

CHAPTER 2

Paths to Transformation

Infosys and Wipro are great role models. I cannot say that I will be as great as them, but today India is producing more entrepreneurs than any other country. . . . As chairman of Jet Airways, I definitely would like to see India able to create a world-class airline. We should not be inferior to Singapore and Cathay Pacific in terms of reliability and standards of service. We will hire the best brains, the best talent. We aim to be second to none.

Naresh Goyal, Jet Airways Founder and Chairman
Newsweek interview, July 16, 2007

Two complementary perspectives need to be considered in examining how to establish new world-class universities. The first dimension, of an external nature, concerns the role of government at the national, state, and provincial levels and the resources that can be made available to enhance the stature of institutions. The second dimension is internal. It has to do with the individual institutions themselves and the necessary evolution and steps that they need to take to transform themselves into world-class institutions.

The Role of Government

In the past, the role of government in nurturing the growth of world-class universities was not a critical factor. The history of the Ivy League universities in the United States reveals that, by and large, they grew to prominence as a result of incremental progress, rather than by deliberate government intervention. Similarly, the Universities of Oxford and Cambridge evolved over the centuries of their own volition, with variable levels of public funding, but with considerable autonomy in terms of governance, definition of mission, and direction. Today, however, it is unlikely that a world-class university can be rapidly created without a favorable policy environment and direct public initiative and support, if only because of the high costs involved in setting up advanced research facilities and capacities.

Altbach (2004) reports a late-19th-century conversation between John D. Rockefeller and the then-President of Harvard University, Charles W. Eliot, in which Rockefeller asked Eliot what would be the cost of establishing a world-class university. Eliot's answer was "50 million dollars and 200 years." However, the University of Chicago was able, at the beginning of the 20th century, to achieve this goal within only 20 years, although the price tag at that time was already more than US\$100 million.

Professor Altbach estimates the cost of creating a world-class university today to be around US\$500 million, and, indeed, the actual cost would very likely be much higher. The School of Medicine established by Cornell University in Qatar in 2002 cost alone US\$750 million (Mangan 2008). The government of Pakistan is planning to spend US\$700 million for each of the new Universities of Engineering, Science, and Technology that it is planning to create in the next few years.

In that respect, some of the key questions that national authorities need to ponder is how many—if any—world-class universities their country can afford and how to make sure that investment for that purpose will not come at the expense of investing in other priority areas in the tertiary education sector. Adopting the goal of building world-class universities does not imply, however, that all universities in a given country can be or should aspire to be of international standing. A more attainable and appropriate goal would be, rather, to develop an integrated system of teaching, research, and technology-oriented institutions that feed into and support a few centers of excellence that focus on value-added fields and chosen areas of comparative advantage and that can eventually evolve into world-class institutions.

The California higher-education master plan, formulated in the early 1960s, is a good example of strategic vision translated into a highly

diversified system (box 2.1). The California system of higher education integrates and supports a broad array of tertiary education institutions, which are connected through administrative and academic bridges and clear recognition rules. Today, California boasts 474 tertiary education institutions: 145 public universities, 109 private universities, and the remaining institutions divided between community colleges and vocationally oriented institutes. Out of these, two private universities (Stanford University and the California Institute of Technology) and four public universities (the Universities of California at Berkeley, Los Angeles, San Diego, and San Francisco) are among the top 20 universities in the SJTU ranking.

Box 2.1

Setting the Policy Framework for Higher Education in California

California pioneered the establishment of a policy framework for a state system of higher education in the United States when it developed and implemented its first Master Plan in 1959–60. The primary issues considered at that time were the future roles of the public and private sectors and, in particular, how the public sector should be governed and coordinated to avoid duplication and waste. Major principles that emerged from the initial Master Plan still shape the state's system today:

- Recognition of different missions for the four components of the higher-education system (Universities of California, California State Universities, community colleges, and private universities and junior colleges)
- Establishment of a statutory coordinating body for the entire system
- Differential admission pools for the state universities and colleges
- Eligibility of students attending private institutions for the state scholarship program

The California Master Plan for Higher Education, which is revised about every 10 years, is not a rigid blueprint to control centrally the development of California's system of higher education. Rather, it sets some general parameters; focuses primarily on the boundaries among the four sectors of higher education; and strives for a system that balances equity, quality, and efficiency.

Source: World Bank 1994.

To illustrate this point further, table 2.1 contrasts various types of tertiary education institutions by outlining the key factors that would combine to give each kind of institution the dimensions of excellence needed to be recognized as “world-class.”

Even in the richest OECD countries, only a handful of institutions achieve the kind of concentration of top researchers, professors, students, facilities, and resources that world-class research universities enjoy as pre-conditions for excellence in scholarship. In the United States, for example, where more than 5,000 tertiary education institutions operate today, fewer than 30 universities are among the best in the world; in the United Kingdom, fewer than 10 universities; and in Japan, fewer than 5. Recent studies in the United States reveal a trend of increasing wealth concentration among the top universities, allowing them to invest sizable sums to expand their central role in research and offer luxurious facilities to attract top students and faculty.

Higher education is increasingly a tale of two worlds, with elite schools getting richer and buying up all the talent. It's only fitting that Whitman College, Princeton's new student residence, is named for eBay CEO Meg Whitman, because it's a billionaire's mansion in the form of a dorm. After Whitman (Class of '77) pledged \$30 million, administrators tore up their budget and gave architect Demetri Porphyrios virtual carte blanche. Each student room has triple-glazed mahogany casement windows made of leaded

Table 2.1. Defining Factors of Excellence for World-Class Tertiary Education Institutions

<i>Type of institution</i>	<i>Concentration of talent</i>	<i>Abundance of resources</i>	<i>Favorable governance</i>
Research university	Students and faculty Emphasis on graduate students	+++	+++
Teaching university/ college	Students and faculty Concentration on undergraduate students	++	+++
Community college	Diverse student body (academic achievement) Outstanding faculty with professional experience and pedagogical skills	+	+++
Open university	Diverse student body (academic achievement and age) Faculty with excellent skills for distance teaching	+	+++

Source: Created by Jamil Salmi.

glass. The dining hall boasts a 35-foot ceiling gabled in oak and a “state of the art servery.” By the time the 10-building complex in the Collegiate Gothic style opened in August, it had cost Princeton \$136 million, or \$272,000 for each of the 500 undergraduates who will live there. Whitman College’s extravagance epitomizes the fabulous prosperity of America’s top tier of private universities.

BusinessWeek (2007)

The next relevant set of questions is about the most effective approach to achieve the proposed goal of becoming world-class. International experience shows that three basic strategies can be followed to establish world-class universities:

- Governments could consider upgrading a small number of existing universities that have the potential of excelling (picking winners).
- Governments could encourage a number of existing institutions to merge and transform into a new university that would achieve the type of synergies corresponding to a world-class institution (hybrid formula).
- Governments could create new world-class universities from scratch (clean-slate approach).

Each one of these approaches presents advantages and drawbacks that are now explored.

Upgrading Existing Institutions

One of the main benefits of this first approach is that the costs can be significantly less than those of building new institutions from scratch. This is the strategy followed by China since the early 1980s, with a sequence of carefully targeted reforms and investment programs (box 2.2). Indeed, Beijing University and Tsinghua University, China’s top two universities, have been granted special privileges by the national authorities, allowing them to select the best students from every province before any other university, much to the consternation of the other leading universities around the country.

But this approach is unlikely to succeed in countries where the governance structure and arrangements that have historically prevented the emergence of world-class universities are not drastically revised. A comparison of the experiences of Malaysia and Singapore can serve to illustrate this point. Because Singapore was initially one of the provinces of the Malaysian Kingdom during the first few years following independence from the British, the contrasting stories of the University of Malaya and of the National University of Singapore (NUS) can be quite instructive, given their common cultural and colonial origins.

Box 2.2**Tertiary Education Reform in China**

The Chinese government has been eager to develop a tertiary education system of international stature, and recent reform efforts reflect this goal. In 1993, the government adopted the *Guidelines of China's Educational Reform and Development*, which called for, among other things, building up 100 key universities with high-quality courses of specialized studies. In 1998, then-President Jiang Zemin announced the goal of building world-class universities, with a clear focus on the advancement of science and technology. Since then, state financing for tertiary education has more than doubled, reaching US\$10.4 billion in 2003, or almost 1 percent of GDP. Several top universities received grants to improve institutional quality under the 985 Project, which reflects a conscious strategy to concentrate resources on a few institutions with the greatest potential for success at the international level.

Chinese universities are currently spending millions of dollars to recruit internationally renowned, foreign-trained Chinese and Chinese-American scholars and to build state-of-the-art research laboratories, particularly in science and technology. The strategy is to surround their star faculties with the brightest students, give them academic leeway, and provide competitive salaries and additional nonsalary incentives. With low labor costs, structural upgrades are achievable at a tenth of the cost of those in industrial countries. All this is happening in the context of a new regime of financial autonomy, significant cost sharing, and intense efforts to develop management expertise at all levels of university leadership.

Sources: French 2005; Mohrman 2003.

At independence, the University of Malaya operated as a two-campus university, one in Kuala Lumpur and the other in Singapore. The former evolved into the flagship University of Malaya from the very beginning, and the other became the University of Singapore, which merged with Nanyang University in 1980 to create NUS. By all global ranking measures, NUS today functions as a true world-class university (ranked 19th by the 2006 *THES*), while the University of Malaya struggles as a second-tier research university (ranked 192nd). In examining the different evolutionary paths of these two institutions, several factors appear to be constraining the University of Malaya's capacity to improve and innovate as effectively as NUS: affirmative action and restrictive admission policies, lower levels of financial support, and tightly controlled immigration regulations regarding foreign faculty.

The affirmative action policy implemented by the Malaysian government in favor of the children of the Malay majority population (*Bumiputras*) has significantly opened up opportunities for that segment of the population. The proportion of Malay students—the Malay population represents 52 percent of the total Malaysian population—went from about 30 percent to two-thirds of the total student population between the early 1970s and the late 1980s. The proportion of Chinese students decreased from 56 to 29 percent over the same period (Tierney and Sirat 2008).

The downside of these equity policies was that they prevented the university from being very selective in its student admissions to target the best and brightest in the country. Large numbers of academically qualified Chinese and Indian students, in particular, were unable to attend Malaysia's best universities and had to seek tertiary education abroad, thereby removing important talent from Malaysia.¹ In addition to restrictions among its own population, the Malaysian Ministry of Higher Education places a 5 percent cap on the number of foreign undergraduate students that public universities can enroll.

By contrast, the proportion of foreign students at NUS is 20 percent at the undergraduate level and 43 percent at the graduate level. The cost of their studies is highly subsidized by NUS. The primary consideration for attracting these foreign students is not to generate income, as often happens in U.K. and Australian universities, but to bring in highly qualified individuals who will enrich the pool of students.

NUS is also able to mobilize nearly twice as many financial resources as the University of Malaya (US\$205 million annual budget versus US\$118 million, respectively) through a combination of cost sharing, investment revenue, fund-raising, and government resources. The success of NUS's fund-raising efforts is largely the result of the generous matching-grant program set up by the government in the late 1990s as part of the Thinking Schools, Learning Nation Initiative, which provided a three-to-one matching at the beginning and is now down to one-to-one. As a result, the annual per student expenditures at NUS and the University of Malaya were US\$6,300 and US\$4,053, respectively, in 2006.

1 In the summer of 2008, for the first time in three decades of affirmative action policies, a Malay politician, the Chief Minister of the State of Selangor, dared question publicly the wisdom of continuing to apply the restrictive access rules toward the Chinese and Indian part of the population. His comments sparked off student demonstrations, encouraged by the vice-chancellor of the local university, and a rebuttal from the country's prime minister (Jardine 2008).

Finally, in Malaysia, on one hand, civil service regulations and a rigid financial framework make it difficult, if not impossible, to provide competitive compensation packages to attract the most competent professors and researchers, particularly foreign faculty. NUS, on the other hand, is not bound by similar legal constraints. The PS21 public service reform project in the early 2000s aimed at promoting a culture of excellence and innovation in all public institutions, including the two universities. NUS is therefore able to bring in top researchers and professors from all over the world, pay a global market rate for them, and provide performance incentives to stimulate competition and to retain the best and the brightest. Indeed, a good number of Malaysia's top researchers have been recruited by NUS.

Governments need, therefore, to construct a supportive external policy environment and create the financing and regulatory conditions that enable and encourage their universities to compete at an international level on a host of indicators on which the quality and relevance of university education are commonly assessed (see box 2.3), including reputation

Box 2.3

Do Governments Care about Higher Education? Lessons from the Soccer Field

For the sake of argument, let us consider the following: how would Barcelona's professional soccer team (FC Barcelona) perform if it were constrained by all the rules that burden our universities? What would happen if all the players were civil servants with salaries determined by a government ministry and if they were allowed to continue playing every day regardless of their performance during official games and behavior during practice sessions? What would happen if the club's income were not linked to its game results, if it could not pay higher salaries to attract the best players in the world, or if it could not quickly get rid of the underperforming players? What would happen if team strategy and tactics were decided by the government, rather than by the coach? Wouldn't such an approach risk relegating the Barcelona team to the sidelines of mediocrity? If we agree that such an approach is unwise for a sports team, why do we allow our universities to operate under such conditions? This suggests that, deep down, we care more about soccer than about the education of our children.

Source: Adapted by Jamil Salmi and Richard Hopper from Xavier Sala-i-Martin, "A Great Sense of Humor," *Vanguardia* (November 17, 2006). (Professor Sala-i-Martin teaches at Columbia University in the United States and Universidad Pompeu Fabra in Spain.)

and awards, foreign students and faculty, and research grants. One way to facilitate this is to grant management autonomy to the universities. Another is to provide performance-based financing, and a third is to put in place favorable taxation systems that allow companies and philanthropists to make tax-free donations to universities. The United States and India provide good examples of this practice.

Merging Existing Institutions

The second possible approach to building up a world-class university consists of promoting mergers among existing institutions. France and Denmark are two countries that have diligently embarked on this path in recent years. In France, individual universities and *grandes écoles* are exploring the feasibility of merging on a regional basis. In Denmark, the government has set up an Innovation Fund that would reward, among other things, the combination of similar institutions. In China, too, a number of mergers have taken place to consolidate existing institutions. For example, Beijing Medical University merged with Beijing University in 2000; similarly, in Shanghai, Fudan University merged with a medical university, and Zhejiang University was created out of the merger of five universities. In 2004, in the United Kingdom, the Victoria University of Manchester (VUM) and the University of Manchester Institute of Science and Technology (UMIST) merged, creating the largest university in the United Kingdom, with the purposefully stated goal of being “top 25 by 2015” (<http://www.manchester.ac.uk/research/about/strategy/>). Also in the United Kingdom recently, Cardiff University and the South Wales School of Medicine have merged as a deliberate step to establish a world-class university in Wales. These mergers, in most cases between already strong institutions, have often the explicit or implicit goal of creating larger and more comprehensive research universities in clear response to the fact that international rankings compare the number of publications and faculty awards of institutions independently from the size of their student enrollment (Harman and Harman 2008).

The government of the Russian Federation is also relying on amalgamation as a key policy within its overall strategy of developing elite research universities. In 2007, two pilot federal universities were set up by merging existing institutions in Rostov-on-Don in southern Russia and in the Siberian city of Krasnoyarsk. The two new institutions will also receive additional funding to support efforts to allow them to recruit highly qualified researchers and equip state-of-the-art laboratories (Holdsworth 2008).

The great advantage of mergers is that they can result in stronger institutions able to capitalize on the new synergies that their combined human and financial resources may generate. But mergers can also be risky, potentially aggravating problems instead of resolving them. In the case of France, for example, mergers would augment the critical mass of researchers and bring about a higher place in the SJTU ranking that favors research output, but they would not address the fundamental limitations of French universities, including inflexible admission policies, a weak financial basis, rigid governance arrangements, and outdated management practices. The Danish case, however, has greater chances of success because the push for mergers is taking place within the context of an overall governance reform aimed at transforming all universities in the country into more flexible and dynamic institutions (see appendix E).

Another danger associated with mergers is that the newly consolidated institution could suffer because of clashing institutional cultures. It has become clear, for example, that the previously mentioned merger between VUM and UMIST has not been as successful as expected or originally perceived. Currently acknowledging a £30 million budget deficit and the likelihood of up to 400 jobs lost on the campus, the University of Manchester has had immediate experience with the complexities of merging (Qureshi 2007). Among the main problems encountered are duplication of staff and curricular offerings, the political challenges of engendering support for the merger by making promises that have proven detrimental to keep (for example, committing to no compulsory redundancy at the time of merger and at present foreseeing a need to cut positions as rapidly as possible), and the short-term absorption of labor contracts and institutional debt. In addition, the newly formed institution, with its commitment to achieving world-class status, invested heavily in hiring “superstar” academic staff and supplying them with correspondingly superstar facilities. This exacerbated further the staffing debt that the institution inherited with the merging of the distinct and separate institutional staffs—and their individual cultures, norms, and labor contracts—into the one university. It remains to be seen how Manchester will address these financial, cultural, and interpersonal obstacles while simultaneously maintaining its quest for world-class status.

Thus, one of the main challenges when undertaking a merger is to create a shared academic culture and transformation vision among all constituting units (faculties, schools, departments) and bring internal coherence to the newly established institution. In many cases, the leaders of merged universities are severely constrained by the high level of independence

claimed by constituting units. The new university established by merging existing universities may carry the legacy of the old brands, which in some cases may actually be an obstacle in attracting excellent students and staff. The leadership of the new, consolidated institution requires the political savvy to manage the various needs of conflicting constituents.

Creating New Institutions

In countries where institutional habits, cumbersome governance structures, and bureaucratic management practices prevent traditional universities from being innovative, creating new institutions may be the best approach, provided that it is possible to staff them with people not influenced by the culture of traditional universities and provided that financial resources are not a constraint. New institutions can emerge from the private sector, or governments can allow new public institutions to operate under a more favorable regulatory framework. Kazakhstan is a country intent on following this path as it seeks to make its economy less dependent on oil and more competitive overall. The government of Kazakhstan has decided to set up a new international university in Astana. The plan is that this university will follow a highly innovative multidisciplinary curriculum in cooperation with leading international universities. In the same vein, the government of Saudi Arabia announced in late 2007 its plans for a US\$3 billion graduate research university, King Abdullah University of Science and Technology, which would operate outside the purview of the Ministry of Higher Education to allow for greater management autonomy and academic freedom than the regular universities of the kingdom enjoy.

One of the earlier success stories in that respect was the establishment of the Indian Institutes of Technology, which, in the past decades, have gradually risen to world-class status (box 2.4).

A third promising example is the creation of the Paris School of Economics (PSE) in February 2007, modeled after the London School of Economics and Political Science (LSE). This initiative combines elements of mergers with the creation of a brand new type of institution in the French context (Kahn and Malingre 2007). Cosponsored by four *grandes écoles*, the University of Paris I (the Sorbonne), and CNRS, PSE will operate as a private foundation regrouping the best economics departments from the participating institutions. Its initial funding comes not only from the state and the region but also from private companies and a U.S. foundation. Unlike traditional French universities, PSE will be highly selective in terms of incoming students. Many of the core professors will come from the most prestigious universities in the world.

Box 2.4**The Indian Institutes of Technology: A Success Story**

Soon after becoming independent, India placed science and technology high on its economic development agenda. The first Indian Institute of Technology (IIT) was established in 1951 at Kharagpur (West Bengal), with support from the United Nations Educational, Scientific, and Cultural Organization (UNESCO), based on the MIT model. The second IIT was established at Bombay (now Mumbai) in 1958, with assistance from the Soviet Union through UNESCO. In 1959, IIT Madras (now Chennai) was established with assistance from Germany, and IIT Kanpur with help from a consortium of U.S. universities. British industry and the U.K. government supported the establishment of IIT Delhi in 1961. In 1994, IIT Guwahati was established totally through indigenous efforts. In 2001, the University of Roorkee was brought under the IIT family as the seventh such institution.

While taking advantage of experience and best practices in industrial countries, India ensured that the “institutions represented India’s urges and India’s future in making” (Prime Minister Nehru, 1956). The Indian Parliament designated them as “Institutes of National Importance,” publicly funded institutions enjoying maximum academic and managerial freedom, offering programs of high quality and relevance in engineering, technology, applied sciences, and management at the undergraduate, master’s, and doctorate levels and offering their own degrees. Student admissions are made strictly according to merit through a highly competitive common entrance test.

Today, the IITs attract the best students interested in a career in engineering and applied sciences. With 4,000 new students selected out of 250,000 applicants every year, the IITs are more selective than the top U.S. Ivy League schools. Several IIT alumni occupy the highest positions of responsibility in education, research, business, and innovation in several parts of the world. In 2005, *THES* ranked the collective IITs as, globally, the third-best engineering school after MIT and the University of California, Berkeley.

The main strength of the IITs has been their sustained ability to attract the best students and turn them into “creative engineers” or “engineer entrepreneurs.” Initially, IITs were criticized for their contribution to the “brain drain” because about 40 percent of the graduates went abroad. Today, with the opening and fast growth of the Indian economy, this “weakness” is turning into a big strength for international cooperation and investments. Much of the success of Bangalore, for instance, is attributed to the phenomenon of “reverse brain drain.”

Source: Created by Shashi Shrivastava and Jamil Salmi.

The creation of new institutions may also have the side benefit of stimulating existing ones into becoming more responsive to a more competitive environment. Examples from many parts of the world showing the emergence of high-quality private universities in countries with a predominantly public tertiary education sector have provoked the public universities into becoming more strategically focused. In Uruguay, the venerable University of the Republic—which had exercised a monopoly over tertiary education in the country for 150 years—started a strategic planning process and considered establishing postgraduate programs for the first time only after being confronted in the mid-1990s with competition from newly established private universities. Similarly, in Russia, the creation of the Higher School of Economics and of the Moscow School of Social and Economic Sciences in the 1990s pressured the Department of Economics at the State University of Moscow to revamp its curriculum and get more actively involved in international exchanges.

Maintaining the favorable conditions that are instrumental for the establishment of a new world-class institution requires constant vigilance, as the growing faculty shortage faced by the IITs illustrates. India's economic success has translated into a much larger income gap between the Institutes and industry than existed in the past. As a result, fewer promising graduates seek an academic career (Neelakantan 2007). It is estimated that the IITs are already suffering from a shortage of at least 900 qualified faculty. At the Delhi IIT alone, 29 percent of faculty positions are unfilled. Without the autonomy to raise salaries and offer more competitive employment packages, the IITs are at risk of losing their competitive edge. The younger Indian Institutes of Management face the same hurdle in their quest for world-class status (Bradshaw 2007).

The IITs and the Institutes of Management are also concerned about the recent decision of the Federal Ministry of Human Resource Development requiring them to implement a 49.5 percent quota ("reserved places") for various minority groups (Scheduled Castes, Scheduled Tribes, and Other Backward Classes) in the faculty. The institutions are asking the government to grant them the same exemption from reservation as the one given to the Tata Institute of Fundamental Research, the Bhabha Atomic Research Centre, and the Harish-Chandra Research Institute because of their status as "institutes of national importance" (Gupta 2008).

Finally, one of the major risks with implementing this third strategy in developing countries is that emulation by other institutions in the national tertiary education system may not be possible if most of the scarce public funds are concentrated in a few universities. Similarly, the good practices

applied in the new institution(s) could simply not be applicable within the tight governance environment that usually binds public tertiary education institutions. This could lead to a highly dual system beyond what would be generally expected from a reasonably tiered system.

Evaluating these Approaches

Table 2.2 attempts to summarize the positive and negative aspects linked to each approach (upgrading, merging, or creating new institutions). It should be noted that these generic approaches are not mutually incompatible and that countries may pursue a combination of strategies based on these models.

Countries deciding to establish world-class universities by upgrading or merging existing ones must also choose an appropriate methodology

Table 2.2. Costs and Benefits of Strategic Approaches for Establishing World-Class Universities

<i>Conditions</i>	<i>Approach</i>		
	<i>Upgrading existing institutions</i>	<i>Merging existing institutions</i>	<i>Creating new institutions</i>
Ability to attract talent	Difficult to renew staff and change the brand to attract top students	Opportunity to change the leadership and to attract new staff; existing staff may resist	Opportunity to select the best (staff and students); difficulties in recruiting top students to “unknown” institution; need to build up research and teaching traditions
Costs	Less expensive	Neutral	More expensive
Governance	Difficult to change mode of operation within same regulatory framework	More likely to work with legal status different from that of existing institutions	Opportunity to create appropriate regulatory and incentives framework
Institutional culture	Difficult to transform from within	May be difficult to create a new identity out of distinct institutional cultures	Opportunity to create culture of excellence
Change management	Major consultation and communication campaign with all stakeholders	“Normative” approach to educate all stakeholders about expected norms and institutional culture	“Environmentally adaptive” approach to communicate and socially market the new institution

Source: Created by Jamil Salmi.

to select which existing universities to merge. Governments need to assess the degree to which they want to manage the process in a centralized way, cherry-picking institutions where centers of excellence could be established or boosted, or whether it would be preferable to steer the tertiary education system at a distance, relying on broad strategic orientations and financial incentives to entice the most dynamic universities to transform themselves.

International experience suggests that in medium to large countries, the latter approach, which encourages competitive behaviors among tertiary education institutions, could be more effective in the long run. The China 211 and 985 projects, the Brain 21 program in South Korea, the German Initiative for Excellence, and the Millennium Institutes recently established in Chile are examples of how countries stimulate the creation or consolidation of research centers of excellence (box 2.5). Appendix F describes the most recent excellence initiatives implemented throughout the world.

Box 2.5

The German Initiative for Excellence

In January 2004, the German Federal Ministry of Education and Research launched a national competition to identify about 10 universities with the potential of becoming elite universities. Extra funding will be provided under three windows: to entire institutions aiming to become world-class universities, to centers of excellence with international recognition, and to graduate schools intent on strengthening the quality of their programs.

After initial resistance from the states jealous of their traditional authority in the area of tertiary education funding, a compromise was reached, and a joint commission was established, with representatives of the German Research Foundation and the Science Council.

In January 2006, the commission selected 10 universities among 27 candidates, 41 proposals for centers of excellence among 157 submissions, and 39 graduate schools among 135 proposals. The majority of selected universities (7 out of 10) are located in two states (Baden-Württemberg and Bavaria), and only 10 percent of the winning centers of excellence are in the humanities and social sciences. Most of the selected graduate schools have a strong multidisciplinary focus. A total of \$2.3 billion of additional funding will be made available to support the winning proposals over a period of four years.

Source: Kehm 2006.

In smaller states, where the capacity for mobilizing and combining public and private resources is constrained, greater selectivity in investment funding may be a more appropriate approach to optimizing the deployment and utilization of public resources. In New Zealand, for instance, the country's premier tertiary education institution, the University of Auckland, has been calling for targeted government efforts to help transform the university into a leading research university:

The Government's acknowledgement (through the reforms) that not all institutions are, or should be, the same is a critical and ultimately enabling first step towards the positioning of one or more New Zealand research universities as institutions of international quality and status. . . .

The challenge New Zealand must address is that the most successful tertiary institutions in the world, those against which our best universities ought to be benchmarking themselves, operate with levels of public investment that we in New Zealand struggle to comprehend. To cite just one example, federal and state funding in the United States public universities is estimated at US\$12,000 per student – approximately twice that of New Zealand in equivalent purchasing terms. And that doesn't take into account the additional impact of the substantial endowments that many US universities enjoy. . . .

A critical mass of leading staff and outstanding students in a university, enabled by adequate investment and an international reputation for teaching and research, produces research outputs, an atmosphere of intellectual excitement, and productive relationships with industry that cannot be replicated elsewhere. To cite just one example of what is possible, a November 2006 study by the Ministry of Research, Science and Technology found that of 16 New Zealand-developed drugs currently in clinical trials approved by the US Food and Drug Administration, 13 had been developed by our universities – and 12 of them by The University of Auckland!

To reach this goal, and achieve the characteristics shared by world-class research universities, vision, commitment, and a desire for change are required. These will assist New Zealand's leading universities to provide a learning environment of the highest quality, to lead the advancement of knowledge creation, intellectual discovery, and innovation within New Zealand, and to take our place with world-class research universities on the global stage.

Vision, commitment, and a desire for change will, however, not be sufficient. Increased levels of public and private investment will also be required, along with a particular commitment to the stated aim of the current reforms – differentiation. Both Australia and the US concentrate research excellence (and investment) in those institutions most likely to produce results for economic

and social development. We need the same willingness in New Zealand to recognize and fund excellence in a selective and strategic fashion. Only then will the current tertiary reforms be successful.

University of Auckland (2007)

The Role of Other Actors

It is important to stress that national governments are not the only major player when it comes to facilitating the establishment of world-class institutions. In large countries and federal systems, regional or provincial authorities often play a critical role, as illustrated by the active role played by the Californian authorities in designing and establishing an integrated system of tertiary education in the 1960s or more recently in establishing special Innovation Funds to strengthen linkages between the research universities and the regional economy. Similarly, in the past 10 years, the Shanghai municipality has given active support to its leading universities, especially Fudan University, as part of its accelerated development policies. In the State of Nuevo Leon in Mexico, the business community has also contributed substantially to the success of the Instituto Tecnológico y de Estudios Superiores de Monterrey (the Monterrey Institute of Technology and Higher Education, or ITESM).

The complementary role of the private sector in supporting the development of world-class universities should not be overlooked either. Private industry can make important financial contributions to help increase the endowment of top institutions, as happened in Singapore and Hong Kong, China. In some cases, philanthropists have even taken the initiative to launch a new institution with aspirations of excellence, as demonstrated by the examples of Olin College of Engineering in Massachusetts or Quest University Canada in British Columbia. An Indian billionaire, Anil Agarwal, gave US\$1 billion to establish a multi-disciplinary research institution in Orissa, India. In Germany, Klaus Jacobs donated 200 million euros (€200 million) to the new private International University Bremen.

Besides potential funding, the active participation of private sector leaders on the board of the new institution(s) is important to steer its development. The contribution of the private sector can also take the form of close linkages to ensure inputs into the choice of relevant programs, the design of appropriate curricula, and full alignment of the new institution's applied research agenda with the needs of the local economy.

Strategic Dimensions at the Institutional Level

The first and perhaps most important aspect at this level is the quality of leadership and the strategic vision developed by the would-be world-class university. The second element is the proper sequencing of plans and activities envisaged to reach the proposed goal. Finally, particular attention needs to be given to the internationalization strategy of the university.

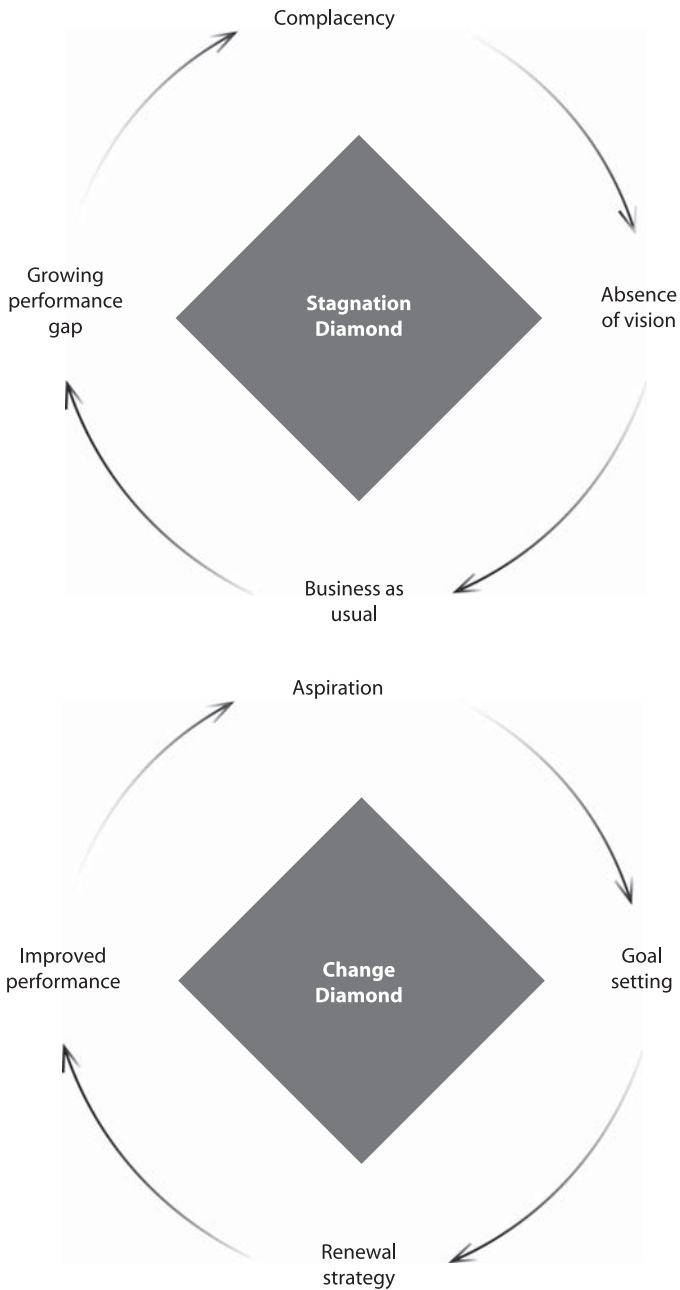
Leadership and Strategic Vision

The establishment of a world-class university requires, above all, strong leadership, a bold vision of the institution's mission and goals, and a clearly articulated strategic plan to translate the vision into concrete programs and targets. Figure 2.1 attempts to contrast the dynamics of a university that is on a renewal path with the stagnation path followed by institutions unwilling or unable to challenge themselves and their performance. Universities that aspire to better results engage in an objective assessment of their strengths and areas for improvement, set new stretch goals, and design and implement a renewal plan that can lead to improved performance. By contrast, as illustrated by the earlier discussion of the University of São Paulo, many institutions are complacent in their outlook, lack an ambitious vision of a better future, and continue to operate as they have in the past, ending up with a growing performance gap compared with that of their national or international competitors.

Recent research on university leadership suggests that in the case of top research universities, the best-performing institutions have leaders who combine good managerial skills and a successful research career (Goodall 2006). To be able to develop an appropriate vision for the future of the university and to implement this vision in an effective manner, the university president, vice-chancellor, or rector needs to fully understand the core agenda of the institution and to be able to apply the vision with the necessary operational skills.

A case study of the University of Leeds in the United Kingdom illustrates how the arrival of a new leader in 2003 marked the beginning of a conscious effort to reverse a downward trend through carefully planned and implemented strategic change. Rapid growth in student numbers (the second-largest university in the United Kingdom) had led to tensions between the teaching and research missions of the university, resulting in diminishing research income and results. Among the main challenges faced by the new vice-chancellor was the need to create a sense of urgency among the entire university community and to convince everyone of the importance of achieving a better alignment between corporate

Figure 2.1. The Stagnation and Change Diamonds



Source: Adapted from Perry and Sherlock (2008).

goals and the contribution of individual faculties and departments with a long tradition of autonomy.

For the University of Leeds, our reputation and profile made this challenge harder. As a great institution we had to demonstrate the vulnerability of our current position, alongside the importance and achievability of our vision. Staff were not going to engage in a strategy unless its credibility and relevance could be clearly established. To achieve this we used a variety of internal and external measures of performance reputation and ranking to clearly articulate the current position and the vision. . . . Considerable time and effort was dedicated to developing the vision of “by 2015 our distinctive ability to integrate world-class research, scholarship and education will have secured us a place among the top 50 universities in the world.”

Donoghue and Kennerley (forthcoming)

A crucial element of the vision is the selection of a niche market toward which the institution will seek to build and maximize its comparative advantage. In that respect, it is important to underline that a university—even a world-class university—most likely cannot excel in all areas. Harvard University, widely recognized as the number one institution of higher learning in the world, is not the best-ranked university in all disciplines (see examples in table 2.3). Its strengths are especially noted in economics, medical sciences, education, political science, law, business studies, English, and history.

Part of the vision setting will therefore consist of delineating the main areas where the institution wishes and has the potential to operate at the forefront. Some world-class institutions, such as the Indian Institutes of Technology, have specialized in a few engineering disciplines. The London School of Economics and Political Science is best known for outstanding scholarship in economics, sociology, political science, and anthropology. Even though no Swiss university appears among the top 50 internationally, the Ecole hôtelière de Lausanne (the Lausanne Hotel School), the only European school accredited by the New England Association of Schools and Colleges, is considered to be among the best in the world, on par with the University of Nevada’s College of Hotel Administration and Cornell University’s School of Hotel Administration.

Institutions aspiring to become world-class universities do not need to replicate what the current top universities do; they can innovate in many different ways. One possible path is to adopt a radically different approach to organizing the curriculum and pedagogy of the institution, as the newly established Olin College of Engineering in Massachusetts in the United

Table 2.3. Rankings by Discipline in U.S. News & World Report, 2008

<i>Rank</i>	<i>Business</i>	<i>Criminology</i>	<i>Education</i>	<i>Engineering</i>	<i>Law</i>	<i>Medicine</i>
1	Harvard University	University of Maryland, College Park	Stanford University	MIT	Yale University	Harvard University
2	Massachusetts Institute of Technology (MIT)	Rutgers, the State University of New Jersey	Teachers College, Columbia University	Georgia Institute of Technology	Columbia University	University of Pennsylvania
3	Northwestern University	University of California, Irvine	University of Oregon	University of Illinois at Urbana-Champaign	New York University	University of California, San Francisco
4	Stanford University	State University of New York (SUNY) at Albany	Vanderbilt University	Stanford University	Harvard University	Johns Hopkins University
5	University of Pennsylvania	University of Cincinnati	University of California, Los Angeles (UCLA)	University of California, Berkeley	Stanford University	Washington University in St. Louis

Source: U.S. News & Report 2008.

States and the Limkokwing University of Creative Technology in Malaysia have attempted in the field of engineering and technology.

The Franklin W. Olin College of Engineering was founded in 1999 with a US\$400 million endowment from the Olin Foundation and the mandate to implement an innovative engineering curriculum. Olin College seeks to produce graduates trained in the new skills identified in a 2005 report, *Educating the Engineer of 2020*, such as competency in teamwork, communication, entrepreneurial thinking, creativity and design, and cross-disciplinary thinking (NAE 2005). Most of the learning at Olin takes place through design-build team projects. All students are required to complete a program in the fundamentals of business and entrepreneurship, as well as a special project in the arts, humanities, or social sciences. To foster its philosophy of interdisciplinary work, the college does not have any academic departments. To encourage a culture of continuous innovation and risk taking among professors, there is also no tenure system at Olin. All students receive merit scholarships to cover the cost of tuition and living expenses in Olin's residential environment (Miller 2007a).

Even though it is too early to draw definitive conclusions—the first batch of graduates completed their degrees in May 2006—there are clear indications that the Olin College of Engineering has managed to attract talented students and excellent faculty, to put in place an innovative and stimulating curriculum, and to develop a culture of intellectual empowerment. Its graduates appear to be successful in finding appealing jobs or accessing top graduate schools (Schwartz 2007).

Similarly, the Limkokwing University of Creative Technology in Malaysia has established itself as an innovative private institution emphasizing the acquisition of creativity and design competencies relevant to a wide array of activities in industry and services. The rapid development of its new campuses in Botswana, Lesotho, and London attests to the success of its model.

Another innovative approach links the transformation of the institution to shifting regional or local development opportunities, as illustrated by the example of Clemson University in South Carolina, United States (see box 2.6).

Sometimes, going through a crisis can energize an institution into changing its culture and revitalizing itself, as happened with the Catholic University of Leuven (Belgium) in the late 1960s after it faced a large financial deficit (Hatakenaka 2007). Today, it ranks among the top European universities.

Box 2.6**Developing a New Vision at Clemson University**

Clemson University, a land-grant university in South Carolina traditionally focused on agriculture and mechanical engineering, has undertaken a radical transformation process in recent years. Based on an in-depth analysis of the conversion of South Carolina into one of the leading automotive regions in the United States, Clemson University formed a strategic partnership with the German automaker BMW with the aim of re-creating itself as the premier automotive and motor sports research and education university. Its new vision statement specifically mentions the target of becoming one of the nation's top 20 public universities (as measured by *U.S. News & World Report*), up from the rank of 74th four years ago and 34th in 2005.

Source: Presentation by Chris Prziembel, Vice-President for Research and Economic Development, Clemson University, at the MIT Conference on Local Innovation Systems, Cambridge, MA, December 13, 2005.

The Pontifical Catholic University of Peru (in Lima) went through a similar positive transformation in the late 1990s after a drastic reduction in student enrollment that led the university to undertake a thorough strategic planning exercise. Concerned that student demand was diminishing because of the location of the university in an area of the capital city that had lost its appeal over the years, the leadership thought briefly about moving to a new site, close to where the middle classes were now living. But extensive consultations with stakeholders during the strategic planning period made the university aware that the fundamental issue was one of deteriorating quality and relevance. Drastic renewal measures were taken, including course redesign and a strong emphasis on continuous quality monitoring and improvement, resulting in higher student demand and successful fund-raising.²

It is finally important to underline that the efforts of universities seeking to transform themselves should be really of a strategic nature, based on a forward-looking vision that is genuinely innovative. With the growing influence of rankings documented at the beginning of this report, institutions should resist the temptation to focus on limited actions that are directly related to the specific indicators used by the rankers and not necessarily linked to a change vision. There is a risk, for

² Based on a series of visits and interviews by the author between 1998 and 2001.

example, in paying too much attention to factors such as admission scores and donations from alumni that receive prominence in many national rankings to the detriment of other key aspects that may be more important from an educational viewpoint. The research productivity emphasis of the main two world rankings contributes also to reinforcing this research drift trend and results in skewed reward systems that favor research productivity over the quality of teaching and learning. Mergers of convenience, driven mainly by size concerns, are another illustration of this kind of misguided behavior.

The subjective nature of world class status means that institutions will attempt to address those dimensions that are considered in assessing reputations and that are visible. In this respect, research activity, publications, citations, and major faculty awards are highly visible and measurable while the quality of the educational process is not. Thus, it is not surprising to see a focus on research criteria in the surveys and in the efforts of institutions to promote their importance and little or no attempt to measure and assess teaching quality or educational activities. Indeed, there is a tacit assumption that if an institution is highly competitive in its admissions that the educational quality is also very high, even without measuring that quality. Yet, student competition for admission may be based upon a prestigious reputation that is largely due to the research visibility of a university rather than its educational virtues.

Levin, Jeong, and Ou (2006)

Sequencing

Time is an important dimension that also needs to be factored into the strategic plan of the aspiring world-class university. Developing a culture of excellence does not happen from one day to the next. Proper sequencing of interventions and careful balance among the various quantitative objectives are required to avoid experiencing the kinds of growing pains that some of the Chinese universities have encountered (box 2.7).

It is important to stress that vision development and strategic planning are not one-time exercises. In a highly competitive environment, the more successful organizations in both business and academia are those that are relentless in challenging themselves in the pursuit of better and more effective ways of responding to client needs. With constant replenishment of intellectual capital, performance is never static in the best universities. The most successful institutions are not content with relying on past accomplishments, but always aspire to be among the best in the world. They are successful in creating, internally, a supportive atmosphere that encourages everyone to define and pursue stretch goals.

Box 2.7**Obstacles to the Transformation of Chinese Universities**

There are signs that China's plans to achieve world-class stature are meeting some obstacles. First is the concern that Chinese universities have expanded too quickly at the expense of maintaining quality. Second, the academic culture that demands quick results hampers innovative and long-term research efforts. While the "publish or perish" culture is strong in the United States, such pressures are often balanced with the recognition of the value of creativity and originality. Lack of undergraduate students with a strong foundation in science and technology is the third weakness. Without well-trained students entering the graduate programs, first-class faculty and laboratories will be underutilized. Fourth, lack of academic freedom is a serious issue in China. Faculty and students are encouraged to question government policies or engage in debates on pressing issues in only a limited way, with some disincentive for creative thinking.

Finally, China's vision of world-class universities focuses almost exclusively on factors such as increased publications in international journals, up-to-date laboratories, more buildings, star professors, and additional funding (Mohrman 2003). Yet the vision is largely imitative, rather than creative. Ruth Simmons (2003), president of Brown University, emphasizes the importance of other factors: "The bedrock of university quality in the United States is peer review, a system in which standards are set by leaders of the field and those leaders are themselves challenged and judged by this process." Simmons goes on to note that "universities promote the capacity of scholars to develop original work that is not immediately applicable or useful. Great universities are not only useful in their own time, but in preparing for future times. What allows a great university to do that is as little interference from the state as possible. The role of the state is to provide resources, but to give wide latitude to universities' leaders to decide how scholarship is to advance." Their universities might do better to focus on building world-class departments, institutes, or schools, rather than trying to excel on all accounts.

Source: Altbach 2003.

This is one of the characteristics of the Olin College of Engineering, whose president defined the challenge of continuous improvement in the following terms:

Innovation and continuous improvement require certain cultural attitudes and commitments. First, an implicit humility is required to embrace the

notion that improvement is always possible, and that we can always learn from others outside our community. Listening to those outside academia has not always been the strong suit of American higher education. In addition, continuous improvement is only possible if continuous assessment is employed to guide the process. We must be willing to expose ourselves to review and measurement, and to take the time to learn from our mistakes. Finally and perhaps most importantly, continuous improvement requires openness to change.

Miller (2007b)

Not even the most famous universities are immune from the necessity of evolving and adapting to changing circumstances, as the University of Oxford's failed attempt at financial reform illustrates. In the current increasingly competitive market for academics, central authorities at the university face the need for additional resources to continue hiring internationally renowned professors and researchers. They have been constrained, however, by centuries-old governance arrangements and authority structures that give the control of a large share of the university's wealth to its individual colleges. The colleges have no desire to share their resources coming from traditional endowments and a large intake of foreign postgraduate students whose fees are more than three times higher than those paid by domestic students.

One aspect of the reform proposals submitted in 2006 by Vice-Chancellor John Hood, who had been recruited from New Zealand to lead Oxford in attempting to redress the balance, was to give more power over these resources to the university's central leadership, while also allowing for increased financial oversight by outsiders. The reform was ultimately rejected by Oxford's academic community, leading to Hood's decision to step down at the end of his five-year term in 2009. A number of alumni have expressed concern about the potentially negative consequences of these arrangements, which may have resulted in academic overload and lack of proper supervision of postgraduate students (Shultziner 2008).

Internationalization Dimension

One way of accelerating the transformation into a world-class university is to use internationalization strategies effectively. An influx of top foreign students can be instrumental in upgrading the academic level of the student population and enriching the quality of the learning experience through the multicultural dimension. In this regard, the capacity to offer

programs in a foreign language, especially English, can be a powerful attraction factor. Among the 100 top universities according to the SJTU ranking, 11 come from non-native-English-speaking countries where some graduate programs are offered in English (Denmark, Finland, Israel, the Netherlands, Norway, Sweden, and Switzerland).

As discussed earlier, the ability to attract foreign professors and researchers is also an important determinant or characteristic of excellence. Universities need to be able to offer incentives, including flexible remuneration and employment conditions, to recruit top academics from other countries. These talented individuals can help upgrade existing departments or establish graduate programs and research centers in new areas of competitive advantage. In the United Kingdom, for example, 27 percent of all academic staff appointed in 2005/06 were foreign nationals (Universities UK 2007). In cases in which it is difficult to attract foreign faculty on a full-time basis, the university can start by bringing in leading foreign scholars on a temporary basis.

To facilitate the contribution of foreign scholars, a number of aspiring world-class universities have formed fruitful partnerships with top universities in industrial countries. This was the case with the Indian Institutes of Technology in the early years of their establishment (see box 2.4). More recently, one emerging world-class university, the National University of Singapore, has relied extensively on strategic alliances with the Australian National University, Duke University, Eindhoven University of Technology in the Netherlands, Harvard University, Johns Hopkins University, MIT, and Tsinghua University in China, to mention only the better-known partner institutions. These partnerships have not always functioned smoothly, however, as shown by the recent rupture with Johns Hopkins University in Singapore because of dissatisfaction with the quality of faculty and outputs offered by the foreign partner (Normile 2006).

Attracting leading scholars from the diaspora is another internationalization strategy that a few universities in India and China have implemented with success (Brown 2007). Beijing University, for example, has hired hundreds of academics of Chinese origin. As part of its human resource strategy, the university closely monitors good Chinese scholars abroad and creates favorable conditions for their return. Mexico, Scotland, and South Africa have also started to implement interesting strategies to harness the contribution of talented nationals living outside the country (see box 2.8).

Related to this internationalization dimension of improving an institution's global reputation is the extent to which national researchers

Box 2.8**How Diasporas Can Contribute to Development in Home Countries**

A diaspora is a network of people coming from a same home country and living abroad. A successful diaspora network is characterized by the following three elements: (a) members of the diaspora are talented and show strong intrinsic motivation; (b) they are involved in project implementation in their home country and serve as connectors, catalysts, or vectors for projects development in the home country; (c) its efficiency, continuity, and development over time are based on concrete activities with measurable outcomes.

In most cases, diasporas and expatriate networks emerge spontaneously. Government interventions can help develop or structure such initiatives, however. The first condition required for home countries to take advantage of these expatriate talents is to recognize them as an opportunity to develop a knowledge-based economy. Strategies to leverage diasporas vary with the country conditions on one hand and the diaspora's characteristics on the other hand. Nevertheless, a common and critical element to efficiently use expatriate talent is the existence of solid institutions.

An excellent illustration of an efficient diaspora search network is GlobalScot, a network of high-powered Scots from all over the world who use their expertise and influence as antennae, bridges, and springboards to generate projects in Scotland. Launched in 2002, this network has proven extremely attractive and efficient, with 850 influential businesspeople participating in 2005, and therefore contributing to Scotland's economic development strategy. ChileGlobal, Mexico's Network of Talent Abroad, and the Global South Africans project have inspired themselves from the GlobalScot model and are on their way to successfully adapting it to their respective specificities.

Diasporas as search networks can be compared with, and learn from, alumni networks. There is a great opportunity for tertiary institutions to participate in the diaspora network process. Universities have a potent comparative advantage to follow distinctive alumni, identify leaders abroad, and gradually build a search network. This is how successful diasporas begin.

Source: Kuznetsov 2006.

have the linguistic competence to publish in English. One way in which institutions and academics advance their reputation is by their presence in scientific publications. Because citation indexes compile data primarily from journals published in English, the facility with which academics

can disseminate research results in English becomes a critical factor in enhancing institutional reputation. Needless to say, institutions functioning in English are more likely to engender such success.

In some cases, universities have also found it useful to hire a foreign professional to lead the institution through the proposed transformation process. Australia, the Republic of Korea, and the United Kingdom are examples of countries where this has happened in recent years. Of course, this approach is not always welcome. Bringing in an outsider to lead a flagship university can hurt national sensitivities, and few countries have shown the disposition to undertake international recruitment searches to fill the highest university positions. Regardless, this is one way in which institutions can challenge themselves into “thinking outside the box” and embrace a change management mind-set.

It is also important to remember that those institutions that are deemed to be the most world-class are also thinking outside the box and perpetually seeking ways to sustain their top positions. As students seek excellence in higher education, regardless of borders, the best universities in the world must change how they compete to attract these students to their campuses (box 2.9).

Box 2.9

When “the Best” Compete for You: China’s Rise

Much is made of the cultural drive that brings Chinese students to the U.S., U.K., and other world-renowned higher education systems. What has received somewhat less attention is the development of the Chinese higher education system into one that challenges the supremacy of the historically powerful Western institutions. This rise in local quality has generated a global competition to attract the best students to faraway campuses.

Eager to cultivate generations of students in this new frontier, admissions officers from premier American universities are scouring China to recruit top high school students who may dismiss such colleges as out of reach and unaffordable. In last month’s campaign during the contest, representatives of Harvard, Brown, and Stanford Universities touted liberal arts education, research opportunities, and American dorm life to students and their parents, even promising full scholarships.

(continued)

Box 2.9 *(continued)*

“There are no quotas, no limits on the number of Chinese students we might take,” Fitzsimmons told a standing-room-only crowd of more than 300 students during a visit to Beijing No. 4 High School. “We know there are very good students from China not applying now. I hope to get them into the pool to compete.”

That message is disconcerting for American students toiling to land a coveted spot in Harvard’s 1,660-student freshman class and controversial among some educators. But Fitzsimmons and others say that they had better get used to the idea: “Applications from China have exploded in recent years as the Communist country opens up to the world, and they’re only going to increase.”

Source: Jan 2008.

Attracting the best—students, scholars, and research partners—from anywhere they can be found has become the modus operandi of the world’s best institutions. As borders become softer, the competition for the best has become more intense.

In the case of science-and-technology-oriented universities, the ability to attract research contracts from foreign firms and multinational corporations is a good measure of the scientific standing of rising universities. In recent years, a few Chinese and Indian universities have received important research contracts from North American and European firms, sometimes at the expense of universities in the countries of origin of these companies (Yusuf and Nabeshima 2007).

Summary Checklist

The following critical questions need to be answered to guide the quest toward establishing world-class universities:

At the National Level

- Why does the country need a world-class university? What are the economic rationale and the expected added value compared with the contribution of existing institutions?
- What is the vision for this university? What niche will it occupy?
- What would be the investment and recurrent costs of a world-class university?
- How many world-class universities are desirable and affordable as a public sector investment?

- What strategy would work best in the country context: upgrading existing institutions, merging existing institutions, or creating new institutions?
- What should be the selection process among existing institutions if the first or second approach is chosen?
- What will be the relationship and articulation between the new institution(s) and existing tertiary education institutions?
- How will the transformation be financed? What share should fall under the public budget? What share should be borne by the private sector? What incentives should be offered (for example, land grants and tax exemptions)?
- What are the governance arrangements that must be put in place to facilitate this transformation and support suitable management practices? What level of autonomy and forms of accountability will be appropriate?
- What will the government's role be in this process?

At the Institutional Level

- How can the institution build the best leadership team?
- What are the vision and mission statements, and what are the specific goals that the university is seeking to achieve?
- In what niche(s) will it pursue excellence in teaching and research?
- What is the target student population?
- Should the university be set up in partnership with a foreign institution? And what type of partnership should be sought?
- What are the internationalization goals that the university needs to achieve (with regard to faculty, students, programs, and so forth)?
- What is the likely cost of the proposed qualitative leap, and how is it going to be funded?
- How will success be measured? What monitoring systems, outcome indicators, and accountability mechanisms will be used?