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## Case study in Uruguay

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This chapter analyses the Technological University of Uruguay UTEC's efforts to support entrepreneurship education, and knowledge transfer activities. It also studies the connections that the university has generated with external stakeholders through these activities in the ecosystem of Montevideo and at a national level.

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## Technological University of Uruguay (UTEC)

UTEC is a public university with a technological character, focused on research and innovation, and offers careers in engineering, arts and applied sciences. It has branches in eight regional departments outside the capital city of Montevideo (Colonia, Mercedes, Rio Negro, Paysandú, Durazno, San José, Maldonado, Rivera), and 4 000 students. The university's ambition is to foster technological development across countries and establish strong links with local communities and the productive sectors.

### ***Entrepreneurship education***

UTECinova is a department of innovation and entrepreneurship that aims to stimulate crosscutting capabilities, and foster research linked to the productive sector, whilst offering a technological services platform. The department aims to develop 21<sup>st</sup>-century competencies in students by offering a range of career paths based on a wide range of electives. In addition, all majors at the university require students to demonstrate a set of professional competencies, which include entrepreneurial aptitudes, and is offered to students on any career track with business ideas. Extracurricular activities at the university include hackathons, innovation weeks centred on problem-solving workshops and the 2018 Start-up Weekend, which allowed participants to receive support and feedback on their idea as well as foster exchanges with major enterprises.

### ***Connection with the ecosystem driven by entrepreneurship education***

UTEC is part of the *Uruguay Emprendedor* entrepreneurship network supported by the National Agency for Research and Innovation (ANII) and supports the development of local ecosystems. UTEC is collaborating with ORT University's Centre for Innovation and Entrepreneurship, as part of the "*ARENA emprendedora*" project, which aims to enhance the entrepreneurial skills of women on the Durazno, Mercedes, Paysandú and Rivera campuses.

The university also hosts Lab-A UTEC, a lab and space dedicated to digital technologies where students, professionals, artists and the community can exchange. The lab has a presence on three campuses: Durazno, Frey Bentos and Rivera. The lab also encompasses an incubation programme for technological entrepreneurship ventures. It offers a space for the design of electronic programmes and prototype conception, as well as support on how to obtain seed funding.

Furthermore, the Program for the Promotion of Research, Development and Innovation (IDEI) (*Programa de Fomento de la Investigación, Desarrollo e Innovación*) supports research, development and innovation and organises workshops to support creativity innovation, problem-solving, decision-making and collaboration. It also organises technological innovation projects with the industry sector, particularly enterprises in the agri-business sector.

### ***Impact of the COVID-19 pandemic on entrepreneurship education***

Over the space of two months, the university was able to transpose all activities to a virtual format of some kind, adapting most courses to student modalities. Lab activities were particularly difficult to adapt, however, and the adaptation process led to new types of virtual courses. The university also reported that sustaining human contact was challenging, particularly when it came to keeping in touch with entrepreneurs. This was managed by implementing regular virtual catch-ups with teams developing an entrepreneurial idea.

### ***Remaining challenges related to entrepreneurship education***

One of the university's future ambitions is to encourage the development of strategic research groups of an interdisciplinary nature, based on better identification of demands and gaps in the industry. There is also a desire to develop technology transfer offices (TTOs), which work on industrial property.

### ***Knowledge transfer strategy***

As a technical university, promoting technology transfer and innovation is a central part of its mission. In the university's strategic plan for 2021-25, the creation of a technological service platform and a technology transfer unit is highlighted. The university has a knowledge transfer strategy that is tailored to the needs of the ecosystem. Through its 11 campuses located across the country, it aims to bring education to remote territories (80% of the higher education offer is located in Montevideo) and enable higher participation of adults in the higher education system (which is low at 20%). The university also tailors its curriculum, research and transfer activities to adapt to the demands of local stakeholders. In fact, each campus was created to respond to local demands.

### ***Connection with the ecosystem driven by knowledge transfer activities***

Knowledge transfer activities are decentralised and carried out at the campus level. Each campus is located in a productive region. For instance, the campus located in the north of the country on the border with Brazil has a different specialisation in order to adapt to the productive industries present there (logistics and commerce) compared to the campus located in the southwest on the border with Argentina which links its activity with the export industry focused on dairy and agri-food products. Meanwhile, the university's geographically central campus specialises in sustainable development and renewable energy.

Each campus has the freedom to conduct its transfer activities through the channels considered appropriate and has a designated "transfer co-ordinator". The university regularly provides analytical services, consultancy and contract research to local businesses and the government. It also has open labs accessible to the community. Its main partners are private sector companies and local governments, but collaboration also takes place with national government agencies (such as the National Agricultural Research Institute and the National Patent Office). The university also collaborates with international entities and has recently developed a partnership with a coding boot camp, 4Geeks Academy, which offers coding and artificial intelligence courses in a short (four month) highly intensive format pioneering this modality among Latin American universities. This initiative is supported by the Inter-American Development Bank (IDB) and is carried out in consultation with the private sector.

Stakeholders reported during the interview a high degree of co-operation between campuses, despite their different specialisations. The Technological Services Platform (managed at the central level) includes dedicated personnel to support engagement activities and advise all campuses on technology transfer.

### ***Incentives for staff to engage in knowledge transfer activities***

Staff are able to benefit from an extra payment for their participation in projects and services related to transfer activities. During staff evaluations, knowledge transfer is considered as important as teaching and research activities. Academics also receive compensation if they agree to relocate to a city different to their city of origin.

### ***Remaining challenges related to knowledge transfer activities***

At present, a key difficulty is identifying the needs of the productive sector ecosystem. Traditional industries present in the country (for instance the agriculture industry) do not have the capacity to absorb technological innovation. In addition, most local businesses are small- and medium-sized enterprises (SMEs) with no previous experience of working with academic institutions. The university also faces internal obstacles such as incomplete policies and guidelines to promote knowledge transfer. There is also a lack of resources allocated to knowledge transfer, no specific budget line and no legal services to support the development of intellectual property. The university reported its ambition to incorporate staff with technological expertise.

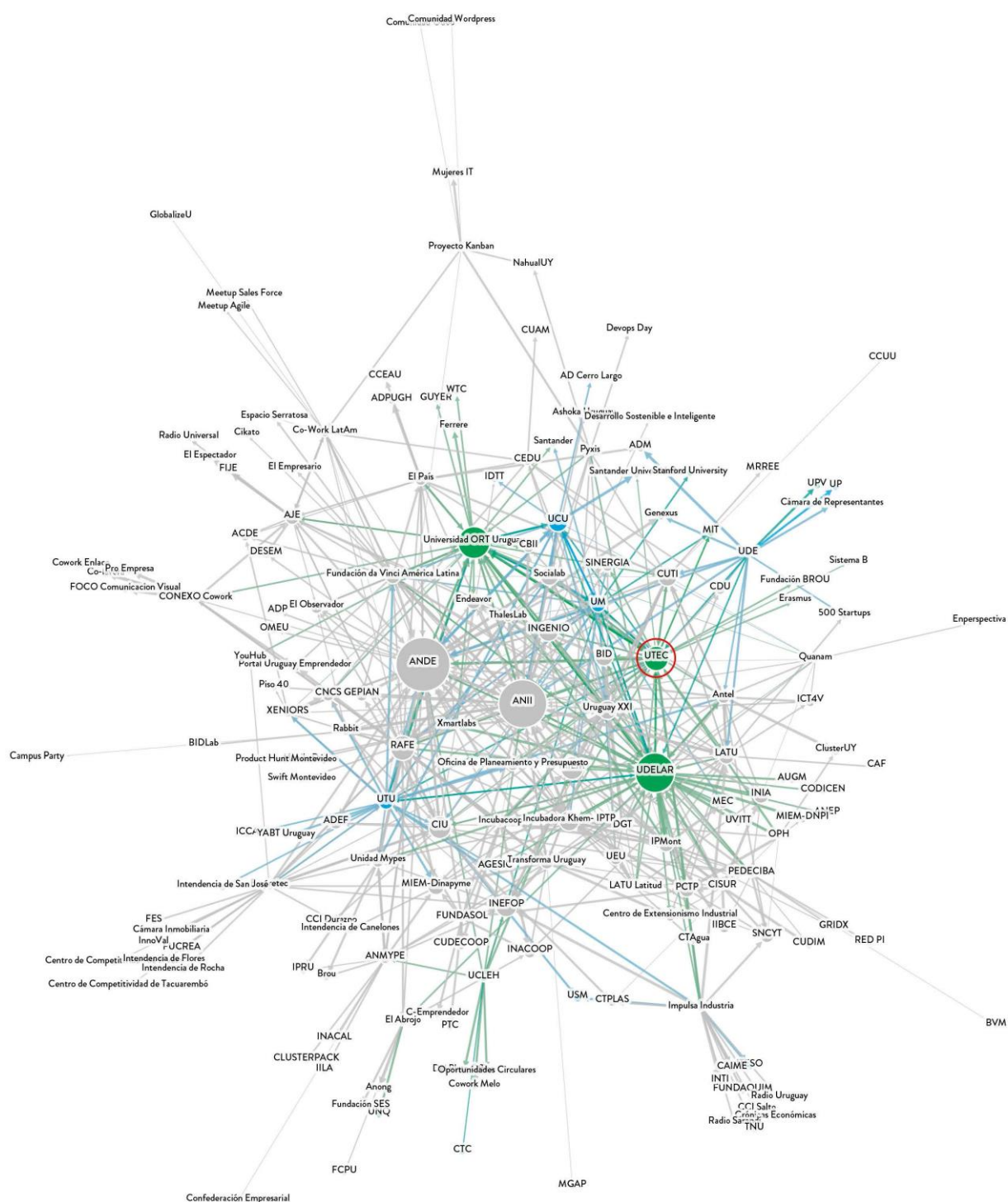
### **Ecosystem analysis of Montevideo and the role of UTEC**

As evidenced by the analysis carried out by Global Ecosystem Dynamics in collaboration with MIT D-Lab and supported by UTEC and ANDE as part of its Participatory Innovation Ecosystem Mapping of the innovation-driven entrepreneurial economic ecosystems of Montevideo, UTEC is a significant player within it.

Fifteen universities were identified within the Montevideo ecosystem (Tedesco, 2022<sup>[1]</sup>). Of these, seven are knowledge generators and eight are enablers. The University of the Republic, ORT Uruguay University, UTEC and the Catholic University of Uruguay have a solid position in the ecosystem, and they are considered gravitational centers.

It is worth noting that UTEC, despite not having a physical academic presence in Montevideo, given it is focusing its efforts on other parts of the country, is a fundamental actor in Montevideo's ecosystem structure, indicating its potential as a redistributor of resources from the entrepreneurial and innovation pole of the capital to the rest of the country.

Figure 9.1. Ecosystem analysis of Montevideo and the role of the UTEC



Note: This figure provides a visualization of the collaborations between actors of Montevideo's innovation-driven entrepreneurial ecosystem with a node size dependent on the number of mentions by other participants and the strength of said mentions (weighted in degree), highlighting in blue the universities categorised as Enablers, those focusing primarily on education and capacity building, and in green the universities categorised as Knowledge Generators, those focusing primarily on research and the development of new technologies. These visualisations, along with the interpretation of each node's centrality metrics, allow for the analysis of the positioning of universities mentioned within their innovation-driven entrepreneurial economic ecosystem.

There could be a dissonance between what the university sees as its presence in the ecosystem and what this independent mapping exercise finds. Data collection for each ecosystem was conducted by first identifying as many actors as possible through desk research, which were in turn invited to attend a workshop on strengthening innovation-driven entrepreneurial economic ecosystems and fill an online survey regarding their social dynamics with other actors.

Source: Tedesco, M. (2022<sup>[1]</sup>), "How and why to study collaboration at the level of economic ecosystems", *D-Lab Working Papers*, MIT D-Lab, Massachusetts Institute of Technology, Cambridge.

## Reference

- Tedesco, M. (2022), "How and why to study collaboration at the level of economic ecosystems", [1]  
*D-Lab Working Papers*, MIT D-Lab, Massachusetts Institute of Technology, Cambridge.

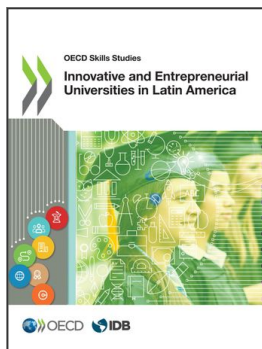
**OECD Skills Studies**

# **Innovative and Entrepreneurial Universities in Latin America**

The review examines how higher education institutions are supporting innovation and entrepreneurship in their surrounding communities. The study focuses on eleven universities located in six countries in Latin America: Chile, Colombia, Mexico, Brazil, Argentina and Uruguay.

The study finds that selected institutions are actively supporting entrepreneurs (university students, but also local entrepreneurs) through courses, incubation and acceleration activities. It also shows that universities are actively engaging with external stakeholders in their surrounding communities, to spur innovation through joint-research, organisation of events (such as festivals, competition). It finds that while COVID-19 pandemic brought about some challenges, universities managed to stay afloat and keep a steady stream of support to entrepreneurs and partners. The review also illustrates the challenges that universities face when developing these activities (lack of funding, unclear regulation for intellectual property development, etc.) and highlights some opportunities that universities should leverage, particularly in the current context.





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