

## Daring to Soar: A Strategy for Developing World-Class Universities in Chile

### Atreverse a volar alto: una estrategia para desarrollar universidades de rango mundial en Chile

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#### Abstract

This article analyzes the Chilean university system's position within the international scene in order to identify the strengths of Chilean universities and the challenges they face to compete successfully and better fulfill their mission as the tools of human capital development that the country needs. The article begins by presenting the analytical framework that sustains this analysis. It then performs a benchmarking of Chilean universities results and explores the key factors that can limit their performance. Finally, it offers proposals for designing and implementing a policy to support the development of world-class universities in Chile and explores the risks associated with this type of policy.

**Keywords:** world-class universities, rankings, higher education performance, Chile

#### Resumen

Este artículo analiza la posición del sistema universitario chileno en el escenario internacional para identificar las fortalezas de las universidades chilenas y los desafíos que enfrentan para lograr competir de manera exitosa y cumplir mejor su misión como instrumentos de desarrollo del capital humano que requiere el país. El artículo empieza presentando el marco analítico que sustenta este análisis. Luego hace un *benchmarking* de los resultados de las universidades chilenas y explora los factores fundamentales que pueden limitar su desempeño. Finalmente, ofrece unas propuestas para elaborar y poner en marcha una política de apoyo al desarrollo de universidades de rango mundial en Chile, explorando también los riesgos asociados con este tipo de política.

**Palabras clave:** universidades de rango mundial, rankings, desempeño de la educación superior, Chile

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Since the 2003 publication of the first Shanghai international ranking of the top 500 universities, two groups have emerged throughout the world, clearly divided between those who hate the rankings and those who are interested or fascinated by them (Jennings, 2004). In the first group are researchers and academic leaders who criticize the rankings for their theoretical and methodological limitations and reject the concept of a world-class university, due to its elitist nature and exaggerated focus on research at the expense of teaching (Hendel & Stolz, 2008; Rauhvarges, 2011). The second group includes academics, university rectors and political leaders who view the rankings as useful tools for measuring university performance, especially those aiming to compete at a global level (Salmi & Saroyan, 2007).

Convinced of the key role of world-class universities in knowledge-based economic development, a growing number of countries (especially in Asia, but also in Europe) are investing significantly in this sector; using the rankings as a barometer to measure the progress of their best universities. Within this process, a new global ranking system is being established *de facto*, which distinguishes between world-class universities, recognized as such by the rankings, and the rest.

Compared to other Latin American countries, Chile has a relatively well-developed higher education system. The system had an enrollment rate of 54.6% in 2012 (among the highest in Latin America), it is characterized by good institutional diversification between universities and non-university institutions and it has two universities with significant international visibility. However, the question arises of whether these results are sufficiently aligned with the present economic level of the country and Chile's ambitions as a new OECD member.

Without taking a position in the debate for or against world-class universities, which reflects differences in ideological perspective, this article examines what is required for the development of higher-level universities in Chile. The paper begins by presenting an analytical framework for understanding the concept of a world-class university. It goes on to compare the results of Chilean universities from an international perspective and explores the key factors that can limit performance. Finally, it offers proposals for designing and implementing a policy to support the development of world-class universities in Chile and explores the risks associated with this type of policy.

### Conceptual framework: Features of World-Class Universities (WCU)

How can a world-class university be defined? The methodology used in this article to analyze the performance of the Chilean universities with the prospect of becoming WCUs has three complementary aspects: (a) convergence of the three groups of key internal features of WCUs, (b) the presence of favorable acceleration factors, and (c) alignment of the higher education ecosystem. This methodology is based on a conceptual framework and research results from Salmi and Altbach (Altbach & Salmi, 2011; Salmi, 2009). It also incorporates recent studies critically assessing WCU development policies in China, South Korea and Taiwan (Byun & Kim, 2010; Hou, Ince, & Chiang, 2012; Kinglun & Guo, 2008; Shin, 2009).

#### Convergence of WCU features

WCUs are recognized as such essentially by the superiority of their results: they produce exceptionally qualified graduates who are in high demand in both the national and international labor markets; they conduct groundbreaking research with publications in major international journals; and in the case of science –and technology– oriented institutions, they contribute to technological innovation through patents and licenses. This type of noteworthy performance can be attributed mainly to three groups of factors at play in the best universities: (a) a high *concentration of talent* (professors and students), (b) *abundant resources* to create a rich learning environment and to conduct advanced research and (c) *favorable governance features* that foster a strategic vision, innovation and flexibility, and which allow institutions to make decisions and manage their resources without being hampered by bureaucratic rules. A dynamic interaction between these three groups of factors is the distinctive feature of WCUs (Figure 1).

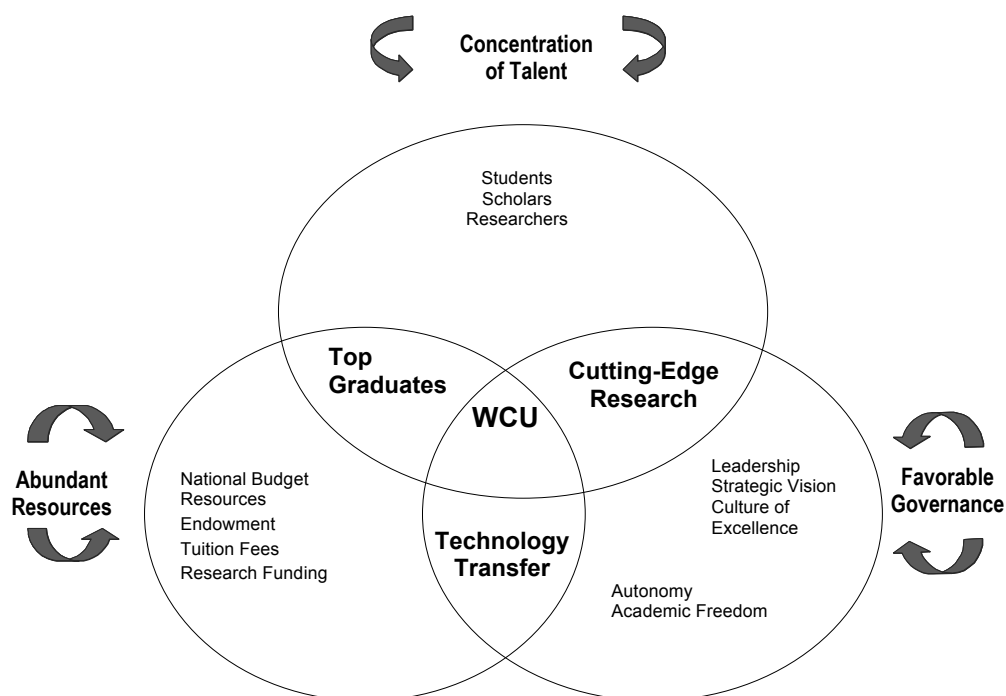


Figure 1. WCU Features: Alignment of key factors. Created by Jamil Salmi.

### Acceleration factors

A recent book of case studies of 11 European, Asian and Latin American universities that have experienced rapid development has identified a number of “accelerating factors” that can play a positive role in the pursuit of excellence (Altbach & Salmi, 2011). The first factor is to harness the diaspora extensively when creating a new university or trying to improve an existing institution. The second factor is the use of English as the main teaching and research language, thereby attracting highly qualified foreign scholars and students. The third is to focus on niche programs like science and engineering, thereby reaching a critical mass more quickly. The fourth relies on a benchmarking process to guide the improvement efforts of institutions. The fifth factor is related to the curricular and pedagogical innovations introduced by these universities.

### Importance of the higher education ecosystem

The best universities in the world, or in a country, do not operate in a vacuum. A full assessment cannot be made without taking into consideration some significant external factors of what could be called the higher education *ecosystem*. As illustrated in Figure 2, the main dimensions of the ecosystem include the following elements:

- Macro environment: The political and economic situation of the country, along with the rule of law and respect for fundamental freedoms among those who exert influence, in particular, on the governance of higher education institutions (selection of university leaders), their level of funding, academic freedom and safety for individuals;
- Leadership at the national level: Vision and strategic plan to shape and guide the future of higher education and the technical and political capacity to implement the necessary reforms;
- Governance and regulatory framework: Governance structures and processes at the national and institutional levels that determine the degree of autonomy, as well as accountability mechanisms;
- Quality assurance system: The institutional framework and the tools for assessing and encouraging the quality of research, teaching and learning;

- Resources and financial incentives: The resources available to fund higher education and the mechanisms used to allocate these resources;
- Location: The quality of the setting and infrastructure, which allows the university to attract top scholars and talented students, and finally;
- Digital and telecommunications infrastructure: The availability of a broadband connection.

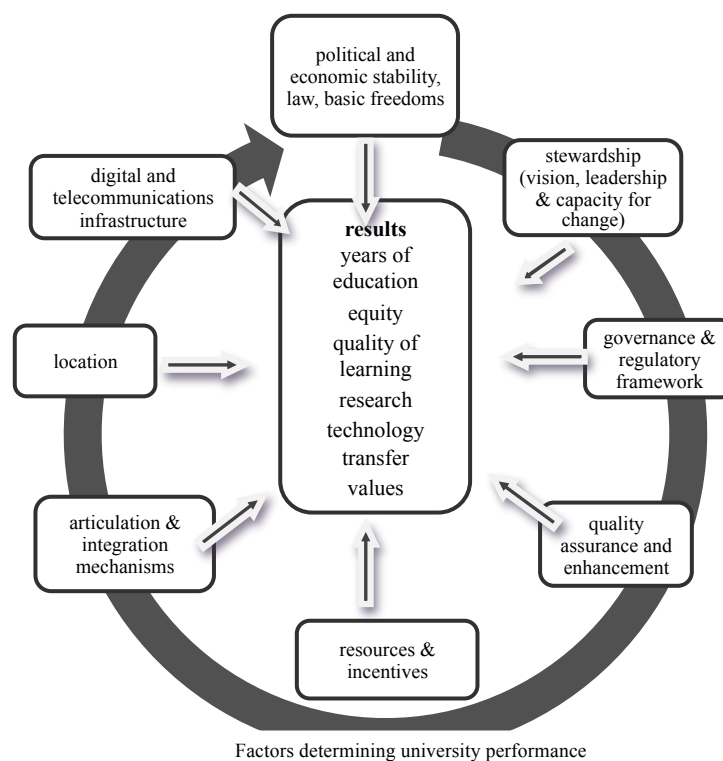


Figure 2. Higher Education Ecosystem. Source: Created by Jamil Salmi.

## Overview of the Chilean universities: Strengths and areas for improvement

### Are Chilean universities on the way to becoming world-class universities?

Among the 174 higher education institutions operating in Chile today, the country can find satisfaction in the presence of some highly recognized universities. The University of Chile (UCH) and the Pontifical Catholic University of Chile (UC), in particular, boast excellent international reputations. With 19% of 2010 student enrollment in the 25 traditional universities grouped in the Council of Rectors of Chilean Universities (CRUCH), the two most recognized universities in the country are home to 40% of master's students and 52% of PhD students. In 2010 they produced 47% of all ISI articles published in Chile.

In spite of their methodological limitations, international rankings reveal that top global universities are the ones that significantly contribute to progress in knowledge through their cutting-edge research, offer high-quality teaching with an innovative curriculum and teaching methods, integrate research into undergraduate teaching, and produce graduates who excel in the national and international labor market.

From this perspective, what results do Chilean universities achieve in the Latin American and global context? The last decade has seen the rise of two prominent international rankings, Academic Ranking of World Universities (ARWU), the so-called Shanghai ranking, and the Times Higher Education (THE) ranking, which allow for interesting comparisons between universities in different countries, as long as the countries have similar populations and levels of economic development.

In general, Latin American universities do not have very encouraging results in international rankings. Although Central and South America have 8.5% of the world's population and produce 8.7% of global GDP, the region's universities make up only 2.2% of the top 500 universities in the Shanghai ranking and less than 1.5% of the 400 universities in the THE rankings. In 2003, the University of Chile was in the 400 to 500 group in the Shanghai ranking, but it did not make the list in 2011. On the other hand, the Catholic University of Chile, which was not included in the first ranking in 2003, is now in the group of the last hundred institutions. The two universities joined the THE rankings in the same group where they are found currently, that is, between ranks 300 and 400. In comparison, the best university in Finland (University of Helsinki) is within the top 100 universities in both rankings.

### Chilean national higher education system results

The traditional rankings provide a comparative assessment of individual universities, but do not give direct information on higher education systems as a whole. The recent publication of a ranking focused on higher education systems enables the results of Chile to be viewed from an international perspective. This new ranking, prepared by a group of experts from the University of Melbourne (Australia), includes Argentina, Brazil, Chile and Mexico among the 48 countries compared. The ranking is based on four groups of indicators that evaluate the level of funding for higher education, the production of the system in terms of research and training for the labor market, international connections between higher education institutions, and the regulatory framework.

In the 48 countries assessed in this higher education system ranking, Chile holds 37<sup>th</sup> place, which is not a very encouraging result compared with poorer countries such as Bulgaria, Hungary, Malaysia and Romania whose GDP per capita is much lower than Chile's. However, Chile at least obtained the best result among Latin American countries, above Argentina (38) Brazil (40) and Mexico (43). Table 1 shows the results of Latin American countries in each of the four categories of indicators. Chile's weakest points are its scientific production (publications) and the level of public resources devoted to higher education. One of the most positive aspects is the level of scientific collaboration between Chilean and international universities.

Table 1  
Ranking of higher education systems (Latin America)

Countries	Categories			
	Resources	Production	International Collaboration	Regulatory Framework and Opportunities
Argentina	42	36	25	32
Brazil	37	34	43	38
Chile	39	39	23	33
Mexico	40	46	34	25

Note: Adapted from U21 Ranking of National Higher Education Systems, by R. Williams, G. de Rassenfosse, P. Jensen, & S. Marginson, 2012, Melbourne: University of Melbourne.

### Strengths and areas for improvement

#### Concentration of talent

**Scholars.** Most Latin American universities do not have a strong research tradition, which is reflected in the low percentage of professors dedicated full-time to academic life and the underdeveloped graduate programs. In an article published in 2007, Bernasconi asked if there were research universities in Chile and concluded that they still had a long way to go.

Chilean research-oriented universities need to complete their transition from the legacy of the full-time teaching staff or the faculty members who are successful professional practitioners and teach part-time to the full-time, research-trained

scholars... To achieve this goal, doctoral training in Chile will need to expand substantially, as planned by the government, and universities will have to be assisted financially to offer their faculty of retirement age attractive compensation packages (Bernasconi, 2007, p. 20).

Although in the last decade some Chilean universities have made a substantial effort to strengthen their research capabilities, the results are not very compelling. Most of the oldest universities in the country still lack a strong base of research-dedicated professors. First, regarding the presence of full-time scholars, the University of Concepción has the highest percentage (60%), followed by the University of Chile (46%) and the Catholic University (45%). An unusual observation is that these private universities have more full-time scholars than the most important state universities in the country. Second, the Universidad de Concepción has the highest percentage of teachers with doctorates (37%), compared with 31% at the Catholic University and 24% at the University of Chile. Third, the percentage of scholars with doctorates who work full time is much higher at the Catholic University (77%) than at the University of Chile (48%), which may partly explain the better outcomes of the Catholic University in the Shanghai ranking.

**Development of graduate studies.** The other important dimension to look at in analyzing the ability of Chilean universities to function as institutions with a greater emphasis on research is the development of graduate studies, which reflect the country's potential to train new PhDs. From an international perspective, the development of Chilean universities in this area is well below that of universities in industrialized countries. Table 2 compares the percentage of graduate students at the University of Chile and the Catholic University of Chile with the top universities in certain countries that are relevant for comparison.

Table 2  
International comparison of percentage of graduate students

University	Percentage of Graduate Students
University of Buenos Aires	5%
P. Catholic University of Chile	14%
University of Chile	16%
University of Helsinki	26%
University of Auckland	26%
University of Cape Town	30%
University of São Paulo	35%
Hong Kong University of Science and Technology	36%
Seoul National University	41%
University of Copenhagen	42%
Shanghai Jiao Tong University	42%
Australian National University	44%
University of Hong Kong	45%
Pohang University of Science and Technology	55%
Indian Institute of Technology (Bombay)	58%
UNICAMP	60%

Note. Adapted from CRUCH; *The Road to Academic Excellence: the Making of World-Class Research Universities*, by P. Altbach & J. Salmi, 2011, Washington DC: World Bank; figures for the University of Chile and the Catholic University of Chile from 2012.

<http://www.auckland.ac.nz/uoa/key-statistics#s2c5>

<http://unistats.anu.edu.au/statistics/quickstats/>

[http://introduction.ku.dk/facts\\_and\\_figures/students/students/](http://introduction.ku.dk/facts_and_figures/students/students/)

<http://www.au.dk/en/about/profile/history/25kapitlerafuniversitetetshistorie/lateststatistics/>; <http://www.helsinki.fi/annualreport2011/luukuina.html#target1>

<http://www.unicamp.br/unicamp/the-unicamp/about-unicamp?language=en>

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[http://en.wikipedia.org/wiki/University\\_of\\_Hong\\_Kong](http://en.wikipedia.org/wiki/University_of_Hong_Kong)

<http://useoul.edu/about/ab0103.jsp>

<http://www.chet.org.za/books/cross-national-performance-indicators>



**Student academic level.** The high degree of selectivity in recruiting new students through the PSU ensures that, from the academic point of view, the country's top universities receive the best competing students. However, the 2009 OECD report showed that the PSU replicated differences in the quality of teaching and academic achievement between public and private high schools that reflect a deep social division in Chile. This means that the system of secondary education and selection for admission to universities does not provide equal opportunities to all talented young people, which is both a challenge from an equity point of view and a loss in the efficient use of potential human resources in the country.

**Internationalization.** The 2009 OECD report found mixed outcomes among Chilean universities in terms of their level of internationalization. Few universities have increased the international dimension of their curriculum and academic programs. In general, the percentage of international scholars teaching in Chilean universities is very low. At the University of Chile, non-Chilean scholars only represent 3.6% of the total, and at the Catholic University of Chile, this number is 6.1%. At Harvard University, in contrast, the percentage is 30%; and it is 36% at the University of Oxford. With international students constituting less than one percent, Chilean universities have not yet managed to be a major destination for international students. In fact, Chile has the second lowest percentage of international students among all OECD countries.

The low level of internationalization carries three potential negative consequences. First, it limits Chilean students' opportunities for mobility and enriching academic contacts with international students. Second, it prevents the use of the same degree of admission selectivity to graduate programs that the top universities in other countries may impose due to strong competition between national and international students. This affects the quality of the graduate students' learning and research experience and does not favor the improvement efforts of Chilean universities that want to produce high-level research. In the long run, the lack of scholars and students prevents a fight against the "inbreeding" that characterizes many Latin American universities.

In recent years, the Chilean government has made substantial efforts, with the *Becas Chile* (Chile Scholarships) program, to increase opportunities for its citizens to study abroad. Nearly 1,900 PhD students were selected between 2008 and 2011, along with more than 2,300 Master's students. This initiative is expected to produce a total increase in new graduate degrees (master's and doctorates) of about 20%, and, in particular, to double annual doctoral degrees. However, in 2011, some 36% of the doctoral scholarship beneficiaries attended a Spanish university, which does not contribute as much to internationalization as studies in a non-Spanish speaking country.

## Financial resources

One of the main conclusions of the 2009 OECD report was that while Chile was spending a higher percentage on higher education than the OECD average overall, public spending was well below the OECD average. The latest OECD report in 2012, *Education at a Glance*, confirms this diagnosis, despite the serious financial effort of the Chilean government in recent years. Statistics show that Chile spends 2.4% of its GDP on higher education, compared with 1.6% on average in OECD countries, but public spending makes up only 40% of this amount. Among OECD countries, however, governments contribute an average of two thirds. The 2009 OECD report on Chile recommended doubling public spending and concentrating additional resources in areas of public good, such as equity and research. While it is true that the Chilean government has significantly increased its financial contribution to higher education in recent years, a large percentage of additional funds have been devoted to scholarships and student loans, which is very important for removing economic barriers for students with limited resources, but does not directly contribute to helping universities develop their research. In OECD countries, the average percentage of expenditure per student engaged in research is 30.6%, five times higher than in Chile (6.9%).

Specifically, this situation means that Chilean universities do not have the same level of resources to compete with the best universities in other OECD countries, as shown in Figure 3. It must be remembered that an effective way to improve academic levels is to attract leading researchers from other countries (or Chileans working in foreign universities), which is feasible only if internationally competitive salaries can be offered.

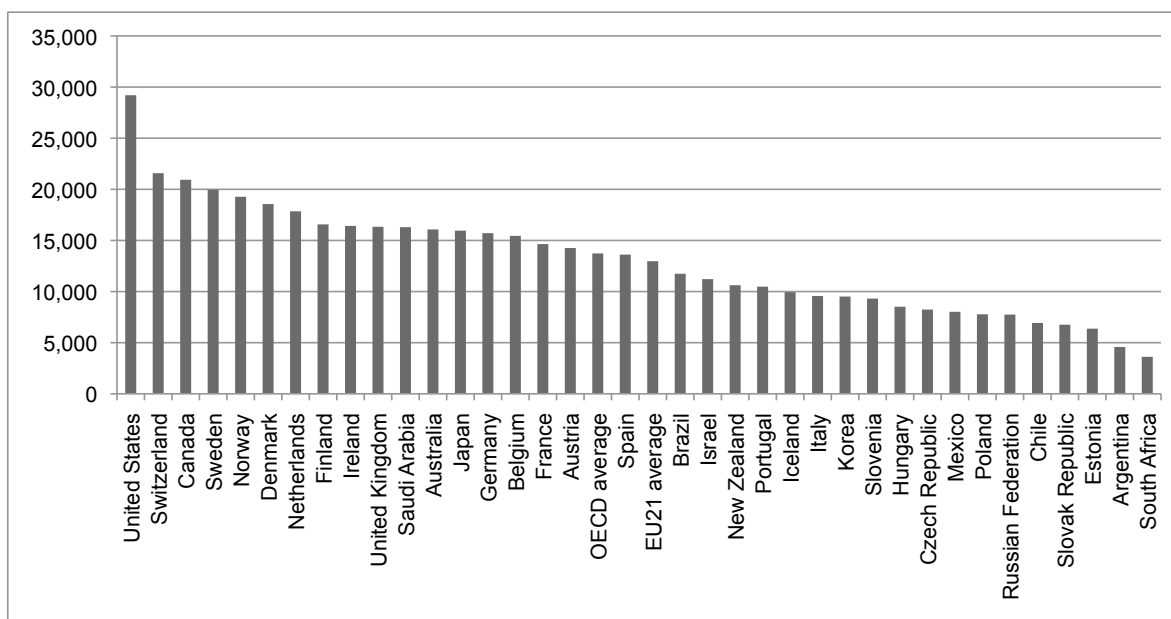


Figure 3. Annual expenditure per student (including research expenses) in PPP (2009). Adapted from *Education at a Glance 2012*, by OECD, 2012, OECD Publishing.

## Governance

At the institutional level, governance involves two main dimensions: (a) the degree of institutional autonomy to enable dynamic and flexible operation, and (b) the selection procedure for the rector and leadership team, which determines universities' direction and capacity for transformation.

Surveys conducted in 2011 by the European University Association offer a useful methodological tool to measure the level of autonomy of Chilean universities and to compare them with other higher education systems (Eastermann, Nokkala, & Steinel, 2011). For this article, consultations and interviews were held with a small group of experts in order to compare universities in Chile with public universities in Argentina, Brazil, Colombia, and Mexico in Latin America, as well as with European universities. Table 3 shows the results of this Chilean university institutional autonomy benchmarking, based on the opinions of experts and using the criteria in the above table.



Table 3  
Level of institutional autonomy in Latin America and Europe

Type of autonomy Level of Autonomy	Organizational autonomy	Financial autonomy	Autonomy in managing human resources	Academic autonomy
High ( $\geq 80\%$ )	Argentina, Chile (public and private), Colombia, Finland, Ireland, United Kingdom	Chile (private), Colombia, United Kingdom	Chile (public and private), Mexico, United Kingdom, Finland, Ireland	Chile (public and private), Mexico, United Kingdom, Finland, Ireland
Medium High (61 – 80%)	Brazil, Mexico Poland, Netherlands	Argentina, Chile (public), Ireland, Netherlands	Colombia, Netherlands, Poland	Argentina, Brazil Colombia, Poland
Medium Low (41 – 60%)	Spain, France	Brazil, Mexico Finland, Turkey	Argentina, France, Turkey	Turkey
Low ( $\leq 40\%$ )	Turkey		Brazil	France

Source: Eastermann, T., Nokkala, T., & Steinel, M. (2011) and author evaluation.

This limited (and subjective) attempt at benchmarking the governance of Chilean universities indicates that they enjoy a relatively high level of autonomy compared not only with European universities, but also with the universities of major competitors in Latin America. So, institutional autonomy is not a limiting factor as it is for Spanish, French or German universities, for example.

However, Chilean public universities, similarly to Argentine universities, suffer to some degree from an excess of autonomy and lack of accountability, to the extent that within each university the departments have a high degree of independence, especially at the University of Chile (OECD/World Bank, 2009). The result is that the decision-making process within the Academic Council (or University Council at the UC) gives priority to defending the corporate interests of each group of academics, re-grouped by department. This limits the rector's ability to lead any sort of transformational process and to generate consensus on substantive reforms. Up to 2009, for example, the University of Chile still did not have an institutional accreditation policy; instead, each department was free to decide whether or not to participate in the national accreditation process.

The other consequence of the high level of autonomy that can be an obstacle to transforming Chilean universities is the democratic election process of rectors and deans. In such a system, it is much easier (and more common) to be elected on a platform of preserving the status quo than to risk proposing reforms that may affect the academics' privileges. Furthermore, the conditions established for public universities prevent academics from other Chilean universities (not to mention other countries) from having the right to compete for the rector position, which means they do not have the option of searching for the best skills in the country or abroad, as is the case in other parts of the world.

### Ecosystem-level barriers to higher education

The ability of Chilean universities to produce high-level graduates and cutting-edge research and to contribute dynamic technology transfer is significantly influenced by the ecosystem in which they operate. The Chilean higher education ecosystem has many positive aspects, such as democracy and

macroeconomic stability, the favorable location of the country (despite the geographical remoteness, Chile is an attractive country with a rich cultural life) and the quality of its infrastructure, including digital infrastructure. Among the elements to improve are the lack of a higher education development plan, the regulatory framework governing public universities, the credibility of the accreditation system, the low level of public investment in higher education, and the lack of articulation between secondary and higher education levels and between different categories of higher education institutions, such as between technical institutes and universities.

Countries such as Australia and Ireland have regularly produced (every 10 years on average) a strategic document that defines government goals regarding development of the higher education system, analyzes strengths and areas for improvement, and proposes major reforms to overcome challenges. The preparation of these forward-looking documents usually reflects a work of consensus among all the stakeholders in the higher education system.

In terms of governance, the segmentation in the system represented by the division between Council of Rectors member universities and other institutions seems, viewed from outside Chile, to be an outdated structure with little added value, and certainly has an exclusionary effect on the landscape of higher education in the country in terms of access to public subsidies, among other aspects.

For many years, the Chilean accreditation system was seen throughout Latin America as one of the best on the continent. But recent corruption and conflicts of interest cases have resulted in a loss of credibility in Chilean society and among universities.

The articulation issue has to do with the transition between secondary education and higher education and transfer opportunities for students between technical institutes and universities. Chile, like most Latin American countries, still lacks the flexible pathways that enable fluidity of student movement between different types and levels of higher education institutions like those characterizing the Canadian and U.S. systems, for example, in terms of the integration of community colleges and universities.

### **National strategy for developing world-class universities**

Developing world-class universities entails both a set of structural policies and measures, as well as exceptional decisions and initiatives. It also requires financial and non-financial measures both at the national government level and at the level of the universities concerned. This first section presents policy recommendations at the national government level, while the following section presents actions that fall to the responsibility of the universities.

At the national government level, the following sequence of actions is proposed as a conceptual framework for organizing these policies and measures: (a) a vision for the future of higher education in Chile, (b) a set of structural interventions and exceptional decisions, such as the Excellence Initiatives launched recently in several European and Asian countries, (c) a trigger to get the process underway, and (d) structural measures to ensure the sustainability of the world-class university development program.

#### **The vision**

It is striking to note the presence of 10 universities from California within the hundred best universities in the world (Shanghai ranking). This impressive achievement is no accident. It is the direct result of the state's clear higher education development vision, which was formulated in the famous "Higher Education Master Plan" in the sixties (Figure 4). The plan provided a statewide classification of higher education institutions that defined their respective roles, from "junior colleges" up to top research universities, as well as the bridges between the institutions enabling the fluid circulation of students. The public funding model under this vision enabled the emergence of many top universities, both public and private.

California was the first state in the United States to establish a policy for a statewide higher education system when it developed and implemented the first Master Plan in 1959-60. The main issues examined at the time were the future role of the public and private sectors and, in particular, how to administer and coordinate the public sector to avoid duplication and waste of funds. Important principles that emerged from the initial Master Plan still serve as a model for the current state system:

- Recognition of the different objectives of the four components of the higher education system (Universities of California, California State Universities, community colleges, and private universities and junior colleges)
- Creation of a coordinating body for the entire system established by law
- Differences in the categories of students admitted to state colleges and universities
- Requirements that must be met by students who attend private institutions in order to have access to state scholarship programs

The California Master Plan for Higher Education, which is reviewed approximately every 10 years, is not a model to centrally manage the development of the Californian higher education system in a rigid way. Instead, this plan sets some general parameters, focuses primarily on the areas that separate the four components of higher education, and strives to achieve a system that maintains a balance between equity, quality and efficiency.

Figure 4. Establishing the policy framework for higher education in California. Adapted from Higher Education: Lessons from Experience, by World Bank, 1994. Washington DC: World Bank.

It would be beneficial for the Chilean government to develop a similar vision that can guide strategic decisions about the future of higher education in general, and specifically about the development of world-class universities.

To give an idea of the potential costs of an improvement program for top Chilean universities, Table 4 shows the amounts spent by the various countries that have launched “Excellence Initiatives” in recent years, which consisted of strong additional contributions of resources to develop world-class universities at an accelerated rate.

Table 4  
Total amounts granted for the most recent excellence initiatives by type of support

Universities		Centers of Excellence	
Level of Support	Countries	Level of Support	Countries
≤ 20 million US dollars	Germany, Denmark	1 – 5 million US dollars	Denmark, Finland, Norway
Between 20 and 100 million US dollars	Spain, Russia, Thailand	5 – 10 million US dollars	Germany, Australia, Korea, Hong Kong, Nigeria
≥ 100 million US dollars	China, France, Singapore, Taiwan	≥ 10 million US dollars	Israel, Japan

Note. Source: Author survey.

## The set of interventions

Recent analyses of successful reforms of both basic education (Mourshed et al., 2010) and higher education (World Bank, 2002), especially when it comes to establishing world-class universities (Altbach, & Salmi, 2011; Salmi, 2009) revealed that no significant results can be achieved with one single measure or isolated actions. Instead, it is necessary to define and implement a set of complementary and well-integrated interventions. Considering recent international experiences and the features of the Chilean higher education system, there are two main scenarios for the development of world-class universities:

- The creation of a new university with strong government investment,
- If working with existing universities, are universities selected unilaterally or are they selected based on a competitive process (excellence initiative)?

**Create a new university or work with existing universities?** In recent years, some emerging and industrial countries, such as Saudi Arabia, South Korea, Hong Kong, Kazakhstan, Luxembourg and Singapore, have created new universities intended to be world-class universities. However, to date, no country in Latin America has followed suit. The only recent cases of the creation of new public universities are those in Argentina, Brazil and Venezuela, but these new institutions have been established primarily for increased coverage.

The greatest advantage of this option would be the opportunity to generate a dynamic change in the higher education system, going beyond the traditional competition between public and private universities within CRUCH, which appears to be an outdated structure, and moving towards competition between CRUCH universities and other, newer universities. The impact of this scenario would be even stronger if, instead of creating a new public university under the same pattern of governance and the same rules of operation in existing universities, the new institution were given the status of a public corporation with more flexibility and autonomy to compete internationally.

However, this option brings three interrelated challenges along with it. First, it would incur a high financial cost, although it could be designed as an innovative partnership among the government, public enterprises and the private sector. One of the most successful young private universities in Malaysia, MultiMedia University, was created a few years ago with investment from the country's leading public telecommunications company. Second, the new university would require a more modern governance and management model than the existing model in public universities. Third, it is doubtful that existing universities would view this government initiative with much enthusiasm, which could lead to a political backlash.

**If working with existing universities, are universities selected unilaterally or are they selected based on a competitive process (excellence initiative)?** Some countries decided to select, as a unilateral government decision, the universities they considered to be the best prepared to transform into world-class universities. China –to some extent– as well as Russia and Thailand are examples of countries that have adopted this strategy. However, a large number of European and Asian countries have preferred to launch a competitive process, sometimes called an “Excellence Initiative,” to identify the best candidates for this type of transformation. The advantage of the first option, which assumes a degree of authoritarianism incompatible with the democratic tradition in Chile, is that resources can be concentrated in universities that are already leaders in the country. The advantage of the second option is to offer opportunities to the universities with the most innovative strategic plans and increase the intensity of competition in the higher education system.

Given the recent nature of most of these initiatives, it is too early to definitively assess their relative impact and efficiency. The most spectacular result comes from China, which had only nine universities in the top 500 institutions when the Shanghai ranking was published for the first time in 2003, but has now managed to put 28 universities among the best in the world, according to the 2012 ranking. Such an outstanding result has not yet been observed in other countries, but most of the universities benefitting from these Excellence Initiatives seem to have made a significant leap in scientific production and in the productivity of their research.

One important aspect is the need to complement financial investments in a potential Excellence Initiative with the governance changes necessary to ensure proper implementation and project sustainability. In the case of Germany, for example, a discrepancy has been observed between the modes of governance and management required to develop multidisciplinary research centers and new doctoral programs funded by the Initiative and the traditional governance setup and administrative rules that universities must follow. To overcome this obstacle, some beneficiary universities have had to “invent” new organizational forms in the context of the projects, creating a parallel administration whose sustainability beyond the duration of the projects is in doubt. In Taiwan, it has been very difficult to retain the leading researchers recruited with the resources of the Excellence Initiative due to the very low salary levels in the country’s public universities.

Some European countries, such as Denmark and Portugal, with a tradition similar to that of Chile regarding the election of rectors by academic peers, have transferred the responsibility for selecting the rector to the university governing board on the basis of purely professional criteria. Additionally, it is good to be open to the option of recruiting leading academics from other universities or even other countries as rector, instead of limiting eligibility to academics from the same institution.

### **The trigger to begin the development process**

As Machiavelli wrote in his famous political manifesto, *The Prince*, “there is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things.” Indeed, students and academics can be mobilized very effectively against any change that challenges established practices and vested interests, as illustrated by the university crisis that Chile has experienced in the last two years. Therefore, it is essential to find a constructive way to launch the program to support the creation of world-class universities.

International experience shows the importance of three factors that, separately or as a whole, can facilitate reforms (Murshed et al, 2010). First, and paradoxically, moments of political and/or economic crisis enable the implementation of innovative projects to help overcome the crisis or create new opportunities. Second, governments can use the findings of a high-level expert report on the performance of the higher education system, such as the 2009 OECD report on Chile, to raise awareness among the public and stakeholders concerned about the urgency of reforms. Third, the election or appointment of new political leaders can help demarcate from the previous policy and give rise to new solutions to address problems, provided they engage all the stakeholders in an open consultation process.

Obviously, the availability of a significant amount of additional resources is also an essential factor to accompany the reform proposals. Therefore, many governments have launched the aforementioned Excellence Initiatives, whose funds are a strong incentive in generating improvement efforts within universities.

### **Sustainability**

The last, but not least, issue to consider is the sustainability of interventions to develop world-class universities. This has two aspects, one political and one economic, which are of course linked. This effort cannot be perceived and handled as the agenda of a specific political party or a government with a limited term. It has to be presented and adopted as a state policy. As happened in a country like Denmark, where the very significant higher education reform of the last decade was adopted by a united Congress despite ideological differences among the various political parties, the world-class university development project in Chile must be a project that gains the consensus of the country as a whole.

Second, it is imperative that the additional funding be large enough to make a qualitative leap, and that these financial contributions have a sufficiently long duration to ensure the sustainability of the investment, given the time required to transform a university and improve the quality of its scientific production. Spain’s current experience serves to illustrate the serious danger for the higher education system when there is no continuity in the government program. The serious economic crisis sweeping the country means that International Campuses of Excellence Initiative, launched in 2009, has no chance

of succeeding, due to the impossibility of continuing to provide additional resources for beneficiary universities and the deep 2012 budget cuts.

### **The challenge for Chilean universities**

International experience shows that universities aspiring to improve results must commit to objectively assessing their areas of strengths and weaknesses, establishing new goals, and designing and implementing a renewal plan that could lead to a better outcome of their mission. This calls for a leadership team with a bold vision of the mission and the new goals of the institution, a comprehensive strategic planning process to translate the vision into concrete programs and objectives, and the rallying of the entire university community around the university transformation plan.

International experience also shows that to successfully implement internal reforms it is important that academic leaders manage to awaken a sense of urgency in all the administrators and academics in the university (Salmi, 2012). This enables the mobilization of the entire university community to accept and participate in the transformation process. The University of Aarhus in Denmark, for example, has implemented dramatic changes under the impetus of an innovative rector, who is committed to stimulating improvement of the university “without a burning platform” in a rich country where universities do not face major problems.

A key element of the vision for the future of any university is the selection of a specific market area in which the university can establish and make the most of its comparative advantage. In that sense, it is important to stress that no university, not even a world-class university, is likely to excel in all areas. Harvard University, widely recognized as the number one institution in the world, is not the highest-ranked university in all disciplines. Its strengths are mainly in the areas of economics, health sciences, education, political science, law, business studies, English, and history. As mentioned when the analytical framework was presented at the beginning of this report, one of the salient features of new successful universities in Asia, such as the Hong Kong University of Science and Technology and POSTECH in Korea, has been their ability to concentrate on one well-defined niche. Part of the vision, therefore, will be to outline the main areas in which the university both wants and has the potential to function as an international institution.

One way to accelerate the transformation into a world-class university is to effectively use internationalization strategies. This implies, first, the capacity to attract foreign professors and researchers as a factor for improvement. Universities must be more open to this practice and be able to offer incentives, including flexible pay and employment conditions, in order to recruit top scholars from other countries. These exceptional individuals could help to improve the existing departments or establish graduate programs and research centers in new areas where the universities can develop a competitive advantage.

Secondly, an influx of top international students can be instrumental in improving the academic level of the student population and enhancing the quality of the learning experience through a multicultural dimension. Therefore the ability to offer programs in a foreign language, especially English, can be a powerful attraction factor. Among the top 100 universities in the Shanghai ranking, 11 are from countries where the official language is not English, but where many graduate programs are offered in English (Denmark, Finland, Israel, Netherlands, Norway, Sweden and Switzerland).

A key aspect that the strategic plan must include is the definition of the criteria and processes for allocating resources within the university, in order to encourage a quantitative and qualitative improvement in priority research areas through dedicated investment funds. This requires a clear internal research development and monitoring policy to identify the disciplinary and multi-disciplinary areas where the university wants to achieve scientific leadership, in their country or internationally. The University of Michigan has an initiative to encourage innovative research projects that can be considered for this purpose. This new model of funding academic research, called Mcubed, eliminates months of delay from the time an idea is born until the money arrives. To access initial resources for the exploratory phase of the research, the only condition is finding at least two colleagues who see the idea as promising and are willing to devote time to it (de Vise, 2012).



## Discussion and conclusion

### Opportunities and risks for the Chilean higher education system

In the future, the lack of global scientific capacity will be an increasing disadvantage. Countries unable to interpret and understand the results of research, an ability that necessarily resides in the same people responsible for conducting the research, will find themselves in a position of continuous dependency... The ambition of world-class universities is not a superficial or elitist whim. It is a completely valid aspiration (Simon Marginson, director of the Centre for the Study of Higher Education, University of Melbourne, Marginson, 2012).

Despite operating in a country that is small in terms of the size of its population, Chilean universities occupy a relatively favorable spot in rankings and in terms of scientific publications at the Latin American level. However, in the international context and in comparison with other OECD countries (Chile is an OECD member country), a qualitative leap is required for Chilean universities to enter the exclusive group of world-class universities. It is not about chasing prestige through the rankings for reasons of nationalistic pride, but rather about striving for excellence in a small number of universities that can be positioned globally and contribute more strongly to economic development in Chile as pillars of innovation.

One main factor limiting the horizon of Chilean universities that stands out is the absence of a national program for the development of top institutions, as well as the lack of critical mass in terms of international scholars, the slow progress on the issue of internationalization, the governance model in public universities and a lack of accountability, and the lack of public investment in national scientific research capacities.

One possible strategy for the development of world-class universities in Chile requires actions at two levels, national and institutional. On one hand, it requires a government policy based on a daring vision of the future of higher education accompanied by a proactive financial support policy for the improvement of existing universities, or the creation of a new university with standards of excellence. On the other hand, universities aspiring to become world-class institutions must develop their own strategic plan and define priorities to develop areas of excellence, which should be characterized by research results and cutting-edge teaching. Alliances between Chilean universities, with Brazilian universities or with universities in other developed countries, can serve to accelerate the process of strengthening and developing areas of excellence.

However, the introduction of a program to establish world-class universities through an Excellence Initiative presents two major risks from the point of view of balanced development of the Chilean higher education system. The first risk is a possible distortion in the distribution of public resources and increased inequalities between higher education institutions. When it comes to contributing additional resources to universities that can be transformed into world-class universities, a reduction in revenue for other higher education institutions should be avoided, as their mission is no less valuable for meeting the needs of education and training of the Chilean population. This risk of inflating contributions to top universities at the cost of other higher education institutions has been observed in other countries with the ambition of having world-class universities, as illustrated by the following quotes:

Australia cannot afford to spread its relatively limited resources too thinly. The country has to invest in niche areas. This means that some universities and some scientific areas should be treated more favorably. If Australia does not have universities competing at the highest level, the country is going to fall behind. (Michael Gallagher, General Secretary of the group of eight top research universities in Australia, personal communication, 2008).

In a context of limited resources for providing an additional budget to higher education, two or three different scenarios can be considered to stimulate progress in Chilean university performance. With few resources, initial priority could be placed on modernizing the governability of Chilean public universities, as was done voluntarily in Portugal with a small group of universities. With a higher level of resources, one option is the introduction of a competition for the development of research centers of excellence that address the priorities of the country's economic growth and development, both nationally and regionally, expanding on the efforts of MECESUP in the last decade. Finally, a significant injection of additional resources would enable the design of an ambitious support plan for the country's top universities through

an excellence initiative similar to the German Excellence Initiative and/or the creation of a new public university with a different governance model, as done in Hong Kong with the University of Science and Technology established 20 years ago, or as is being doing today in Singapore with the creation of its fourth public university.

The other risk, which is related to the first, is the possible diversion in the mission of some universities, tempted by the idea of being world-class universities even if they have no research capacity. To avoid this type of academic drift, the vision for the future of higher education must preserve and strengthen institutional diversity with good articulation and integration among institutions. This means recognizing and supporting the legitimate and complementary missions of the different types of higher education institutions, as long as there are flexible paths and bridges to facilitate student progression between the various types and categories of institutions and programs.

Finally, the fact that the best Chilean universities, especially the University of Chile and the Catholic University of Chile, have relatively good results at the Latin American level should not be an excuse for complacency. Both national authorities and university leaders must adapt to the mission of fulfilling the increasingly important role of higher education in Chile's economic development, and be aware not only of the progress of the Brazilian graduate education and research system, but also of the impressive progress of young universities in East Asia. Successfully facing this regional and international competition requires the development of a clear long-term vision, defining and taking on a set of reforms and measures, and committing to the financial investment that must accompany these steps over the long term. Once all these conditions are met, Chile can make the dream of having world-class universities a reality and achieve the levels of academic and scientific performance to which the country legitimately aspires.

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