

# Knowledge Ecosystem in Latin America: Open Access, Metrics, Paradox and Contradictions

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The fractured look of the processes of knowledge management ends up having unfortunate implications on the national and institutional policies related to it. In turn, these result in decisions with consequences that deepen the inequalities of countries with few financial, technological, informational and educational resources. Because of this, it is necessary to search for ecosystemic views that allow having an integral perspective.

Figure 1 shows how any reading of knowledge production passes through the international and national context that influence the processes of academic, social and technological appropriation of knowledge, as well as the processes that compromised the main actors of the system #researchers, editors, communities, managers, government and companies. In turn, these actors are related through processes of education, research, communication, development and innovation, which eventually end up compromising resources, governance and ethics, both institutionally and nationally.

First, context analysis allows the asymmetries between countries to be tested in terms of their socio-economic, political, legal, and even cultural-historical conditions. For example, in the United States of America, Germany, Japan and China, which are countries that have over two centuries of consolidated infrastructures of knowledge, the investment in science and technology is seen as a capital that sustains the survival and competitiveness of these nations. In other words, these investments are strategic instead of being seen as a cost since it additionally impacts food companies, biomedicine (pharmaceutical and medical equipment), energy, mobility, communications and information, armaments, and even in those that control social matters.

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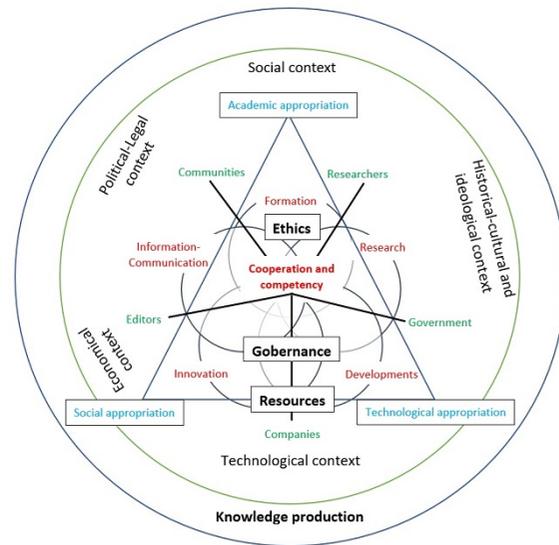
This is contrary to countries that due to their historical conditions of dependence, have been forced to stop strategic development processes in areas such as nuclear energy or biomedicine. Not to mention that part of the researchers who do not return from their excellency formation centers, but become part of the so-called "brain drain" since they end up being recruited by these institutions. Not to speak about other areas where investment in technology to research becomes unattainable due to the equipment costs, or, as has happened in recent years, that information infrastructure costs are so high that countries have to pay unmentionable amounts, which have made that even the wealthiest nations protest against these monopolies of information. This is reflected in the Leiden Manifest (2014) and the DORA declaration (2012), only to mention two of these initiatives.

It is evident that these asymmetries make it absurd to transfer policies as ways of governance from contexts as those to others where similar or comparable conditions do not exist. Neither is sustainable to try to incorporate evaluation exigencies to groups, researchers and editors of those contexts to ours, and even less to appropriate their metrics.

On the other hand, the actors responsible for education and research are central to the ecosystems of knowledge. They include, besides researchers, administrative staff who, in the case of the private universities, are subject to pressure from the markets, especially from marketing derived from the rankings and accreditation systems. In the case of public universities, they are subject to financial resources according to the standards that are generally imposed by policies that privilege political and economic interests of the government in charge.

The management of these ecosystems are expressed, as mentioned previously, regarding the communities, companies and government, which are users and demandants of knowledge that act as regulators of the system.

Figure 1  
Knowledge ecosystem



The system regulations are fundamentally related to resources that are the ones that guide and determined, and not on few occasions, researchers financing (salaries and incentives), research (privilege or deleted thematic from the research agenda), innovations (patents and registries), doctoral studies, research technologies (laboratories and research instruments), and knowledge infrastructures (libraries and journals databases). This might assure or bias the diverse types of appropriations.

### The knowledge ecosystem, open access and metrics

It is evident that Latin America is subdued to the pressures from the international context, and because it is considered as a fountain of emerging resources, it is also on the radar of information companies. Unfortunately, the asymmetries related to inequality do not allow that governance focus on the local or national interests that allow a self-sustainable ecosystem that prioritizes the national and local.

On the other hand, it is necessary to mention that, in the last years, multiple initiatives have emerged on the international contexts, consistent with the idea of modifying some

evaluation and measuring processes that debate that these metrics guide the research resources. The declarations of Berlin (2003), Leiden (2014), and DORA (2012) assume the commitment of open access to knowledge and emphasize the critic to the journal assessment as a whole, proposing as an alternative the metrics centered in the assessment of each product.

Prestigious institutions such as the Roya Society, the Pasteur Institute, the French CNRS, the National Institute for Health Research (NIHS), the Oxford's Universities, the Imperial College of London, also journals such as Nature the consortium PlosOne, directories like DOAJ and, this year, the European Association of Universities and the European Science, among other 800 institutions have added themselves to a coalition to sponsor the named Plan S, that looks to accomplish that all scientific publications are open access before 2021 (Science Europe, 2019).

The Plan S implement ten principles from which the 10 stands out: "The Funders commit that when assessing research outputs during funding decisions they will value the intrinsic merit of the work and not consider the publication channel, its impact factor (or other journal metrics), or the publisher" (Science Europe, 2019). This condition, for example, creates paradoxes about the national systems of Latin America that center their assessment and recognition processes on in metrics such as the impact factor of WoS and Scopus with indexes as the Journal Citations Report (JCR), the Scimago Journal Rank (SJR) and the CiteScore, that are based on this type of analysis. These measures, in our case, have deepened the asymmetries and inequalities, and the local knowledge devaluation; it has even caused the disappearance of the regional knowledge production (López-López, 2019a; López-López, 2019b).

One look to the knowledge ecosystem is fundamental to assume a decision-making perspective that protects, finances and produces sustainable systems of regional, national and local knowledge.

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