implemented different strategies that bring it to comply with the principles that sustain the concept of University 2.0.

Citizens' training of students requires the experience of joining this scheme. This is not merely a social service program: the university has the obligation and the opportunity for reducing the social gap and preventing the disintegration of the structures that sustain humanity by means of deep-rooted, replicable solutions and with a medium- and long-term vision for reducing the malaise of the most vulnerable sectors born from a growing inequity in reference to the distance between their own situation and that of the sectors that have the most. This phenomenon can be called *social warming*, and the only way to reduce this social warming is to bring education and entrepreneurship to each and every human being on the planet.

The tendencies to isolation and limitation corresponding to the traditional university are left behind. Universities must reduce the gap between the sec-

tors that have progressed and those that have fallen behind and must become pillars for the progress of civilization, essence and *raison d'être* of the notion of University 2.0.

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