Research universities stand at the center of the 21st-century global knowledge economy and serve as flagships for postsecondary education worldwide. *The Road to Academic Excellence* analyzes how research universities have developed and matured in 10 countries. They are elite, complex institutions with multiple academic and societal roles. They provide the key link between global science and scholarship and a nation’s scientific and knowledge system. Research universities produce much of the new information and analysis that not only leads to important advances in technology but also contributes, just as significantly, to better understanding of the human condition through the social sciences and humanities. They are both national institutions that contribute to culture, technology, and society and international institutions that link to global intellectual and scientific trends. They are truly central institutions of the global knowledge society (Salmi 2009). This chapter provides a historical and global context to understand the development of the research universities reviewed in the case studies in this book.

As national institutions, research universities serve only a minority of undergraduate students, usually the nation’s best and brightest, and employ the best-qualified academics. They are the central universities for educating students at the doctoral level and produce the bulk of the
research output. Smaller countries may have only one research university, whereas larger nations may have many, although they are only a minority of the total tertiary education institutions in the country. In the United States, for example, there are perhaps 150 globally relevant research universities out of about 4,800 postsecondary institutions; India may have 10 such universities out of its 18,000 tertiary institutions, and China about 100 among its 5,000 or so postsecondary institutions.

Research universities produce the bulk of original research—both basic and applied, in most countries—and receive the most funding for research. Their professors are hired on the basis of their qualifications to conduct research and are rewarded for research prowess and productivity. The organization, reward structures, and, indeed, the academic culture of these universities focus on research. In the hierarchy of academic values, research ranks highest, although teaching and advisory services remain important. Most of the academic community, including the undergraduate students, often has the opportunity to participate in research and is exposed to the research culture.

Because of their unique academic mission, research universities require sustained support and favorable working conditions. Their budgets are larger than those of other universities and the cost per student is greater. Their financial support—largely from public sources in most countries—must be sustained if the institutions are to succeed. A considerable degree of autonomy—to make decisions about degrees, programs, and other academic matters—must be provided, and academic freedom is central.

To understand contemporary research universities, one should examine their global context in the 21st century, their historical underpinnings, recent developments, and future challenges.

**The 21st-Century Global Context**

Research universities are integral parts of the global higher education and societal environment (OECD 2009; Altbach, Reisberg, and Rumbley 2010). Key 21st-century realities for tertiary education worldwide include the massification of enrollment, the role of the private sector and the privatization of public higher education, the ongoing debate concerning public versus private good in higher education, the rise of Asian countries as academic centers, and, quite recently, the global economic crisis and its effect on higher education.

With annual enrollments in tertiary education of at least 30 percent of the eligible age cohort, massification of enrollment has been the central
higher education reality of the past half-century. Since 2000, postsecondary enrollments have increased from 100 million to well over 150 million (OECD 2008) worldwide, and expansion continues in much of the world. Half of enrollment growth in the next two decades will occur in just two countries, China and India, but because these countries enroll only 22 percent and 10 percent, respectively, of the age group, they have considerable scope for expansion (Altbach 2009). Global expansion has been fueled by demand from an ever-growing segment of the population for access to the degrees believed to hold the promise of greater lifetime earnings and opportunities, and by the needs of the knowledge-based global economy. The implications of massification have been immense, however, with major financial implications, infrastructure challenges, questions about quality, and potentially diminished returns in labor markets with more university graduates than the economy can sustain.

The next notable phenomenon, private higher education, is not new, but its forms and effect are evolving quite rapidly. The nonprofit private sector has dominated much of East Asia for generations; Japan, the Republic of Korea; the Philippines; and Taiwan, China have educated between 60 and 80 percent of their students in private universities. The nonprofit private sector has been strong in the United States and many Latin American countries as well. Globally, Roman Catholic universities and other religious schools have long been key participants, often serving as the flagship quality institutions in their countries. In the United States, for example, the 217 Catholic four-year institutions account for 20 percent of enrollment in four-year private colleges and universities. Nearly 1,900 Roman Catholic colleges and universities operate worldwide.

A newer phenomenon is the for-profit private institutions that focus on teaching to meet the demands of students for specific fields of study, filling a niche that many public universities could not (Altbach 1999). Because research universities—except those in Japan and the United States—are almost exclusively public institutions, the rise of the private sector presents some challenges, mostly in terms of regulations and quality assurance, although private institutions seldom aspire to be research intensive. The challenge of ensuring that private higher education broadly serves the public interest is a key policy issue in tertiary education in the 21st century (Teixeira 2009).

It remains unclear how the economic crisis that started in 2008 will affect higher education in general and research universities in particular. There are examples in several countries of severe cutbacks in the funding of higher education generally, including the 20 percent budget cutbacks
in the United Kingdom in 2010 and 2011 and the continuing state-imposed cuts in most of the U.S. states. Other than Japan, most Asian countries have not cut higher education budgets, and in fact, both China and India have responded to the crisis by adding funds to their tertiary education spending, particularly for research and development. Further, despite economic strains, continental Western Europe has not trimmed higher education budgets significantly.

The result of these spending decisions in the face of the economic crisis is unclear. The research universities subsector may be weakened, at least temporarily, in higher education systems in the major Anglo-Saxon countries—where public research universities prevail—while there is continuing strength in Asia and, to some extent, in continental Western Europe. The slow shift in the balance of academic strength from North America and Europe to East Asia may, in fact, be accelerated by these current economic trends and by differing approaches to spending on education, research, and development during a recession.

The relentless logic of the global knowledge economy and the realities of cross-border academic mobility also influence the direction of higher education generally and of the research university specifically (Marginson and van der Wende 2009a). The need for advanced education for a growing segment of the population, combined with the salience of research for economic development, has increased the profile of research universities. Both faculty members and students are increasingly recruited internationally, and mobility is now an established fact of contemporary higher education, especially affecting research universities.

**Historical Background**

Research has not always been a key function of academic institutions (Ben-David and Zloczower 1962). In fact, the contemporary research university dates back only to the beginning of the 19th century—specifically to Wilhelm von Humboldt’s reformed University of Berlin (Fallon 1980). Before that, universities were largely devoted to teaching and to the preparation of professionals in fields such as law, medicine, and theology. Although the Humboldtian model brilliantly focused on research, it stressed research for national development and applied work as much as, if not more than, basic research. From this research model, the disciplinary structures emerged—with the development of fields such as chemistry and physics, as well as the social sciences, including economics and sociology.
Humboldt’s university was a state institution—financed by the Prussian government. Academic staff members were state civil servants and had high social prestige and security of tenure. The structure of the academic profession was hierarchical and based on the chair system. The Humboldtian ideas of Lernfreiheit (freedom to learn) and Lehrfreiheit (freedom to teach) enshrined a great deal of autonomy and academic freedom in the university.

The Prussian government was supportive of this new university model because it promised to assist in national development and help Prussia—and, later, Germany—to achieve international power and influence. It is significant that the two countries that most enthusiastically adopted the Humboldtian model were Japan and the United States; both, particularly in the 19th and 20th centuries, were committed to national development and saw higher education as a contributor to that development.

The American variant of the German research university is particularly relevant (Geiger 2004a). In the latter 19th century, following the Land Grant acts, U.S. universities began to emphasize research, focusing on harnessing science for agriculture and its emerging industry. The U.S. research university varied from the German model in several important respects: (a) it emphasized service to society as a key value; (b) the organization of the academic profession was more democratic, using discipline-based departments rather than the hierarchy of the chair system; and (c) its governance and administrative arrangement was more participative (by the faculty) and more managerial (by deans and presidents who were appointed by trustees or governing boards rather than elected by peers).

The U.S. research university became the predominant global model by the middle of the 20th century (Geiger 1993, 2004a). Through a combination of significant expenditure on research—provided in part by the U.S. Department of Defense and related to Cold War military technology—strong support from the states, effective academic governance, creation of a differentiated academic system in most states that identified research universities at the top, and a vibrant nonprofit academic sector, U.S. research universities became the international “gold standard.”

The “Spirit” of the Research University

A research university is not only an institution, but also an idea (Ben-David 1977; Shils 1997a). Creating and sustaining an institution based on a concept is not easy. At the heart of the research university is its academic
staff, which must be committed to the idea of disinterested research—knowledge for its own sake—as well as to the more practical elements of research and its use in contemporary society.

A research university is elite and meritocratic in such areas as hiring and admissions policies, promotion standards, and degree requirements for staff members and students. However, terms like *elite* and *meritocratic* are not necessarily popular in a democratic age when access has been the key rallying cry of proponents of higher education for decades. Yet, for research universities to be successful, they must proudly proclaim these characteristics. Research universities cannot be democratic; they recognize the primacy of merit, and their decisions are based on a relentless pursuit of excellence. At the same time, they are elite institutions in the sense that they aspire to be the best—as often reflected in a top ranking—in teaching, research, and participation in the global knowledge network.

Students, too, are a central element of the spirit of the university. Not only are they, ideally, selected in a meritocratic way from among the brightest young people in society, and perhaps worldwide, but they also must have a commitment to the university’s goals and to its academic ethos. A high level of performance is expected.

Although the research university is a central institution in the knowledge economy, it is also an institution that must allow time for reflection and critique and for a consideration of culture, religion, society, and values. The spirit of the research university is open to ideas and willing to challenge established orthodoxies.

And because research universities are firmly linked to society, they are not “ivory towers,” a frequent criticism. Von Humboldt purposefully tied the university closely to the needs of state and society. An early president of the University of Wisconsin–Madison, a distinguished U.S. research university, claimed that “the border of the university is the border of the state” (Veysey 1965, 108–9). This statement symbolizes the ideal of serving the needs of society as well as the creation and dissemination of knowledge.

Another central element of the spirit of the research university—alongside its staff members and students—is the principle of academic freedom (Shils 1997b; Altbach 2007). Without academic freedom, a research university cannot fulfill its mission, nor can it be a *world-class* university. The traditional Humboldtian ideal of academic freedom is the freedom of academic staff members and students to pursue teaching, research, publication, and expression without restriction. In most parts of
the world, the ideal of academic freedom has expanded to include expression on any topic or theme, even beyond the confines of specific scientific or scholarly expertise. The key element of academic freedom is the concept of open inquiry as a core value of the university.

A research university, especially one that aspires to the highest world standards, is a special institution based on a unique set of ideas and principles. Without a clear and continuing commitment to its own spirit, a research university will not succeed.

The Language of Science and Scholarship

Because universities are international institutions, with an openness to faculty and student flows and to borderless knowledge creation and dissemination, the language of science and scholarship is of central importance. For teaching and publishing, the earliest European universities used a common language—Latin. Even at that time, the universities saw themselves as international institutions, serving students from throughout Europe and often hiring professors from a variety of countries. Knowledge circulated through the medium of Latin. Two key tasks in those early years were translating books from Arabic and Greek into Latin and introducing this knowledge to Europe. Later, as a result of the Protestant Reformation, national languages began to dominate universities in their home countries, and the universities became national, rather than international, institutions.

French was a central language of scholarship during the Age of Enlightenment and the Napoleonic Era. German became a key scientific language with the rise of the research university in the 19th century, and many of the new scientific journals were published in German. Following World War II, English slowly gained influence as the major language of scientific communication with the rise of the U.S. research university and the expansion of university systems in (a) English-speaking countries such as Australia, Canada, New Zealand, and the United Kingdom; and (b) former British colonies including India and Pakistan in South Asia and Ghana, Kenya, Nigeria, South Africa, and Zimbabwe in Africa. In Asia, Hong Kong1 and Singapore emerged as academic powerhouses that used English in their universities.

By the beginning of the 21st century, English had emerged as the nearly universal medium of scientific communication (Lillis and Curry 2010). Today, universities in non-English-speaking countries are to varying degrees using English as a language of instruction in certain fields.
For example, in many Arabic-speaking countries, as well as in China and Korea, English is used as the language of instruction in scientific areas and in professional fields such as business administration. In Malaysia, which previously had emphasized the use of Bahasa Malaysia as the language of instruction, English has returned as a major teaching language. On the European continent, English is used for teaching in fields deemed most globally relevant and mobile, such as business and engineering.

Most influential academic journals and scientific websites are published in English, and universities in many parts of the world encourage or even demand that their professors publish in English-medium journals as evidence of quality scholarship. Many arguments exist concerning the advisability of this emphasis on the use of English for communication and academic advancement. Yet, in fact, English is now the global language of science and scholarship and is likely to remain dominant for the foreseeable future. Some analysts (Lillis and Curry 2010) have pointed out that academics worldwide are forced to use the methodologies and paradigms of the main English-medium journals, which reflect the values of the editors and boards in the United Kingdom, the United States, and other metropolitan countries. For authors whose first language is not English, acceptance of their work by these influential publications is notably more difficult. The top-ranking journals are increasingly selective, accepting only 5 to 10 percent of submissions, as universities worldwide demand that their scholars and scientists publish in these journals.

The influence of English on research, teaching, and scholarship in the 21st century is one of the realities of research universities worldwide, as illustrated by several case studies presented in this book. In some ways, English is also the language of academic neocolonialism in the sense that scholars everywhere are under pressure to conform to the norms and values of the metropolitan academic systems that use English.

**A Special Kind of Professor**

The academic community, as noted previously, is the steward of any research university. Thus, the academics need to be well educated to perform their teaching and research responsibilities at the highest levels. Their commitment to the culture of research requires a strong resolution as well. Academic staff members of research universities typically hold a doctorate or its equivalent, usually having studied at the top universities in their home countries or abroad—not the norm for the academic profession in many countries.
The research university professor, like the institution itself, is both competitive and collaborative. These academics are imbued with a desire to contribute to science and scholarship both to advance the field and to build a career and reputation. At the same time, they often work in teams, especially in the sciences, and understand the importance of collaboration.

Research university professors contribute by far the largest amount of scholarly and scientific research articles and books. Their publication rates are far above the average for the academic profession (Haas 1996). Indeed, perhaps 90 percent of the articles appearing in the top-ranked academic journals are likely written by professors in the research-intensive universities.

In a world where many academics work part-time and do not enjoy much job security, research university professors have full-time employment, for the most part with reasonable security of tenure, and are paid adequate if not lavish salaries that can support themselves and their families. In other words, research university professors are, in comparison to their peers, privileged academics. For a research university to be successful, the academics must enjoy conditions of employment that will permit them to do their best work.

Research university professors typically have modest teaching responsibilities; they are given the time to undertake and publish research. In most developed-country research universities, teaching responsibilities seldom include more than two courses per semester and, in some institutions and in some disciplines, can be fewer than two. Where teaching assignments are greater, as is the case in many developing countries, research commitment and productivity tend to be lower.

Research university professors tend to be international in their consciousness and often in their work. They increasingly collaborate with colleagues in different countries and are sometimes internationally mobile, accepting jobs where working conditions, salaries, and facilities are best. This situation contributes to a “brain drain” from developing countries. However, as begun in recent years, internationally minded academics function in more than one country, sometimes holding academic appointments in two or more countries. At the same time, research university professors operate in a national environment—they are, of course, employed by national institutions—and they are expected to fulfill local and national responsibilities. Like the ancient Roman god Janus, they must look in several directions at once.

These academics are also cosmopolitan rather than local in their interests and activities (Gouldner 1957). Their professional ties tend to be
with colleagues in their discipline around the world rather than with colleagues at their home university. They participate directly in the global knowledge network by attending scientific conferences, working jointly with colleagues abroad, and participating actively in cross-border scientific communication. Typically, they are less loyal to their home universities and are willing to move, sometimes abroad, if better working conditions, salaries, or higher prestige is offered. And because of their scientific visibility, they often have greater opportunities for such mobility. Sociologist Burton Clark once noted that academics inhabit “small worlds, different worlds” (Clark 1987).

Academics working at research universities are a small but extraordinarily key part of the total academic profession. Despite their small numbers, they produce most of the important research. In many countries, they educate most of the academic profession. Thus, their orientations and perspectives have considerable influence on the academic profession as a whole. They are, indeed, a rare and special breed.

**Governance and Leadership**

Governance, as distinct from management, concerns how academic decisions are made. Postsecondary institutions of all kinds are both managed and led. Moreover, they are, at their best, communities of scholars. Universities are, of course, increasingly large bureaucracies with complex management needs (Shattock 2010); yet, they differ significantly from other large organizations in several key ways. First, to be successful, universities must include those who teach and do research (the academic community) in the decision making (the governance) of the institution (Rosovsky 1990). Research universities especially need the full involvement of the academic staff in the key decision-making arrangements of the institution. Research universities typically have a greater degree of professorial power and stronger guarantees of academic autonomy than other academic institutions. Second, students, although not necessarily involved directly in governance, must also be included as key stakeholders in the academic community.

Academic leadership is of increasing importance in an era of complex and highly visible academic organizations. The role of the university president, vice chancellor, or rector is managerial and academic. Some have argued that university presidents should be top scholars, whereas others favor successful managers, sometimes from outside of academe, as university leaders (Goodall 2009). In research universities, presidents
must have academic credibility and must display a deep knowledge of and respect for the academic mission of the institution. At the same time, they must be able to represent the university in society and must make the case for the centrality and importance of the institution. Modern academic leadership is an increasingly complex and multifaceted task, and finding talented leaders is difficult.

The substantive academic prerogatives—control over admittance, the hiring and firing of professors, the curriculum, and the awarding of degrees—are at the core of professorial responsibilities. The best contemporary universities have shared governance, with the academic community in control of essential academic decisions and the administrators and managers responsible for resources, facilities, and other administrative matters. Academic governance models vary across research universities. Representative bodies of the academic community, sometimes including students, are typical. The traditional European model of control by the senior professors, who also elected the rector from among their ranks for short terms of office, is perhaps no longer practical, in light of the myriad skills (noted previously) demanded of an effective university leader. Regardless, for assurance of the primacy of scholarship, teaching, and research, the academic community must have a significant role in shaping and supervising the key academic elements of the research university.

**Basic versus Applied Research**

Research universities conduct research in many fields and disciplines. They are the main sources of basic research, joined in a few countries by private corporations (such as pharmaceutical companies) and scientific academies, and thus have key responsibility for the scientific advancement. Basic research is a quintessential public-good function; no one earns a direct profit from basic science. Moreover, fundamental research, particularly in the hard sciences and biomedical fields, is often expensive. The funding of basic science has become problematical in many countries. In the social sciences and humanities, where research is less expensive, questions have nonetheless been raised about its usefulness.

At the same time, there has been more stress on applied research, on university-industry links, and, in general, on income-producing research products. Conflict between the traditional academic goals of the university and the desire to earn income from research, often from corporate enterprises, has created conflicts of interest and occasionally inappropriate relationships (Slaughter and Rhoades 2004). Shaping an appropriate
balance to avoid downgrading basic research in the rush for financial stability will be a difficult task.

**The California Master Plan for Higher Education**

The U.S. research university model is widely considered the gold standard and is emulated globally. The quintessential U.S. public research universities are those of the University of California system. The California Master Plan for Higher Education of 1960 constitutes an effective way of organizing a differentiated public higher education system to cater to research excellence as well as to access and massification. Clark Kerr, chancellor of the University of California, Berkeley, campus and, later, president of the University of California system between 1952 and 1967, was central to both the creation of the Master Plan and the development of the University of California system and its flagship Berkeley campus (Kerr 2001; Pelfrey 2004).

The California Master Plan established the three-tiered California public higher education system, with three systems clearly differentiated by function but linked through system articulation. This arrangement has successfully operated for more than a half-century. At the top tier of the system are the 10 campuses of the University of California. These universities, led by the Berkeley campus, admit the top eighth of high school students in the state and have a research mission. The next tier consists of the 23-campus California State University system, which enrolls about 433,000 students. These institutions offer bachelor’s and master’s degrees, but not doctorates, and academic staff members are not expected to maintain a research intensity on par with the academics in the University of California system. The third tier, the community-college system, has 112 campuses with 3 million students—the largest such system in the United States. Colleges in this tier have teaching and service at their core and little to no research capacity or expectations. Funding patterns, missions, and governance all differ among the three tiers of the California system, and state regulation has maintained the different missions of the public colleges and universities. The Master Plan imposed differentiation across California public higher education and remains a defining and effective innovation that has served the state well for more than a half-century. By distributing resources with a core ideal of efficiency, the Master Plan also institutionalized a commitment to excellence in its best research universities, such as the University of California, Berkeley.
Clark Kerr, the architect of the Master Plan, had a vision of the key characteristics for the system’s research universities, and these elements are central to the University of California, Berkeley, one of the world’s finest universities. First, the internal governance of the university is mainly in the hands of the professors; key decisions concerning academic policy and direction, even if initiated by administrators, receive input from the academics. This concept of shared governance is central to the idea of the university. Second, the Berkeley campus is rigorously meritocratic in all its actions—appointment and promotion of faculty, student admissions, and other aspects. Third, although research and teaching are intertwined, research has the upper hand. Fourth, academic freedom is a central value of the academic community. Fifth, the service mission of the university has always been of central importance. From the beginning, the university has been engaged with society, particularly with the state of California.

Until recently, the University of California has received relatively generous funding from the state of California, with each campus funded independently, according to institutional mission and size. Now, with recent budget cuts, the state contribution to the Berkeley operating budget is approximately a quarter of what is needed, although it does pay the salaries of almost all faculty members. The university’s remaining income derives from student tuition and fees, research grants and income, the sale of intellectual property, and other sources. This level of state support is now typical of some of the top-ranked public universities and is indicative of a decline in state support for public higher education in the United States. California is, of course, not alone in facing severe, and probably long-lasting, financial and other problems (Lyall and Sell 2006), and the negative effect of the current financial crisis has been seen throughout its entire higher education system.

Like most research universities, the University of California, Berkeley, is simultaneously international, national, and local. It has a wide international reach, recruiting staff members and students from around the world. The university’s academic departments and centers are concerned with international issues in all disciplines. Its national influence includes engaging in research supported by national agencies and hosting laboratories sponsored by the federal government. Less well known are the university’s efforts to provide service to the statewide and local communities through special educational programs including nondegree courses, community outreach, and similar efforts.
Clark Kerr was aware of the challenges of his model of the university. In an epilogue to his classic book, *The Uses of the University* (2001), he pointed to, among other things, what he called “state penury” in the context of expansion of both enrollments and research, the effect of information technology, the rise of the for-profit private sector, demographic changes, variations in the economic benefits of academic degrees, and other challenges.

**The Present Circumstances of the Research University**

To paraphrase Charles Dickens, these are the best of times and the worst of times for research universities. There is widespread recognition of the importance of the research university in almost every country. The salience of international academic connections and the role of research in the global knowledge economy are understood as central to sustainable economic growth and stability. However, many countries do not recognize the complexity of and the resources needed for building and sustaining research universities (Salmi 2009).

The early 21st century is now a period of emergence of research universities in countries where they have not existed before and the strengthening of current institutions. It is also a time of the internationalization of the research university.

Some of the characteristics of successful research universities, as defined by their placement in top echelons of the global rankings, can be outlined as follows:

- All successful research universities are part of a differentiated academic system in which they stand at the top of an academic hierarchy and receive appropriate support for their mission.

- Research universities, except in Japan and the United States, are overwhelmingly public institutions. The private sector can seldom support a research university, although private research universities are emerging among some of the Roman Catholic universities in Latin America and in Turkey.

- Research universities are most successful where little or no competition arises from nonuniversity research institutes or where strong ties exist between the universities and such institutes. Although this situation may appear counterintuitive, because competition could be good for sparking innovation in research, the dilution of research between universities and research institutes can also weaken the talent pool,
removing top researchers from the classroom and the campus and limiting capacity for interdisciplinary work. The academy of science system in countries such as China and the Russian Federation, the Centre National de la Recherche Scientifique in France, and some other models of distinct research institutes generally lack such connections to universities. There are efforts in some countries to better integrate research institutes and top universities—in some cases, merging them—with the goal of strengthening the universities.

- Research universities are expensive institutions. They require more funding than other universities to attract the best staff members and students and to provide the infrastructure necessary for top research and teaching. The cost per student is inevitably higher than the average across an entire higher education system. Adequate salaries for faculty, well-equipped libraries and laboratories, and scholarship assistance for bright but needy students are examples of the expenditures required.

- Research universities must have adequate and sustained budgets; they cannot succeed on the basis of inadequate funding or severe budgetary fluctuation over time.

- At the same time, research universities have the potential for significant income generation. Students are often willing to pay higher tuition and fees to these institutions because of the prestige attached to their degrees, the high quality of academic programs, and access to the best professors. Current debates in the United Kingdom and in some U.S. states, concerning higher tuition for education at research universities than at other postsecondary institutions, reflect both the need for more revenues and the likely success of differential tuition fees. Research universities also generate intellectual property and other discoveries and innovations that have value in the marketplace. In addition, in some countries research universities—in part because of their prestige—can generate philanthropic gifts to help build an endowment for the university.

- Research universities require physical facilities commensurate with their missions, which means expensive teaching spaces, libraries, and laboratories. Sophisticated information technology is also required. The infrastructures of research universities are both complex and expensive to build, maintain, and periodically upgrade.
The requirements of a research university are manifold, as noted previously: They are physical and human, but also contain principles relating to academic work, including teaching, research, service, and academic standards.

**Current and Future Challenges**

Research universities face many of the same challenges as higher education generally, although with somewhat different characteristics. The issues discussed here, of course, affect countries and institutions in different ways but will, to some extent, be felt everywhere. Much that can be learned from national and comparative experiences in dealing with these and other issues.

**Funding**

Central to the success of a research university is adequate and stable funding. Research universities will increasingly be challenged to raise their own funds from potential donors, through the sale of intellectual products and consulting, and increasingly from student tuition and fees. Research universities have more potential to charge higher tuition than do other postsecondary institutions. The private research universities in the United States already do so. However, most public research universities worldwide are not permitted to charge higher fees because of historical compacts or legislative restrictions even in light of the higher costs of education and the willingness of students to pay more for a better and more prestigious degree from a research university. As noted earlier, a debate about these issues is taking place in the United Kingdom and in some U.S. states. It is clear that research universities cost more and that they need to be able to raise funds without relying entirely on the largess of government.

The global economic crisis of the early 21st century has had a significant effect on research universities. As noted earlier, its effects vary across the globe, but the overall result may potentially be a boost to East Asia’s universities. East Asian countries have weathered the economic storm in better shape than their Western counterparts, and they seek to join the top ranks of the global research elite. For example, India has increased its higher education investment by 31 percent since 2010, and China has continued to fund its excellence programs in support of the nation’s leading universities.
Autonomy
In an era of growing accountability, research universities will be challenged to maintain their management autonomy and to control their essential academic decision making. Research universities are in the uncomfortable position of being, for the most part, state institutions subject to bureaucratic rules and parts of complex bureaucratic academic systems. Although research universities require autonomy in charting their own paths to excellence and in managing their resources, accountability pressures to prove value added and relevance to their myriad stakeholders are encroaching on historic autonomy norms for many research universities.

The Best and the Brightest
National research universities will be increasingly challenged to attract top talent, both professors and students, in an increasingly competitive global academic marketplace. Universities compete not only with other universities, but also with a growing and often well-paid knowledge sector outside the campus, and they find that academic salaries often do not match remuneration outside the universities. Top academics are lured abroad from developing and middle-income countries, as well. In recent years, the best students have also been attracted to top universities overseas by scholarships, excellent academic conditions, and prestige. Although it is difficult to retain professors, universities that can offer at least modestly competitive salaries and good working conditions can be reasonably successful in keeping superior talent. But it is a constant struggle in every country.

Privatization
Research universities, as has been noted, are public institutions in almost all countries. The pressures toward the privatization of the public universities—as a result of reduced public funding—exist nearly everywhere. This trend is for the most part damaging to the research universities because these institutions are mainly engaged in public-good activities such as basic research and the instruction of students in a wide range of disciplines. If research universities are forced to look to the market to pay professors and cover associated expenses, this policy has the genuine potential to damage the quality and focus of their research and detract from their core missions (Geiger 2004b). The tension between fundraising and academic autonomy must be managed carefully.
Globalization

Globalization is both a benefit and a curse to research universities (Knight 2008; Marginson and van der Wende 2009b). Research universities are at the center of global knowledge communication and networks. They funnel new ideas and knowledge into the higher education system and the country as well, and they permit the academic community to participate in international science and scholarship. In the age of the Internet, individuals anywhere can take advantage of global knowledge, but the resources and academic community of research universities make international participation easier and more effective. In many countries, research universities may be the only institutions adequately linked to global networks. Thus, research universities provide a two-way street for scientific participation.

At the same time, for many universities globalization constitutes a challenge. The global academic marketplace for professors and students means that the best students and staff members can be enticed away. Overreliance on international core journals for promotion and research criteria may place professors in peripheral research universities at a disadvantage. Globalization tends to favor universities at the center over others; it does not necessarily contribute to the democratization of science and scholarship.

The Future of the Research University

Because research universities are central institutions in any knowledge- and technology-intensive society and because they are seen as the key to a world-class higher education system, their future is reasonably bright. The fact is that modern societies cannot do without them.

Those who argue that the contemporary university will be fundamentally transformed by distance education and technology, mass enrollments, increasing vocationalization, privatization, or the current financial crisis have a point. The early 21st century is a period of both crisis and transformation for higher education globally. And it is entirely possible that some sectors of higher education will change fundamentally.

However, one sector of higher education is unlikely to be dramatically altered—the research universities. These institutions have the power of tradition, and they are quite good at what they accomplish. They will, without doubt, be changed in some ways, but the research university in 2050 is unlikely to be fundamentally different from such institutions today.
Establishing research universities in countries where they do not exist or upgrading existing universities to serve as research universities is a worldwide phenomenon (Mohrman, Ma, and Baker 2008). This is not at all surprising. To fully participate in the global knowledge economy and to benefit from science and scholarship, countries and academic systems believe they must have at least one research university that is able to function at a world-class level (Deem, Mok, and Lucas 2007). Thus, the community of research universities is rapidly expanding from the traditional academic centers in Europe and North America to developing and emerging economies worldwide (Liu, Wang, and Cheng 2011). Whether this provides the most-efficient means for development in countries at differing stages of economic growth is an important consideration often lost in the race to build a great university in every country. In small and fragile states, for instance, economies of scale may point toward greater efficiencies through excellent regional institutions. Regardless, the recognition of the importance of research universities is nearly universal.

There are no secrets concerning creating or sustaining research universities. Not surprisingly, many countries seeking to establish such institutions look to successful research universities in the academic centers. As a result, an informal global research model has emerged—emulating the U.S. research university especially. Appropriately, the global model inevitably takes on national characteristics to reflect the particular academic and societal realities of local circumstances. The variations that can be seen among successful new research universities reflect this informal global model with national and local variations. Regardless of the problems and challenges facing higher education in the coming period, the research university will remain a central element of every higher education system and a requirement of most economies.

Note

1. Hong Kong is used in historical contexts prior to July 1, 1997.

References and Other Sources


