

CHALLENGES IN THE FUNCTIONS AND BENEFITS OF THE UNIVERSITY

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It seems simple: "ethics, serving others; moral, to comply with the rules".

Attribution est:Guillermo Hoyos Vásquez, S. J.

Summary

The public university is a long-standing historical institution whose evolution, from the first forms of higher education to its contemporary configuration, allows us to understand its role in advanced training, the production of knowledge, critical deliberation and social transformation. This paper examines the emergence of the university, the development of its substantive functions such as teaching, research, extension, innovation and social interaction, and the importance of its physical and technological infrastructure, its university community, quality, evaluation and coverage. It also analyses structural tensions associated with funding, autonomy, academic-administrative organisation, university well-being, digital transformation and the relationship with the environment. It is concluded that the strengthening of the public university requires articulating quality, inclusion, sustainability, participatory governance, strategic planning and prospective vision, to expand its mission and its social effect in the region and in the world.

Keywords: *Educational evolution, evaluation, educational quality, prospective.*

Introduction

Education, understood as a set of actions, manifestations and participation of attitudes, which facilitate teaching, learning, the acquisition of knowledge, the development of skills, the creation of values and the formation of culture, is a process inherent to human existence and evolution, whether formal (with a hierarchical and institutional structure) or informal (unschooled, family or self-taught). In essence, education began when people, adults and experienced, instructed their younger peers in knowledge and skills for survival: The search for raw materials, the elaboration of tools, hunting and fishing, displacement, gathering, human relationships, symbolic thinking and spirituality; initially, these processes must have arisen through imitation and oral narrative [King, 1982; Boyd et al., 2011; Hewlett & Roulette, 2016; Scalise Sugiyama, 2017].

Since very ancient times, humanity has also been characterized by having people who, individually or in groups, have adopted spiritual lifestyles, mediated by religion, beliefs and experiences, which may well be subject to norms, conditionings and behaviors that in many scenarios are supported in isolation, prayer and contemplation; this is what is called monasticism (Hindu, Buddhist, Jaina, Christian, among many others) and its members, monks. An important fact is that despite the multiple approaches, it is presumed that since the High Middle Ages (~ year 529), some collective monasticisms, founded in congregations called monasteries, such as the abbey of Monte Cassino (Lazio, Italy), following the rule of Benedictus Nursiae (480–547), became educational institutions: the *monastic schools* [Guijarro González, 2008; Gschwandtner, 2024; Contreni, 2020; Rennie, 2021; Clark, 2020].

Cathedral schools also represent a foundational milestone in the history of Western education, which finds institutional roots in the Second Council of Vaison-la-Romaine (France), in 529. Under the presidency of Caesarius of Arles (470–542), this synod not only addressed matters of strict ecclesiastical discipline, but also promulgated a revolutionary decree obliging rural parish priests to receive and train young men for the priesthood [Pride, 1943; Grig, 2024; Greenslade, 1963; Klingshirn, 1993].

In 781, during a stay in Parma, Italy, Charlemagne (742–814) met Alcuin of York (735–804), whom he invited to lead an ambitious educational project. Thus, in 782, the *Palatine School* of Aachen was born, a center of instruction destined to train the bureaucracy and administrative cadres of the State; then, through the capitular *Admonitio Generalis* of 789, the creation of regional schools was ordered, thus consolidating a system that rescued classical knowledge and promoted cathedral schools. with a focus on the liberal arts (*Trivium* and *Quadrivium*), which, when located in the cities, overcame the hegemony of the monasteries and became true concentrations of thought [Butzer & Sprinsfeld, 2007; Contreni, 2022; Shank, 2013].

With this background, towards the end of the Middle Ages (1453–1492), higher education emerged as a decisive milestone in European intellectual history, since it not only preserved, systematized and transmitted theological, legal, medical and philosophical knowledge, but also already had stable communities of instructors and students organized under corporate forms that gave rise to the university. The importance of these communities lay in the formation of ecclesiastical, administrative, and professional elites; Its impact was directed towards the consolidation of the scholastic methods (*lectio* and *disputatio*) of the teaching and learning processes; and, its historical significance, was configured in establishing academic structures with faculties, degrees, statutes, authorities and curricula, which articulated knowledge, power and culture; in addition, the pedagogical and social foundations of the modern university were laid [Verger, 1991; Wei, 2012].

In the Modern Age (1453–1789), university education acquired strategic relevance by becoming a fundamental instrument for the training of civil servants, jurists, doctors, clergy and scientists, which sought to respond to the political, religious, technological and cultural transformations of a restless and changing humanity. The impact of higher education was expressed in the consolidation of universities, in a certain way regulated by monarchies and religious institutions, in the diversification of chairs and knowledge, and in the progressive incorporation of rational and experimental trends. The historical significance lies in having strengthened hierarchical academic organizations, with faculties, statutes, degrees, methods, and authorities, a direct antecedent of the contemporary university [Grendler, 2004; Brockliss, 2003; Goeing, 2020].

In the Contemporary Age (1789 to the present) universities constitute strategic institutions for the scientific, technological, social, cultural and economic development of nations, by articulating

advanced training, knowledge production, innovation and social projection in the same academic space. Their importance lies in the fact that they prepare professionals, researchers and leaders capable of responding to the challenges of a global, digital and interdependent world; Its impact is reflected in the generation of science, in technology transfer, in the formulation of public policies and in the transformation of territories. Its historical significance lies in its ability to adapt to the demands of each era without renouncing its critical mission. Its organization is structured into faculties, schools, institutes, research centers, government systems, and cooperation networks that ensure quality, autonomy, relevance, and internationalization [Etzkowitz et al., 2000; Compagnucci & Spiragelli, 2020; Engwall, 2016; Bennetot Pruvot & Estermann, 2018].

This document aims to examine the public university from its historical emergence to its contemporary configuration, in attention to its functions and benefits, its academic and community organization, and its conditions of infrastructure, quality, evaluation, coverage, autonomy and social interaction, as well as the challenges that affect the fulfillment of its mission and the expansion of its social effect.

1. Emergence of the university

If it is accepted that the collection of written documents (written memory) constitutes a vector of education, then a first "collection" was located in Uruk (Sumer), about 5400 years ago; then, it is presumed that the institutionalization of education, in schools, comes from those times, from the civilizations that settled on the plains between the Euphrates and Tigris rivers, south of Mesopotamia. The schools were scenarios for the profusion of writing, mathematics, astronomy, agriculture, livestock and spirituality; then, literature advanced exposed in narrative, administration and technique. The beginning of the conservation of literature may have begun 4500 years ago, in collections that could be assimilated to "libraries" [Michalowski, 2013; Zand, 2019; Proust, 2011; Robson, 2001].

Chronologically, in the process of formalizing education, it is recognized that in the Middle Kingdom of Egypt (which began 4070 years ago) there were already "houses of instruction", elementary (which began with 6-year-old children) and higher (of a technical and professional nature); formal instruction, scribal culture, reading, writing, drawing, copying and technical-administrative training were given in them. 4000 years ago, in India, the contents and agents of education, imbued with spiritual formation, were located on the banks of the Indus and Ganges rivers; 2690 years ago, the Assyrian king Ashurbanipal gathered what is considered one of the best organized and most important royal libraries of antiquity, in which dictionaries and various texts were collected and copied. A little more than 2500 years ago, in Lu (China), Kong Qiu or Confucius (571–479 BC) gave rise to a school whose teachings were good conduct, good governance (charitable, fair, and respectful of hierarchy), care for tradition, dedicated study, and meditation [A. Bernard et al., 2014; Allon & Navratilova, 2023; Kumar, 2020; Gill, 2013; Fincke, 2004; Robson, 2013; Wang & Li-Ling, 2023; Huang & Shen, 2013; Bahtilla & Xu, 2021].

In Athens, the existence of learning spaces is documented towards the end of the sixth century and the beginning of the fifth century BC. C.; In this context, elementary and higher education was acquiring increasingly defined institutional forms within Athenian civic life. On the philosophical level, around 387 BC, Plato (427–347 BC), a disciple of Socrates (470–399 BC), founded the Academy in the area of Academus, a school of thought that played a decisive role in Greek intellectual history and that gave special importance to the cultivation of mathematics, together with philosophical reflection, political and cosmological. Later, Aristotle (384–322 BC), trained at the Academy, was recalled to Macedonia, in the period 343–342 BC. to act as tutor of the young Alexander in Mieza;

back to Athens, in 335 BC. He founded the Lyceum, an institution that consolidated another great tradition of research, teaching and school organization in the Greek world. Together, the Platonic Academy and the Aristotelian Lyceum represent two of the highest expressions of the formalization of philosophical teaching in classical antiquity, against the broader background of Athenian educational development [Rihll, 2003; Pritchard, 2015; Waterfield, 2023; Dorandi, 1999; Watts, 2007; Bakewell, 2021; Cooper, 2003; Shields, 2012]

In the historiographical tradition, the initial organization of the Library of Alexandria is more plausibly linked to Demetrius of Phalerus and the reign of Ptolemy I Soter, around 295 BC; therefore, rather than affirming that it was put into operation in 331 BC under Ptolemy II Philadelphus, it is more accurate to maintain that the project of the library and the *Museion* it was conceived in the final phase of Ptolemy I's rule and then developed under Ptolemy II, within the ambitious Alexandrian intellectual program, on which the Aristotelian and Peripatetic tradition exerted a significant influence. In the same horizon, Hellenistic education, whose historical configuration is usually located from 323 BC onwards. It can be understood as a *paideia* aimed at the literary, grammatical, rhetorical and mathematical training of the young person, without excluding physical education linked to the gymnasium. Rome did not adopt this model suddenly, but progressively: its incorporation began as early as the third century BC. But it took hold with particular force in the second century BC. Particularly after 168 B.C. BC, when parallel instruction was also developed in Latin that adapted Greek institutions, methods, and texts to the Roman context [Thomas, 2021; Joyal, 2019; Bloomer, 2011].

The term "*universitas*" is a word that appears in Marcus Tullius Cicero's (106–46 BC) translation of Plato's dialogue *Tiamaeus*, circa 45 BC, to refer to the "totality" ("gathered into a whole"); however, the legal and corporate use, perhaps more relevant to a university group, is more clearly documented in the work *Institutiones* de Gaius (120–178), possibly written between the years 161 and 170. It is believed that Christian monasticism arose in the mountains and deserts of Egypt, when hermits retired there to live in solitude and contemplation; one such illustrious hermit was Antonius Abbot the Great (ca. 251–356), whose ascetic retreat in Egypt made him an emblematic figure of nascent monasticism [Baldissone, 2024; Kurki, 2019; Diem & Rapp, 2020; Harmless, 2004].

In Constantinople, now Istanbul, the institutional form of higher education that Byzantine historiography most certainly identifies does not correspond to a *schola* founded in 340 by Constantius II, but to the *Pandidakterion* established in 425 AD by Theodosius II, an institution that represented a novelty in the educational policy of the State and that consolidated in the capital an advanced education with a Greco-Roman profile. especially linked to grammar, rhetoric and philosophy. In parallel, in Egypt, during the first half of the fourth century, Pachomius (ca. 292–346) organized cenobitic monasticism into stable communities, governed by common authority, shared discipline, and norms of life, so that his experience did not yet constitute a fully developed monastic school, but it did lay the institutional, formative, and pedagogical foundations that made possible its subsequent emergence [Harries, 2013; Markopoulos, 2012; Markopoulos, 2013; Harmless, 2004; Dilley, 2017; Schroeder, 2012].

In *De nuptiis Philologiae et Mercurii*, probably composed in the first half of the fifth century, Martianus Minneus Felix Capella offered one of the most influential formulations for the organization of knowledge, presenting the seven liberal arts and distinguishing the disciplines of language (grammar, rhetoric and logic) from mathematics (arithmetic, geometry, music and astronomy), a scheme that exerted a profound influence on medieval school culture; although, The terminological fixation of Trivium and Quadrivium corresponds more properly to the later tradition. After the dismantling of the Western Roman imperial order in 476, the Church increasingly assumed the

training of its own cadres, in particular that of future clerics, and in this context the cathedral school began to assert itself: one of its oldest normative testimonies is found in the Second Council of Toledo, dated according to manuscript tradition to the period 527–531, whose initial canon provided that young people destined for ecclesiastical service should be educated in the house of the Church, under the supervision of the bishop; From there, episcopal teaching was progressively consolidated as a structure of clerical formation and ecclesiastical organization. On the other hand, the word *universitas*, whose Latin use is already documented in Cicero and in classical jurisprudence, was also canonically included in the Justinian compilation of the *Digest* of 533, where it clearly preserved its juridical-corporate sense of collectivity or recognized body, a remote antecedent of the medieval use that would later lead to the idea of the university as an academic corporation [Cadden, 2013; Copeland & Sluiter, 2012; Barrett, 2023; Baldissoni, 2024].

When monasticism spread throughout Western Europe, some of the monasteries that would profoundly mark the religious and intellectual culture of the early Middle Ages emerged; among them, Monte Cassino, founded by Benedict of Nursia in 529, whose Rule, drawn up around 530, conceived the monastery as a *schola dominici servitii*; Vivarium, established by Cassiodorus at Scolacium at a time after the year 540; Luxeuil, founded by Columbanus around the year 590; and Bobbio, organized by Columbanus himself, in Italy, in the period 613–614. In these areas, the so-called monastic school was progressively consolidated, focused on the formation of novices and monks through reading, writing, religious discipline and the appropriation of the liberal arts, until it configured a culture of study oriented towards the copying of manuscripts and intellectual continuity. For its part, in the *Etymologiae*, compiled by Isidore of Seville between ca. 615 and the early years of the 630s, the term *universitas* appears in the sense of universal totality or unity, not as a denomination of an institution of higher education [Feiss, 2019; Scholten, 2015; Wood, 2019; O'Hara, 2018; Larsen & Rubenson, 2018; Barney et al., 2006].

Towards the end of the seventh century and the beginning of the eighth, in the medina of Tunis, the mosque al-Zaytuna or Mosque of the Olive was founded; rebuilt and enlarged in later times, it became over time one of the main centers of religious and intellectual teaching of Islam in the Maghreb, where numerous jurists were trained. wise and studious. In the Carolingian sphere, rather than affirming a specific emergence of the palatine school in 782, it is more accurate to maintain that, on Charlemagne's initiative and with the incorporation of Alcuin to the court from 781–782, a court school took shape in Aachen that was nourished by monastic and episcopal traditions and that gave a central place to the liberal arts. The generalization of this impulse was not formulated in 787 in a complete way, but above all in the *Admonitio generalis* of 789, through which Charlemagne promoted teaching in bishoprics and monasteries; its results were not uniform, but they were profound and lasting in the configuration of medieval school culture [Lamine, 2018; Wainscott, 2017; Contreni, 1995; Young, 2019; Heckman, 2020].

Around 857–859, in the Idrisi Fez, tradition attributes to Fatima al-Fihri the foundation of the mosque of al-Qarawiyyin and links her sister Maryam with the mosque of al-Andalusiyyin; however, from a historiographical perspective, al-Qarawiyyin should be understood as a facility that gradually incorporated functions of teaching and transmission of knowledge. In medieval Islam, religious and higher education was often articulated in mosques and, later, in madrassas (schools), through study circles, authorized magisterium, and networks of intellectual circulation; in this context, the relevance of al-Qarawiyyin lies in its prolonged process of consolidation as a centre of learning in the Maghreb. Located in a city founded in the ninth century and later becoming the cultural and spiritual capital of Morocco, al-Qarawiyyin came to be among the main religious and intellectual centers of the Islamic West and is often considered one of the oldest continuously functioning institutions of higher learning in the world [Hardaker, 2012; Fourtassi, 2020].

In the context of the emergence of schools of teaching and learning, the *Schola Medica Salernitana* should not be understood as the result of a one-off foundation, but as a gradual institutional formation developed between the ninth and eleventh centuries, the fruit of the convergence of Greco-Latin, monastic, Lombard, Arab and Jewish traditions. Its consolidation, especially between the tenth and eleventh centuries, made Salerno the main centre of medical knowledge in medieval Latin West; in this context, the expression *Civitas Hippocratica* does not designate a different institution, but rather the honorific recognition of the city whose intellectual projection derived precisely from the prestige achieved by the Salernitan school and its inscription in the Hippocratic tradition [Nutton, 1971; Della Monica *et al.*; de Divittis *et al.*, 2004].

From the end of the eleventh century and, more clearly, throughout the twelfth century, various urban, cathedral and specialized schools reached a sufficiently high level of education to be recognized as *studia*. The expression *studium generale*, however, did not designate from the beginning a rigid category or a fully defined institutional form, but gradually acquired precision, until it was applied to higher education institutions with supra-regional prestige, stable teachers and openness to students from multiple backgrounds. From a historiographical perspective, it can be said that in Bologna there was indeed a *studium*, especially oriented to law, whose emergence is located at the end of the eleventh century and the beginning of the twelfth century, in relation to the magisterium of jurists such as Pepo and Irnerio [Rüegg, 1991; Verger, 1991; Winroth, 2022; Nardi, 1991].

From the end of the eleventh century, various urban centers of learning inherited and transformed previous school traditions (cathedral, monastic and urban) to acquire supra-regional prestige as *studium*. The legal notion of *studium generale*, however, gradually became more precise and did not become generalized as a technical category until the thirteenth century. At Oxford, teaching is documented from the end of the eleventh century and experienced a particularly rapid growth from 1167; its institutional consolidation was also gradual. In the following decades, other centres of higher learning emerged, including Cambridge (1209), Padua (1222) and Naples (1224), while in the Iberian Peninsula Palencia, Salamanca and, later, Valladolid stood out [Shank, 2013; Verger, 1991; de la Croix *et al.*, 2024; Rusanov, 2018].

In the twelfth and thirteenth centuries, the consolidation of the *studium generale* did not depend on a single founding act, but on gradual processes of legal recognition, privilege and corporatization in which popes, emperors, kings and urban authorities intervened, as the case may be. In this context, the *Authentica habita* of Frederick I Barbarossa, usually dated around 1155–1158, is not interpreted as a charter of university foundation, but as an imperial privilege of legal protection granted to schoolchildren, especially relevant to the *studium* of Bologna [Nardi, 1991; Winroth, 2022; García and García, 1991].

In Paris, the statutes promulgated by the papal legate of Robert of Courçon in 1215 regulated central aspects of education, including part of the curriculum and certain conditions of access to the *licentia docendi*. In Bologna, the intervention of Honorius III in 1219 strengthened the role of the archdeacon of the cathedral in granting the license to teach. Throughout the thirteenth century, and with variations according to faculties and centers of study, a hierarchy of degrees was gradually consolidated that included bachelor's, bachelor's and master's or doctor's; it was not, therefore, a sudden, homogeneous and simultaneous establishment throughout the Latin West [Wei, 2012; García & García, 1991; Schwinges, 1991; Lafleur, 2026].

In Oxford, during the first decades of the thirteenth century, the chancellor, teachers and scholars acquired recognition as a corporate body with its own legal features. In this context, the Latin term

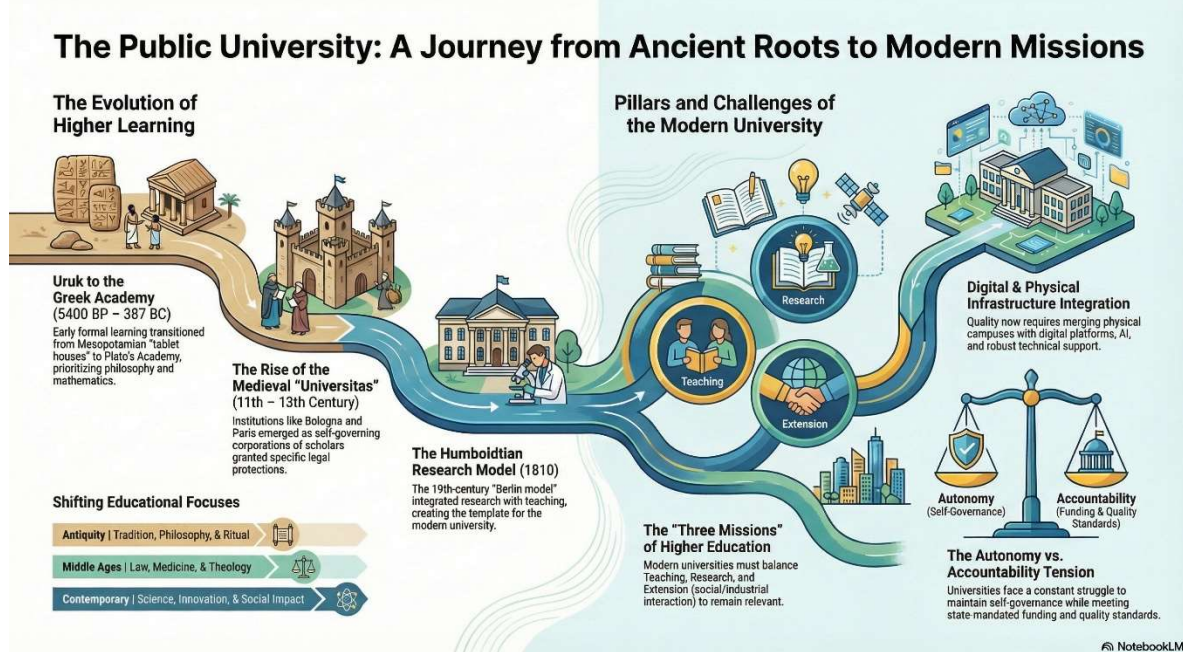
universitas did not originally designate a building or an institution in the modern sense, but rather a legally recognizable corporation or community. Applied to the academic field, *universitas* came to refer to the community of teachers and schoolchildren organized to teach and study under rules, privileges, and a certain corporate autonomy; in this meaning lies one of the immediate antecedents of the medieval European university [Weik, 2011; Shank, 2013; de la Croix *et al.*, 2024].

In 1231, the bull *Parens scientiarum* of Gregory IX played a decisive role in the legal consolidation of the *Parisian studium* and in the affirmation of its corporate privileges. In the course of the thirteenth century, the expression *universitas magistrorum et scholarium* was consolidated to designate corporately organized academic communities. In the Iberian Peninsula, Salamanca received a decisive boost in the mid-thirteenth century within the process of formalization of the *Castilian studia generalia*, although the institutional evolution, also there, was gradual and not reducible to a single founding date [Wei, 2012; Young, 2014; Rusanov, 2018].

The medieval *universitas* were generally attended by young people who already had elementary training in reading, writing and, above all, Latin, the language of instruction and academic communication. The initial cycle of arts included the knowledge of the *trivium* and the *quadrivium*, but the duration of the studies and the sequence of degrees were not identical in all places. In general, the student could advance to the bachelor's degree and, later, to the license and to the teaching or doctorate, especially when moving on to higher faculties such as law, medicine or theology; in medieval *universitas*, degrees were closely linked to qualification to teach and varied according to the center, faculty, and time [Schwinges, 1991; Schwinges, 1991; Lafleur, 2026; Ruano-Borbalan, 2022].

Not all *studia* or all institutions of higher education adopted the name *universitas*; in the long term, the field of medieval higher education progressively articulated itself in diverse institutional forms, from universities and faculties to colleges, academies, institutes and specialized centers, although with the persistence of certain structural features, including the collegiality of the academic communities, the systematic organization of knowledge and varying degrees of corporate autonomy. Historiographically, the passage from the medieval university to the modern university does not correspond to an instantaneous rupture, but to a staggered transition: the medieval *universitas*, understood as a juridical corporation of teachers and students, operated in Latin, rested on a remarkable supra-regional mobility and enjoyed relative autonomy within Latin Christendom; the first great movement took place between the end of the fifteenth century and the sixteenth century, when humanism, the Renaissance, the Reformation and confessionality reoriented curricula, clergy training, teacher recruitment and the relationship with territorial powers; and the second turning point, decisive for the modern university, is between 1800 and 1810, around the Berlin model associated with Wilhelm von Humboldt, although specialized historiography warns that 1810 should not be absolutized as a founding myth, since the German system was nourished by innovations before and after that date. In this sense, the interpretative sequence does not link a medieval *universitas* abruptly replaced by the modern university, but from the corporate and supra-regional *universitas* to the confessional and territorial university of the Modern Age, and from this to the research university of the nineteenth century, capable of integrating teaching, research, training and a new relationship with the State without suppressing academic autonomy [Verger, 1991; Shank, 2013; de la Croix *et al.*, 2024; Maag, 2016; Anderson, 2004; Ash, 2006; Carpentier, 2019; Benetot Pruvot & Estermann, 2018].

Illustration 1. Evolutionary Development of the University



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2. Basic functions of the university

As a long-standing historical institution, the university can be understood as an evolutionary form of higher education that, from the medieval *universitas* to the contemporary university, has preserved central functions of cultivation, production, transmission and critique of knowledge, as well as artistic creation and advanced training. In this framework, the community of teachers and students; that is, the academic community, constitutes the collective subject of that task; and, at the teaching level, the syllabuses or course programs fulfill a pedagogical orientation function, since they make explicit objectives, contents, methodologies, resources and evaluation criteria, ordering both the formative expectations and the judgments about the quality of what is taught and what is learned [Verger, 1991; Compagnucci & Spigarelli, 2020; Rumore, 2016; Gómez *et al.*, 2007].

With the historical expansion of knowledge, professions and social demands, institutions of higher education went beyond the classical framework of liberal arts, law, medicine and theology. From this process emerged a growing curricular and institutional diversification, organized into faculties, schools, colleges, departments, and institutes, and articulated today, with national variations, in undergraduate and postgraduate trajectories, often structured in successive training cycles [Shank, 2013; Verger, 1991; Jungblut *et al.*, 2020; Lažetić, 2010].

In curricular terms, a curriculum is an organized structure of subjects and academic activities aimed at achieving training outcomes defined within a program. A curriculum usually integrates compulsory courses, fundamental components and elective spaces, as well as seminars, internships, laboratories, clinics, auditions, field trips and exams; and each curricular unit is usually described by relatively stable elements, including name, coding, workload, location in the training itinerary, prerequisites, objectives, contents, methodology, assessment modalities, resources, and bibliography [Wang, 2015; Gómez, 2007; Barthakur, 2022; Rumore, 2016].

One of the historical functions of the university has been to confer degrees and titles as formal recognition of the satisfactory completion of a training itinerary. However, in the medieval university

these degrees were not simply equivalent to contemporary degrees: they were closely linked to the *licentia docendi* and were gradually structured during the twelfth and thirteenth centuries, with differences between Paris, Bologna and other *studies*. Therefore, it is not necessary to indicate that universities arose only around the year 1215; that date corresponds, rather, to a Parisian normative milestone within a previous institutional process [García and García, 1991; Wei, 2012; Verger, 1991].

The medieval hierarchy of degrees (bachelor's, licentiate, and master's or doctorate) expressed differentiated levels of training and, in various contexts, of qualification for teaching. With the progressive growth of the fields of knowledge and professions, this initial architecture gave way to an increasing specialization of disciplines, trades and training trajectories. In contemporary higher education, this specialization is usually channeled through postgraduate programs, specialization certificates, and continuing education modalities, according to the normative configuration of each national system [Schwinges, 1991; García & García, 1991; Jungblut, 2020; Bournier, 2001].

It is not historiographically certain to maintain that the first degree of doctor was awarded in Paris, in a fully defined way, in 1130. It is most prudent to point out that the doctorate, etymologically linked to the Latin *docere*, was gradually consolidated in the medieval higher faculties, especially in law, medicine and theology, with special relevance in Paris and Bologna. In contemporary times, the doctorate has diversified into research and professional modalities, and in some systems it coexists with superior or complementary forms of accreditation; however, it continues to represent, as a general rule, the highest academic degree conferred by the university [García and García, 1991; Wei, 2012; Ruano-Borbalan, 2022; Bournier, 2001].

When the available knowledge is insufficient, controversial, debatable or susceptible to revision, the university is configured as a privileged space for research, understood as a systematic practice of production, contrast and expansion of knowledge through defined questions, explicit methods, communicable procedures and results subject to scrutiny. For this reason, in many higher education systems, research is articulated with teaching and with the requirements for completion of studies through projects, final projects, monographs, theses and dissertations, in continuity with the long historical relationship between teaching and inquiry [Neumann, 1992; Brew, 1995; Robertson & Bond, 2005; Mieg, 2019].



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3. General characteristics of the contemporary university

Since the formation and expansion of monastic, cathedral and palatine schools, and their subsequent transformation into *studia*, *studia generalia* and *universitates*, higher education has always required considerable material support: buildings, books, institutional income, stable teachers and, in many cases, support for the maintenance of students. However, the organization and financing of these institutions has varied historically. Over the long term, higher education has taken various forms of patronage and governance, including ecclesiastical, municipal, princely, state and, in contemporary times, both public and private arrangements. Thus, rather than describing universities as "enterprises" in the strict sense, it should be noted that some institutions operate under private law regimes – sometimes market-oriented and, depending on the national context, even for-profit – while others, and often those with greater systemic responsibility for coverage and funding, operate as public universities supported primarily by state resources [Verger, 1991; Schwinges, 1991; Geiger, 1988; Buckner & Khoramshahi, 2021].

From the perspective of the public, the state or public university is indeed due to social scrutiny and mechanisms of public responsibility, but this principle coexists with another equally decisive one: university autonomy. In many higher education systems, this autonomy is recognized or protected by constitutional, legal or regulatory provisions, and translates into the institutional capacity to define governance structures, organize dependencies, establish collegiate bodies and bodies, set training levels and programs, adopt quality assurance policies and regulate academic rights and duties. Historiographically and in a comparative key, the tension is not, therefore, between autonomy and control as exclusive terms, but between autonomy and accountability, that is, between the institutional freedom necessary to fulfill the university mission and the demands of transparency,

evaluation and responsibility to society and the State [Lemaitre, 2020; Sursock, 2020; Kallio *et al.*, 2021; Hoecht, 2006; Spannagel, 2024].

In this framework, university quality should not be reduced to a mechanical sum of isolated features or exhausted in the triad "infrastructure, quality and coverage", but should be understood as a multidimensional condition that integrates, at least, sufficiency of physical and technological resources, qualification of the teaching staff, solidity of the support staff, curricular rigor and flexibility, student services, digital skills, etc. training relevance, research, employability and mechanisms for assurance and continuous improvement. From this perspective, a quality university is one that adequately articulates these dimensions in favor of learning, comprehensive training, knowledge production and social projection, without dissolving academic demands into merely administrative or commercial criteria. In addition, in recent literature, the quality of higher education appears increasingly associated with the institutional capacity to integrate digital platforms, strengthen the links between training and the world of work, and sustain an organizational culture of evaluation and permanent improvement [Abbas, 2020; Toscano-Hernández, 2024; Salama & Hinton, 2023; Habib, 2023; Abelha *et al.*, 2020].

4. The infrastructure of the public university

The university infrastructure, in accordance with the instruments of physical planning and management of the campus, must be conceived as an integrated system of open spaces, buildings, technical networks and support services that guarantees accessibility, safety, habitability and sustainability. On established university campuses or cities, this implies legible spatial organization, adequate signage, reasonable priority for pedestrian and bicycle mobility over motorized traffic, and effective provision of energy, water, sanitation, communications, and waste management. Likewise, the scale of these complexes requires well-being facilities – food, hygiene, recreation and support for university life – compatible with the daily intensity of their academic and social uses [le Pira *et al.*, 2024; Zhang *et al.*, 2020; Aceves-Ávila & Berger-García, 2019; Vidalakis *et al.*, 2013].

Academic spaces must correspond to the diversity of university practices: teaching, autonomous learning, experimentation, creation, deliberation and extension. Hence, a quality infrastructure includes classrooms, laboratories, workshops, libraries, reading rooms, auditoriums, clinics, sports venues and other formal and informal learning environments; In addition, depending on the institutional nature, it can be extended to external specialized locations such as university hospitals, experimental farms, museums, observatories, reserves and field stations. This spatial network also includes administrative areas, archives, warehouses, parking lots, and places suitable for permanence and teaching work [Leijon *et al.*, 2024; Papaioannou *et al.*, 2023; Lotfy *et al.*, 2022; Cunningham & Walton, 2016].

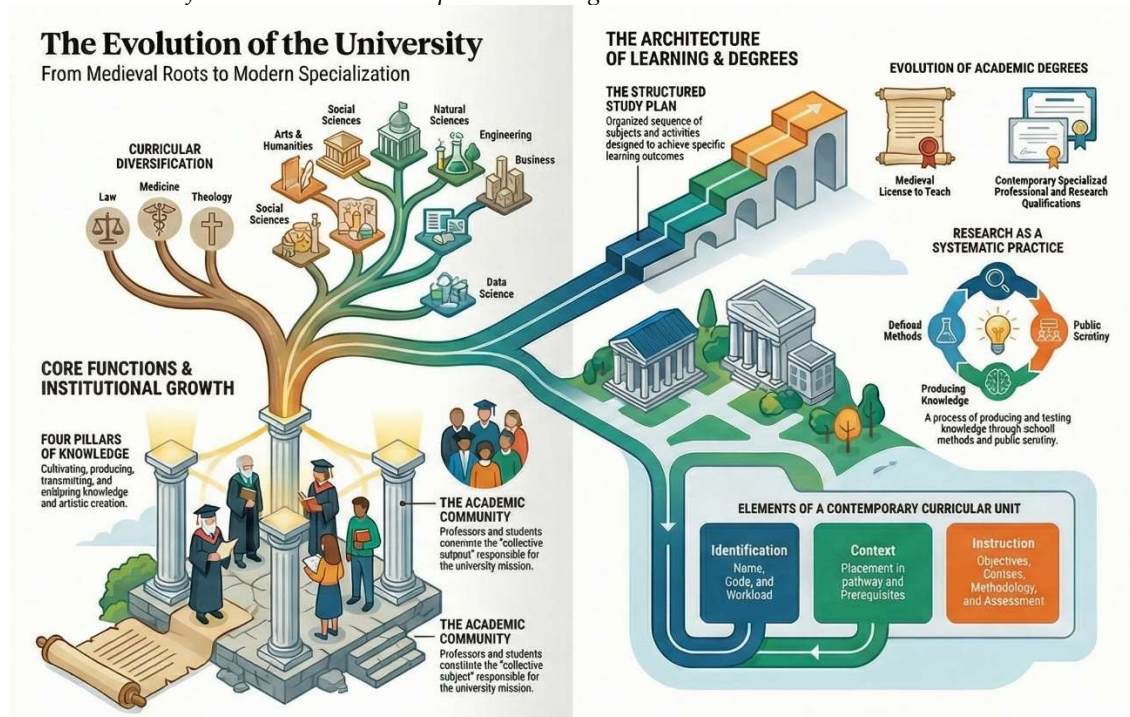
In the same sense, research, knowledge transfer and interaction with society require specific infrastructures – institutes, centres, laboratories, shared platforms and liaison offices – whose availability, governance and updating condition the university's capacity to produce science and innovation. Therefore, infrastructure should not be reduced to a sum of movable and immovable property: it constitutes a set of institutional resources and capacities whose performance depends on preventive and corrective maintenance, technical management and investment decisions that avoid deterioration, obsolescence and underutilization [Jürgens *et al.*, 2024; Rådberg & Löfsten, 2023; Abisuga *et al.*, 2020; Aceves-Ávila & Berger-García, 2019].

From the first work on packet switching and distributed networking in the 1960s, through the entry into operation of the ARPANET in 1969, the use of electronic mail in 1971, the formulation of the TCP

protocol in 1974 and the transition to TCP/IP in 1983, to the proposal of the World Wide Web in 1989 and its initial public dissemination in 1991, Contemporary digital infrastructure has expanded rapidly. In this process, browsers, search engines, messaging, information platforms and online services emerged that transformed daily life, social communication, the economy and the production of knowledge. More than a simple technical tool, the Internet became a general infrastructure of social life, so that digital and computational skills are today increasingly relevant conditions for academic, labor and civic participation [Cerf & Kahn, 1974; Leiner *et al.*, 2009; Naughton, 2016].

In the contemporary university, the technological infrastructure comprises not only hardware, software, networks and bandwidth, but also learning management platforms, cloud services, data analytics, cybersecurity, technical support and digital skills of teachers, students and administrative staff. This infrastructure expands the university's radius of action in teaching, research, management and social interaction through remote, hybrid and virtual modalities, and inserts it into broader processes of digital transformation associated with the Internet of Things, extended reality, big data, machine learning and artificial intelligence. Consequently, their value lies not only in the availability of equipment, but also in the institutional capacity to integrate them pedagogically, organizationally, and strategically [Castro Benavides *et al.*, 2020; Habib, 2023; Lamb, 2022].

Illustration 2. Infrastructure and development challenges



Source: infographic of the content of the text obtained with AI.

In the Justinian compilation promulgated in 533, in particular in the *Digestum seu Pandectae*, the term *universitas* designated a collective or corporate body—a legally recognizable community, college, or association—and not yet an institution of higher learning in the modern sense. In the medieval Latin West, especially throughout the thirteenth century, this word was clarified through formulas such as *universitas magistrorum et scholarium* or *universitas studii* to designate the corporation of teachers and scholars who taught and studied under a common statute. Therefore, in the strict historical sense, the medieval university community must be understood above all as a corporate community of teaching and study, endowed with a certain autonomy and its own normative capacity. At present, however, the expression "university community" is usually used in a broader sense, which includes not only professors and students, but also administrative and technical staff, graduates and, depending on the

institutional context, other actors linked to university life [Mansell, 2020; Rüegg, 1991; Verger, 1991; Jongbloed *et al.*, 2008].

In institutional practice, however, the effective participation of the different members of the university community is not evenly distributed. In many systems, collegiate governing and decision-making bodies have traditionally been more closely linked to faculty and, to a lesser extent, student representation, while non-academic staff, alumni and other external actors occupy variable – and sometimes secondary – positions depending on the regulations and governance model. The comparative literature shows, on the one hand, that the inclusion of students, non-academic staff and external members today responds to demands of accountability, social openness and connection with the environment; and, on the other hand, that the persistence of collegial forms and academic self-governance continues to give the teaching staff a particularly strong role in university management. At the same time, contemporary transformations have made the role of professional and administrative staff more visible in a hybrid space between the academic and managerial spheres, while the link with graduates and other stakeholders depends to a large extent on the institutional relationship strategies and organizational culture of each university [Jongbloed *et al.*, 2008; Bennetot Pruvot & Estermann, 2018; Rhoades, 2020; Whitchurch, 2008; Baroncelli *et al.*, 2022].

5. The quality of the public university

In higher education, quality should not be reduced to a vague notion of superiority or excellence, but should be understood as a multidimensional and contextual concept that allows an institution, program, or process to be evaluated based on its purposes, its results, its standards, and the legitimate expectations of its stakeholders. In this perspective, university quality includes features related to design, consistency, relevance, formative transformation, institutional reliability and the capacity for continuous improvement. Historically, moreover, the notion has evolved from approaches focused on the control and correction of failures to more complex frameworks of quality assurance, management, and culture, in which evaluation, self-regulation, accountability, and institutional improvement converge [Harvey & Green, 1993; Welzant, 2015; Harvey & Stensaker, 2008, Prakash, 2018].

In the university environment, quality is expressed in several interrelated dimensions: curricular and organizational design, conformity between what is planned and what is actually offered, academic and scientific results, reasonable satisfaction of students and other stakeholders, and the public legitimacy that the institution builds through its performance. Therefore, it is not enough to associate quality with the "production" or "distribution" of educational goods and services; it is more accurate to understand it as an articulation between inputs, processes, results and social recognition. In this logic, the curriculum, the evaluation mechanisms, the coherence between mission and practice, and the institutional trust inspired by the university constitute central parameters for the appreciation of quality in higher education [Widrick, 2002; Welzant, 2015; Seyfried & Pohlenz, 2018].

In contemporary universities, quality is increasingly articulated through standardization, accreditation and assurance frameworks that seek to make programs comparable, strengthen public trust, facilitate academic mobility and promote continuous improvement. In this sense, the evaluation of degrees and programs not only pursues formal homogenization, but also the transparency of standards, the legibility of training trajectories and the construction of conditions of inter-institutional recognition. University quality management is also projected on the governance of educational processes, the organization of information, the traceability of decisions, risk management and, increasingly, institutional and environmental sustainability [Babikir Ali, 2018; Wilkerson, 2017; Stensaker, 2008].

One of the nuclei of university quality lies in curricular design. Rather than a uniform length of teaching periods or a rigid number of credits, the quality of a curriculum depends on the coherence between learning outcomes, content, training activities, assessment methods and the student's actual workload. In contemporary higher education systems, academic credits are used as units of measurement of the volume of learning and the total work required, but their time equivalence varies by country and regulatory framework. Therefore, any statement about standard weeks or fixed equivalences should be formulated with caution and always placed within the specific regulatory system referred to [Wang, 2015; Alshamy, 2017; Impola, 2025; Kember, 2004].

University subjects can take very different forms – theoretical, theoretical-practical, practical, clinical, laboratory, workshop, consultancy or creative – which is why the allocation of credits and the distribution between face-to-face, guided and independent work do not admit a universal and automatic formula. Rather than establishing a single and invariable relationship, curriculum design must estimate the workload in a situated manner, taking into account the learning outcomes, the type of activity, the pedagogical method and the real experience of the students. Consequently, the calibration of credits and dedications should be conceived as a reviewable academic operation, supported by evidence on effective load, student perception, and learning achievements [Kember, 2004; Kyndt *et al.*, 2014; Souto-Iglesias *et al.*, 2011; Impola, 2025].

From a curriculum design perspective, credit allocation should be derived from the total academic work time required to achieve certain learning outcomes, and not just from the number of class hours. Therefore, although it is possible to construct arithmetic examples of equivalence between weekly hours, independent work and credits, such exercises have illustrative and not normative value outside the system that defines them. In academic terms, the substantive thing is that the teaching community and the curricular instances periodically adjust the expected workload to the reality of learning, avoiding both overload and underestimation of training demands [Alshamy, 2017; Impola, 2025; Kember, 2004; Souto-Iglesias *et al.*, 2011].

Degree requirements are also a relevant component of the perceived and effective quality of university education, but their configuration varies according to the level, discipline, program orientation, and institutional regulations. In the undergraduate level, they can include transversal courses, language proficiency, internships, internships, final projects or professional bonding experiences; In the master's degree, they are usually differentiated according to whether it is a professionalizing or investigative modality; and in the doctorate, the preparation and defence of a thesis or equivalent that aspires to make an original contribution to knowledge or creation continues to be central. Therefore, rather than a universal list of requirements, it is appropriate to speak of differentiated degree architectures, whose legitimacy depends on their coherence with the training objectives and with the corresponding academic level [Abelha *et al.*, 2020; Ruano-Borbalan, 2022; Baptista *et al.*, 2015; Bourner *et al.*, 2001].

6. Evaluation in the university context

Although teaching is one of the substantive functions of the university, evaluation crosses all academic life in a transversal way, because all knowledge, performance or intellectual production requires contrast, evaluation and feedback. In the university environment, evaluation does not only mean grading learning; it also involves estimating knowledge, skills, attitudes and performance of students, teachers and researchers, as well as valuing processes and results related to research, creation, innovation, knowledge transfer and social projection. For this reason, university evaluation must specify what is evaluated, with what criteria, through what procedures, at what times, for what

purposes and who is entitled to make judgments. Consequently, evaluation involves applying explicit rules, contrasting evidence with defined referents, producing well-founded judgments, and generating useful information to construct indicators, recognize merits, guide improvement plans, strengthen institutional quality, and support certification and quality assurance decisions [Black & Wiliam, 1998; Sadler, 1989; Compagnucci & Spigarelli, 2020; Frondizi et al., 2019; Eaton, 2021].

In a first approximation, university evaluation can be understood from its purposes, approaches, functions and forms. Its central purposes are to measure and qualify; its approaches combine quantitative and qualitative perspectives; and its functionality can be diagnostic, formative or summative, depending on whether it is aimed at identifying initial conditions, accompanying learning or certifying results. From the point of view of forms, evaluation adopts modalities of self-evaluation, co-evaluation and heteroevaluation, whose articulation favors the responsible participation of academic actors and a richer understanding of performance. In this framework, the university evaluates learning, training processes, teaching performance, academic management, and project results, and uses the information obtained as a basis for pedagogical, curricular, and institutional decision-making [Sadler, 1989; Dochy et al., 1999; Falchikov & Boud, 1989; Topping, 1998; Iglesias Pérez et al., 2022].

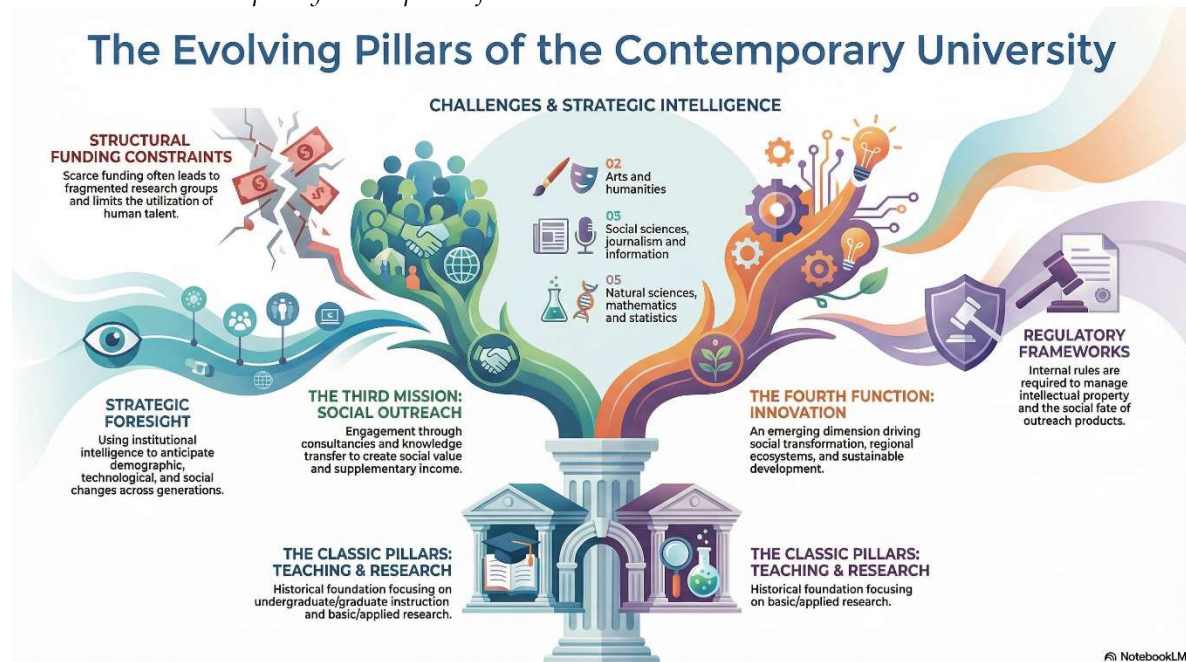
In a second analytical formulation, evaluation can be organized according to its functionality, its referents, its forms, its temporality and its significance. Functionality continues to respond to diagnostic, formative and summative purposes; referents refer to what serves as a basis for judging, that is, capacities, performances, subjects, groups, criteria, rules and regulations; the forms include self-evaluation, co-evaluation and heteroevaluation; and temporality can be initial, processual or final. From this perspective, evaluation acquires meaning as the production of information, grounded measurement, comparison with explicit referents, evaluative judgment, and decision support. Understood in this way, evaluation is not an isolated or merely terminal act, but a systematic process that relates evidence, criteria, and decisions to guide academic and institutional improvement [Carless et al., 2006; Siskos et al., 2001; Ibarra-Sáiz et al., 2021].

In a third approach, evaluation can be described in terms of objectives, processes, and goals. Its main objectives are to diagnose, assess, qualify and compare; its processes include the definition of tasks, norms, times, agents and methods, as well as data collection, evidence analysis, the formulation of judgments and the communication of results; and its goals are expressed in decisions to improve, promote, certify, accredit or redefine practices. In this sense, the methods can include projects, observation, simulations, case studies or other strategies congruent with the learning outcomes and with the nature of the object evaluated. For evaluation to be rational, objective, and relevant, it must be based on explicit attributes of quality, criteria of validity and efficiency, and implicit considerations related to the integral formation of the student and the quality of university processes [Black & Wiliam, 1998; Carless et al., 2006; Ibarra-Sáiz et al., 2021; Reddy & Andrade, 2010].

None of the above models endorses a discretionary evaluation, since the university — and, especially, the public university — is based on principles of deliberation, argumentation, publicity of criteria and academic responsibility. Hence, heteroevaluation must be carried out by formally competent teachers or evaluators, according to precise guidelines, explicit criteria and previously established standards. Consequently, the subjects and activities enrolled must be evaluated using known instruments, such as rubrics, guides or evaluation matrices, while seminars, qualification exams, project defenses and thesis defenses must be developed before evaluators or juries authorized to observe, interrogate and judge based on shared standards of quality, validity and transparency [Reddy & Andrade, 2010; Cockett & Jackson, 2018; Stephenson et al., 2025; Stephenson & Jackson, 2025].

In matters of teaching or research, an academic peer is a specialist with recognizable competence in the disciplinary, professional or methodological field corresponding to the object evaluated. His legitimacy comes not only from his academic degree, but also from his experience in similar processes, his ability to apply technically relevant criteria and his commitment to impartiality, objectivity and reasoned argumentation. Therefore, the selection of academic peers requires correspondence between expertise and object of evaluation, familiarity with the standards of the area, absence of biases or relevant conflicts of interest, and willingness to issue evidence-based concepts. Only under these conditions does peer review reliably contribute to quality assurance in teaching, research, and advanced training [Bornmann & Daniel, 2007; Zimba & Gasparyan, 2021; Langfeldt *et al.*, 2024].

Illustration 3. Contemporary Development for Public Education



Source: infographic of the content of the text obtained with AI.

7. The coverage of the public university

The expansion of quality coverage in university education cannot be dissociated from the general expansion of higher education. Within the framework of tertiary education, technical-professional, technological and university trajectories coexist, with differentiated training profiles, although not hierarchically simple or linear. Indeed, many non-university institutions achieve high levels of academic performance; however, the university is usually recognized as the institution most visible and strategically associated with the scientific, technological, social and economic development of nations. In this scenario, the demand for higher education is mediated by expectations of social mobility, cultural and family capital, previous school trajectories, academic competencies, costs and territorial conditions; On the other hand, the supply depends on public policy decisions, financing, institutional capacity, infrastructure and curricular organization. When these variables do not evolve in a convergent manner—and particularly when gaps persist in prior training and in the socioeconomic conditions of access—coverage, especially in the public sector, tends to be insufficient in the face of the magnitude and diversity of demand [Wanti *et al.*, 2022; Phyo & Ilie, 2025; Barbosa-Camargo *et al.*, 2021; Zahl-Thanem & Rye, 2024].

In public universities, one of the most persistent tensions in terms of coverage comes from the strong asymmetry between supply and demand. When school systems do not ensure robust and continuous processes of formative assessment and strengthening of competencies during secondary education, the mechanisms of access to higher education tend to rely disproportionately on terminal evaluations, such as standardized state tests or entrance exams. Added to this is a second obstacle: the lag of the physical and technological infrastructure in the face of enrollment growth, which translates into campus congestion, space limitations, pressure on laboratories, classrooms and services, and difficulties in expanding campuses or regionalizing the offer. A third problem lies in the insufficient systematic evaluation of curricula and curricula; without periodic diagnostic review and improvement processes, institutions have less capacity to preserve what works, reform what is pertinent, and correct what has lost validity or academic effectiveness [Gallegos Mardones & Campos-Requena, 2021; Ramolobe *et al.*, 2024; Soomro *et al.*, 2020; Tight, 2024].

From the perspective of supply, higher education systems present a growing diversification of programs, denominations and curricular structures, frequently influenced by sectoral demands, labor market transformations, institutional differentiation processes and academic positioning strategies. This diversity can be valuable, but it also generates heterogeneity in the nomenclature of degrees, in the organization of subjects and in the delimitation of contents, even within apparently related areas. In order to order this complexity comparatively, the UNESCO Institute for Statistics proposed the International Standard Classification of Education and Training Fields ISCED-F 2013, structured into eleven broad fields: generic programmes; education; arts and humanities; social sciences, journalism and information; business administration, law and related disciplines; natural sciences, mathematics and statistics; information and communication technologies; engineering, industry and construction; agriculture, forestry, fisheries and veterinary medicine; health and well-being; and services. Beyond the discussions that this taxonomy may provoke, its adoption offers a useful basis for international comparability, supply reorganization, statistical harmonization, and academic internationalization processes [UNESCO Institute for Statistics, 2014; Tight, 2024; Camacho *et al.*, 2026].

In a decisive dimension of university quality, higher education depends on human talent responsible for two central functions: teaching and administration. In public universities, the organization of these two areas is usually closely linked to state regulatory frameworks, so that the regimes of linkage, responsibility, financing and control do not depend exclusively on institutional will, but also on constitutional, legal and administrative provisions. Hence, university autonomy should not be understood as isolation from the State, but as a capacity for self-government exercised within a broader legal framework that delimits competencies, responsibilities and forms of accountability. Consequently, the public university organizes its missional purposes, its academic structure, and its administrative decisions in a permanent—and sometimes tense—relationship between institutional autonomy, state orientation, public responsibility, and quality requirements [Bernasconi, 2025; Lackner, 2024; Atanaw *et al.*, 2025].

Within this framework, the public university develops its internal governance through general statutes and specific regulations that translate the superior legal framework into rules of institutional operation. These normative instruments organize university life in aspects such as academic organization, research, financial management, interaction with society, intellectual property, evaluation procedures, permanence, incentives, disciplinary regime and participation in collegiate bodies. More than a simple set of administrative provisions, these statutes and regulations constitute the normative architecture through which the institution articulates autonomy, transparency, responsibility and participation of its different levels. Therefore, the quality of university governance depends to a large extent on the clarity of these rules, its internal legitimacy and its ability to guide

decisions consistent with the institutional mission and with the expectations of academic and social actors [Raza *et al.*, 2025; Jongbloed *et al.*, 2018; Atanaw *et al.*, 2025].

Due to the impact of external public service regimes or state regulation on personnel management, in the public university it may happen that the conditions of access, permanence, performance evaluation and promotion of administrative staff are not entirely under the control of the institution. Precisely for this reason, the university must take the principles of publicity, transparency, merit and equity to the extreme in its selection, evaluation and permanence processes, so that the university administration is not only legally valid, but also functionally effective and legitimate in the eyes of the academic community. Recent literature also shows that the quality of administrative work has a direct impact on the student experience, on the continuity of academic processes and on the institutional capacity to implement its strategy, so that the professionalization of this body is not an accessory matter, but a condition of effective university governance [Luthuli *et al.*, 2024; Al Gharsi *et al.*, 2024; Atanaw *et al.*, 2025].

Teaching staff is usually considered the main intellectual asset of the university, insofar as they embody teaching, research, creation and a large part of institutional academic management. In public universities, the categories, dedications, career trajectories, evaluation criteria, salary conditions and disciplinary regimes are usually strongly conditioned by national or supra-institutional provisions, which are then developed through their own statutes and regulations. For this reason, the university does not define these aspects in a regulatory vacuum, but rather at the intersection between institutional autonomy, state regulation and the participation of the teaching staff itself in university governance. The preservation of academic quality requires, therefore, clear rules for the teaching career, legitimate mechanisms for the participation of academics in university governance, and sufficient margins of autonomy to align the management of the teaching staff with the training and research mission of the institution [Bernasconi, 2025; Hai & Anh, 2022; Al Gharsi *et al.*, 2024].

From the point of view of academic registration, traceability and certification, the status of student is formalized through admission and current enrollment in an academic program, a link that must be renewed according to the temporal organization of the curriculum until the completion of the curriculum. On this basis, universities structure student regulations that order the academic career, specify rights and duties, regulate evaluation, permanence and graduation, and establish guarantees of due process in disciplinary matters. Far from being a bureaucratic appendage, this normative and documentary scaffolding is indispensable for mobility, certification, student participation and the integrity of university life. Hence, registration systems, enrollment rules, and mechanisms for student representation and participation are a substantive part of higher education governance [Assaf *et al.*, 2022; Haque & Sultana, 2022; Planas *et al.*, 2013; Carey, 2013].

8. The functions of the contemporary university

Based on its historical trajectory, it can be said that the classic functions of the public university have been teaching and research: the first, at the undergraduate and postgraduate levels; the second, in basic and applied modalities, and through qualitative and quantitative approaches. In Latin America, however, the consolidation of research-intensive universities has been slower and more uneven than in other regions, although Brazil has occupied a particularly important place in this process. In many Latin American public universities, research activity falls mainly to professors and graduate students organized in groups that often operate in a fragmented manner and under unstable funding conditions. In such circumstances, competition for scarce funds tends to disperse efforts, hinders the consolidation of robust academic communities, and limits the full use of capacities already installed in human talent, laboratories, and infrastructure. Therefore, rather than an absolute lack of capacities,

the central problem usually lies in the absence of sustained policies for articulation, investment and financing of research [Arocena & Sutz, 2001; Arocena & Sutz, 2005; Balán, 2014; Fischman & Ott, 2018].

It is precisely the structural financing constraints faced by many public universities that have driven the search for complementary sources of sustainability through a more active relationship with their social and productive environment. In this context, university extension has been strengthened, understood as the dimension of linkage, transfer and interaction of the university with external actors, until it is widely recognized as an expression of the so-called third mission. Through consultancies, expert opinions, continuous training, technical services and collaborative projects, the university not only obtains complementary income, but also projects knowledge, strengthens territorial ties and creates conditions for the transfer and social application of research results. The growing complexity of these activities has also required internal regulatory frameworks to organize the participation of university bodies, the use of institutional time and spaces, the management of intellectual property, functional compatibilities, possible disqualifications, and the academic, economic, and social destination of the products derived from extension [Compagnucci & Spigarelli, 2020; Perkmann *et al.* 2013; Morales Rubiano *et al.*, 2015].

In the light of the International Standard Classification of the Fields of Education and Training (ISCED-F 2013), university interaction can be examined through fields as diverse as arts and humanities (02), social sciences, journalism and information (03), natural sciences, mathematics and statistics (05), and health and well-being (09), among others. This classification highlights that the production, circulation and application of knowledge do not belong to a single field, but cross the whole of higher education in a transversal way. From this perspective, the transfer of knowledge and its conversion into solutions, technologies, social value and development find in innovation an increasingly decisive articulating axis. For this reason, an important part of the contemporary literature not only places innovation at the heart of the third university mission, but also begins to discuss it as an emerging dimension – and even, in certain approaches, as a possible fourth function of the university – especially when it is linked to social transformation, sustainability and regional innovation ecosystems [UNESCO Institute for Statistics, 2014; Villa-Enciso *et al.*, 2023; Arocena & Sutz, 2021; Morawska-Jancelewicz, 2022; Ruano-Borbalan, 2024].

In this way, within the framework of the third university mission, different forms of articulation between universities, the productive sector, public administrations and communities have acquired increasing relevance, aimed at strengthening processes of co-creation, transfer and experimentation in real contexts. These include the so-called *Living Labs*, understood as collaborative spaces where multiple actors participate jointly in the development of solutions to social, environmental and technological challenges, integrating teaching, research and interaction with the environment [Tercanli & Jongbloed, 2023; Morales *et al.*, 2023]. These experiences reflect an evolution of the contemporary university towards more open models of innovation and cooperation, in which the generation of knowledge begins to be more closely articulated with territorial dynamics, sustainability and applied learning [Comino *et al.*, 2025; Raunio *et al.*, 2023].

This transformation is also expressed in new forms of relationship between the university and the productive sector, not limited to technology transfer or the provision of specialized services, but progressively extended to the processes of academic training themselves. The participation of business and professional actors in postgraduate programs, collaborative projects, industrial doctorates, and emerging modalities of certification and continuous updating reflects a trend towards more flexible and interconnected models of higher education, in which the generation and application of knowledge are increasingly articulated with contemporary economic, social, and technological dynamics [Anzules-Falcones *et al.*, 2025]. In the same vein, student and faculty

mobility programs and international academic cooperation networks have contributed to strengthening the international circulation of knowledge, inter-university collaboration, and the construction of more open and internationalized academic environments.

9. Challenges of the contemporary university

Based on institutional strategic plans, global development plans, action plans and land use planning instruments, the public university faces very long-term challenges that go beyond an administrative period and, in many cases, even a generation. Therefore, the fulfillment of objectives and goals requires not only schedules and indicators, but also strategic foresight capabilities that make it possible to distinguish between possible, probable, and preferable futures, and translate that reading into timely institutional decisions. In this sense, future studies, scenario construction and strategic planning should not be understood as accessory exercises, but as permanent functions of institutional intelligence aimed at anticipating demographic, technological, social, territorial and regulatory changes, and to sustain a university leadership with a historical vision and the capacity for adaptation [Elena-Pérez *et al.*, 2011; Havas, 2009; Inga *et al.*, 2021].

One of the cardinal challenges of the public university is to exercise and defend university autonomy as a principle of responsible self-government, and not as isolation from the constitutional and legal order. In substantive terms, autonomy includes the institutional capacity to define its mission, designate authorities in accordance with its rules, adopt statutes and regulations, organize its curricula and guide its academic and administrative priorities within a legitimate legal framework. Hence, the university must strengthen participatory forms of governance, review its management structures with contemporary criteria and update in a harmonious way its general statutes and regulations related to academic staff, administrative staff, students, research, social interaction and innovation, in order to preserve internal coherence. transparency and decision-making capacity [Bernasconi, 2025; Ritzen, 2016; Raza *et al.* 2024; Lackner, 2024].

In connection with the above, the public university must expeditiously review its academic-administrative organization, not only to modernize organizational charts, but also to align functions, avoid duplications, improve coordination and respond with greater agility to contemporary quality demands. This review is more solid when it is supported by explicit methodologies for the distribution and evaluation of workloads, capable of reasonably articulating teaching, research, management and extension. In the same way, structural academic reforms need to be supported by curricular design fundamentals, training levels, physical infrastructure, and technological resources, and must be subject to permanent evaluation, both in their programs and in their results, to support improvement plans and high-quality accreditation processes [Barret & Barret, 2007; Tight, 2024; Lucander & Christersson, 2020; Makhoul, 2019].

In the field of education, the public university is called upon to attract good students through selection and admission mechanisms that are academically rigorous, but also equitable, inclusive and free of discrimination for ideological, gender or social reasons. Likewise, to the extent that there are comparable learning outcomes and compatible curricular frameworks, it is advisable to promote dual degree schemes and more flexible training paths, especially at the undergraduate and postgraduate levels. In this same horizon, internationalization requires clear policies for the incoming and outgoing academic mobility of students and professors, taking care that mobility is not reduced to an indicator of prestige, but that it is integrated into the academic project, strengthens cooperation and expands the quality of training [Gallegos Mardones & Campos-Requena, 2021; Knight, 2012; Shenderova, 2023].

A decisive factor is to provide teachers, students and administrative staff with effective conditions of well-being and adequate, safe and timely access to information, services and technological resources. Recent evidence shows that student and faculty well-being requires comprehensive institutional approaches, beyond fragmented responses, as well as organizational conditions that reduce overload, stress, and support gaps. At the same time, the university must sustainably update its technological infrastructure and its capacities in computing, communications, information systems, networks, digital platforms, learning algorithms and artificial intelligence, so that digital transformation does not aggravate pre-existing inequalities, but strengthens quality and inclusion. In this framework, it is also essential to consolidate a culture of responsible use of public goods, respect for the university community and care for the environment [Bannigan, 2025; Goodman Dlamini & Delight Dlamini, 2024; Rodríguez-Abitia *et al.*, 2020; Bond *et al.*, 2024].

In its external projection, the public university must affirm itself as an institution of reference for the formulation of public policies, regional development and the attention to complex problems of the territory. This function includes technically grounded advice to the different levels of government, contributions to territorial development, sustainability, resource management and the design of solutions to public problems. It is also responsible for strengthening its role in the documentation, preservation and social activation of tangible, cultural and intangible heritage, articulating research, teaching and commitment to communities. In this same logic, defining oneself as a university-region for the world implies combining territorial roots and international projection. Finally, a challenge that should not be underestimated is the reconstruction of stable ties with graduates, through identity strategies, mentoring, academic return, professional cooperation, and financial or institutional support [Fonseca & Nieth, 2021; Aranguren *et al.*, 2016; Frullo & Mattone, 2024; Weerts & Ronca, 2007; El-Awad *et al.*, 2024].

Finally, the public university needs global research plans that summon the capacities already existing in its different fields of training and orient them towards the study of the major problems of the region and the country. This challenge requires overcoming the dispersion of efforts, strengthening infrastructures and better articulating teaching, research, innovation and social interaction. In this context, extension, knowledge transfer, consulting, auditing and other forms of relationship with the environment should not be seen as marginal activities, but as strategic components of the third university mission. Well regulated, these functions expand the social impact of the university, favor innovation, strengthen territorial ecosystems, and can contribute to institutional sustainability without disfiguring the public character of the university [Compagnucci & Spigarelli, 2020; Hamilton & Philbin, 2020; The Houari & Fakhreddine Idrissi, 2024; Morales Rubiano *et al.*, 2015; Rentocchini & Rizzo, 2023].

10. Conclusions

The public university must be understood as a long-term historical institution, whose emergence and transformation show that it is not a fixed structure, but an organization that has changed with the times without renouncing its missional core: advanced training, the production and transmission of knowledge, critical deliberation and the contribution to social development. cultural, scientific, technological and economic. From this perspective, the contemporary university is not alien to its past, but the most complex expression of a historical trajectory in which knowledge, academic community, institutional organization and social responsibility are articulated. This understanding prevents it from being reduced to isolated indicators or exclusively administrative logics, since the public university expresses a transcendental responsibility to society and to the future.

The examination of the functions and benefits allows us to visualize that the public university fulfills its mission to the extent that it manages to coherently articulate teaching, research, extension or social interaction and innovation, within an academic and administrative structure capable of sustaining rigorous training processes, production of relevant knowledge and effective links with society. the productive sectors and the ecosystems of innovation and territorial development. None of these functions, by itself, is enough to define university plenitude. Teaching without research runs the risk of repeating itself; research without a social link may lose relevance; extension without academic rigor can be diluted in welfare; and innovation without public orientation can be subordinated to interests alien to the common good. In this framework, the university community – professors, students, administrative staff and, in an expanded sense, graduates and actors in the environment – is not an accessory element, but the institutional subject that makes university life and its public projection possible.

Likewise, it is clear that university quality must be understood as a multidimensional condition. It does not depend solely on prestige, coverage or short-term results, but is a multidimensional condition associated with the adequacy of funding, the soundness of the physical and technological infrastructure, the qualification of the teaching staff, the capacity of the support staff, the consistency and flexibility of the curricula, the culture of evaluation, the relevance of the programs and the institutional capacity for continuous improvement. In this sense, evaluation not only fulfills a measurement or qualification function, but also constitutes a central tool for diagnosing, feedback, accrediting, correcting, and guiding academic and institutional decisions. In other words, evaluating well means creating conditions to sustain academic excellence with social relevance, institutional transparency, and training commitment.

The reflection developed shows that university coverage is only legitimate when it is accompanied by real conditions of entry, permanence, training trajectory and graduation with quality. Therefore, the tension between social demand and institutional capacity highlights that the public university faces structural limits associated with insufficient resources, infrastructure lag, technological gaps, weaknesses in previous training, and the need to review its curricular and organizational programs. Increasing coverage without ensuring quality, evaluation and sustainability is tantamount to weakening the very mission of the university.

Finally, it is established that the challenges of the public university are not reduced to overcoming immediate material shortages, but rather compromise its ability to project itself strategically over time. Defending autonomy responsibly, strengthening participatory forms of government, modernizing the academic-administrative organization, guaranteeing financial sustainability, consolidating generational renewal, strengthening research, promoting internationalization, strengthening the relationship with graduates, studying the problems of the territory and expanding innovation and social interaction are decisive tasks for the public university to amplify its mission and its social effect. Consequently, the future of the public university will depend on its ability to be academically sound, socially relevant, institutionally transparent and strategically effective, effective and efficient, without abdicating its public, critical, democratic and inclusive mission. Only in this way will it expand its social effect in the country and in the world.

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