

WORKING DRAFT OF THE QUALITY SUBCOMMITTEE
OF THE
SECRETARY OF EDUCATION'S COMMISSION
ON THE FUTURE OF HIGHER EDUCATION

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PREFACE

The Quality Subcommittee found it useful to utilize a “proto” or “strawman” draft of a possible Commission report as a device to both record and guide its deliberations. After each meeting, teleconference, or wave of e-mail exchanges, the strawman draft was torn apart and rewritten to reflect further ideas and discussions.

Although this was intended as an internal document, it seemed useful to share it with the entire Commission since it touched on several of the topics considered by other groups. Furthermore the outline structure of the report—although not necessarily the detailed content—might prove useful as we approach the drafting of the actual report itself:

- Executive Summary
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EXECUTIVE SUMMARY

A Commission on the Future of Higher Education was established in fall of 2005 by Secretary of Education Margaret Spellings to foster a dialog about the future of higher education in America. Among the unusual and important features of this effort were the extremely broad swath of postsecondary education considered by the Commission and the unusually broad representation among its members from education, business, and policy makers. This report provides background concerning the work of the Commission, the concerns that stimulated its formation, the assumptions it made, and the conclusions it reached. More important, this report lays out a set of higher education objectives for the nation and recommends a series of actions necessary to achieve these objectives. These include demanding, building, and sustaining a truly world-class system of higher education by achieving an optimum balance between market forces and public policy; addressing those factors that have created a strong dependence of access and success in higher education upon socioeconomic status; shifting the education paradigm to stress the critical thinking and lifelong learning skills necessary to cope with uncertainty and change; stressing the importance of measuring, characterizing, and coordinating the activities of the postsecondary education enterprise in the United States; stimulating and sustaining the knowledge creation role of higher education (research and innovation); and engaging with the public to re-establish an adequate understanding of the public purpose of higher education in America while earning its understanding, trust, and confidence through bold initiatives aimed at addressing public concerns.

Today the United States faces a crossroads, as a global knowledge economy demands a new level of knowledge, skills, and abilities on the part of our citizens. Just as in earlier critical moments in our nation's history when federal initiatives expanded the role of education, e.g. the Land Grant Acts in the 19th century to provide higher education to the working class, universal access to secondary education in the early 20th century, and the G. I. Bill enabling the college education of the returning veterans of World War II, today a major expansion of educational opportunity could have extraordinary impact on the future of the nation. The Commission believes it is time for the United States to take bold action, completing in a sense the series of these earlier federal education initiatives, by providing all American citizens with *universal access to lifelong learning opportunities*, thereby enabling participation in the world's most advanced knowledge and learning society. The Commission recommends that the nation accept a responsibility as a democratic society to enable all of its citizens to take

advantage of the educational, learning, and training opportunities they need and deserve, throughout their lives, thereby enabling both individuals and the nation itself to prosper in an ever more competitive global economy. While the ability to take advantage of educational opportunity always depends on the need, aptitude, aspirations, and motivation of the student, it should not depend on one's socioeconomic status. *Access to lifelong learning opportunities should be a right for all rather than a privilege for the few* if the nation is to achieve prosperity, security, and social well-being in the global, knowledge- and value-based economy of the 21st century.

A Summary of the Key Objectives

Proposed for the Future of Higher Education in America

The United States must demand and be prepared to support a world-class system of higher capable of meeting the changing educational, research, and service needs of the nation.

American higher education must re-establish through its quality, nimbleness, innovation, efficiency, responsiveness and accountability its fundamental purpose as a public good, serving all of society, in addition to the private benefits it provides its students and other patrons.

It must sustain and enhance the world's leading system of research universities, capable of attracting and educating the world-class scientists, engineers, and other knowledge professionals while providing and applying the new knowledge necessary for national prosperity and security through basic research, development, and innovation.

The nation must address and correct those factors that have created a strong dependence of access to and success in higher education upon socioeconomic status.

The United States should embrace and achieve the objective of providing all of its citizens with universal access to lifelong learning opportunities at the post-secondary level—the appropriate goal for achieving economic prosperity, social well being, and national security in a global, knowledge-driven economy.

A Summary of the Key Recommendations
for Higher Education in America

To utilize public-private partnerships to unleash and shape market forces to drive world-class quality, performance, efficiency, and public purpose in postsecondary education.

To support American innovation, by stimulating a more innovative culture in American colleges and universities in developing new learning paradigms, academic programs, and institutions.

To refocus public subsidies at the state and federal level to enable access.

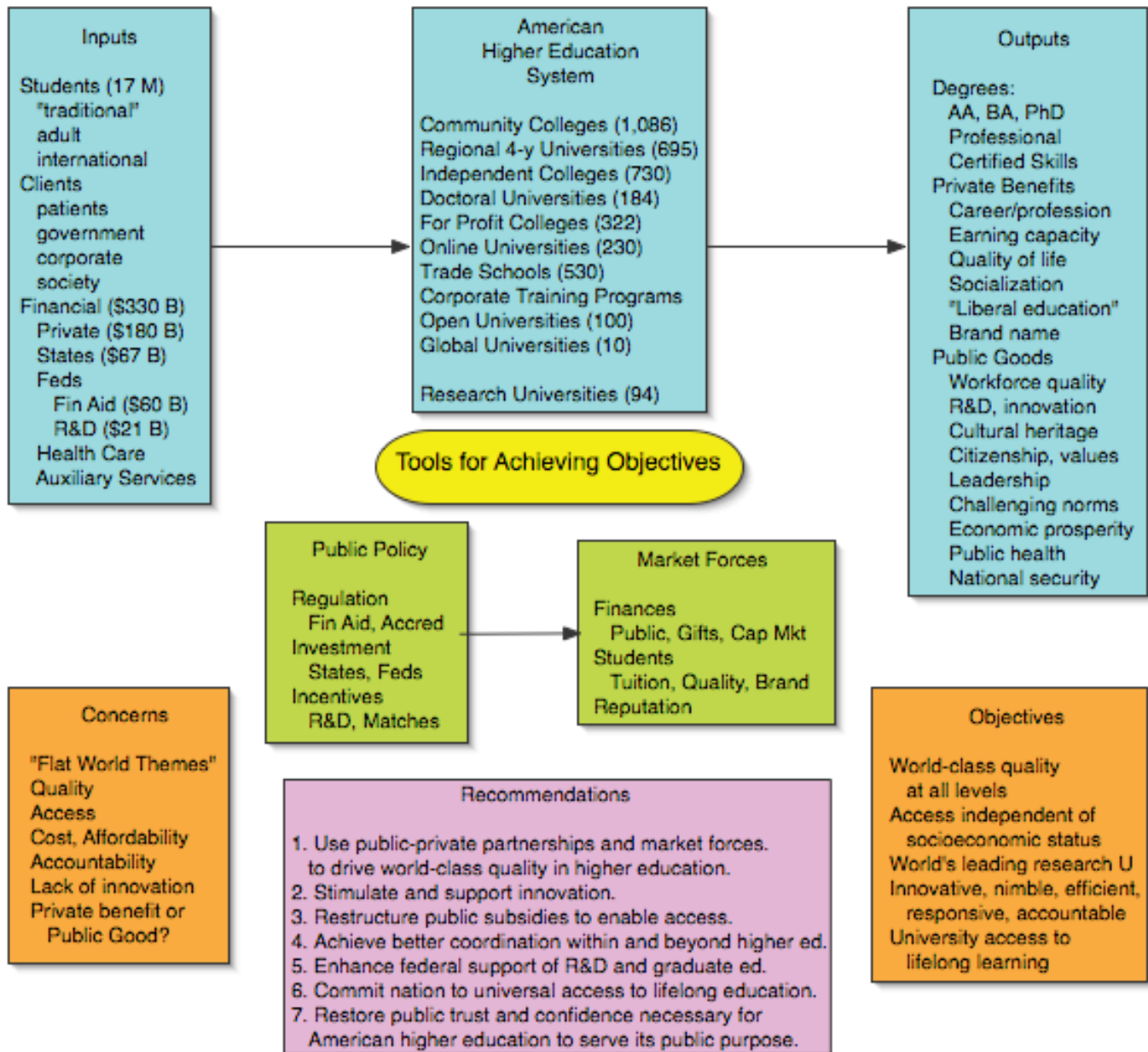
To achieve better coordination within the higher education system and better alignment with K-12 and employer needs.

To enhance and rebalance the federal support of R&D and graduate education to better serve national priorities such as economic competitiveness and national security.

To commit the nation to providing universal access to lifelong learning opportunities.

To retain the public good nature of American higher education by re-earning the public trust and confidence necessary for it to serve its public purposes

Aligning American Higher Education with National Priorities



CHAPTER 1: BACKGROUND

Charge

The Secretary of Education's Commission on the Future of Higher Education was convened in fall of 2005 by Secretary of Education Margaret Spellings to foster a dialog about the future of higher education in America. Its charge was threefold:

1. To determine the higher education needs of the nation both for today and in the future.
2. To assess the degree to which the current U.S. higher education enterprise is capable of meeting these needs.
3. To suggest implementation strategies for better aligning higher education with the needs of the nation.

Premises

In approaching these tasks, the members of the Commission accepted several important premises:

- The degree to which higher education has become both a key determinant of one's personal standard of living and quality of life in an increasingly knowledge-intensive society and a critical factor as well in determining the nation's economic prosperity, social well being, public health, and security.
- The provision of broad access to quality higher education as a shared responsibility among colleges and universities that seek both quality and efficiency; students and other clients of higher education who act as informed consumers; the availability of private capital; and the commitment of federal, state, and local agencies to provide adequate and equitable financial support.
- The critical role of the nation's research universities in providing the world-class research and innovation, outstanding scientists, engineers, and other knowledge

professionals, and the world-class research and learning infrastructure necessary for the nation to sustain its leadership in a global, knowledge-driven economy.

- The capacity of higher education to adapt to changes driven by forces such as the emerging knowledge economy, globalization, rapidly evolving technologies, an increasingly diverse and aging population, and an evolving marketplace characterized by new needs (e.g., lifelong learning), new providers (e.g., for-profit, cyber universities), and new paradigms (e.g., distance learning, open educational resources).
- The importance of public understanding of higher education as both an *individual benefit* to students through development of not only skills and knowledge but also the values and discipline of the educated mind and as a *public good* to society through its broader roles of producing the leaders of our governments, commerce, and professions, defending and propagating our cultural and intellectual heritage, challenging our norms and beliefs, creating and applying new knowledge to serve our society, and preserving those values and principles so essential to academic learning: the freedom of inquiry, an openness to new ideas, a commitment to rigorous study, and a love of learning.

Concerns

Today we live in an era of rapid and profound change, in which all social institutions are challenged to consider anew their capacity to serve. And here higher education must address many concerns:

1. The changing needs of the nation

“The flattening of the world is moving ahead apace, and nothing is going to stop it. What can happen is a decline in our standard of living if more Americans are not empowered and educated to participate in a world where all the knowledge centers are being connection. We have within our society all the ingredients for American individuals to thrive in such a world, but if we squander these ingredients, we will stagnate.” (Thomas Friedman, 2005)

- Recent reports raise serious concerns about the implications for national prosperity and security should United States leadership erode in research,

innovation, and education, particularly in key strategic areas such as science and engineering and (National Academies's *Rising Above the Gathering Storm*, the Council on Competitiveness's *National Innovation Initiative*, and similar reports from the President's Council of Advisors in Science and Technology, the National Science Board, and the National Academy of Engineering).

- Is the nation (government, industry, higher education) prepared to respond to the urgent recommendations of these groups?
- Is higher education prepared to launch the major transformations of its educational programs necessary to prepare its students for a much different world, e.g. providing them with the knowledge and skills necessary for the jobs of tomorrow and the abilities to face future problems not yet even identified.

2. Quality, excellence, and leadership in higher education

"There is no shortage of things to marvel at in America's higher-education system, from its robustness in the face of external shocks to its overall excellence. However what particularly stands out is the system's flexibility and its sheer diversity...It is all too easy to mock American academia. But it is easy to lose sight of the real story: that America has the best system of higher education in the world!" (The Economist, 2005)

- While some elements of American higher education are clearly world-class, such as its leading research universities, there are numerous concerns about the quality and performance of the broader higher education system (e.g., graduation rates, learning outcomes, efficiency, cost, innovation).
- What is the most effective balance among public policy and market forces necessary to drive the commitment to and achievement of world-class quality throughout the American higher education system?
- Will the leading American research universities be able to retain their global leadership in the face of international competition from abroad and resource constraints at home (a particular concern for flagship public research universities)?

- To what degree is the quality of American higher education influenced by the quality of primary and secondary education and what is the responsibility of colleges and universities to address this?

3. Access to higher education

The breakpoint between those who succeed in college and those who fail is perhaps the most critical decision point in one's life. Yet today students from the top economic quartile are three times more likely to attend college and eight times more likely to enroll in selective schools than students from the lowest quartile. (McPherson and Schapiro, 2005)

- There is evidence that both the access to and the distribution of students within American higher education are becoming alarmingly stratified based upon economic status, race, and ethnicity.
- The limited access to the elite elements of American higher education on the part of growing populations in the lowest socioeconomic quartile has serious implications for the future of the nation. Only 8% of the bottom quartile will graduate from a four-year institution, compared to 75% of the top quartile.
- The changing nature of students (e.g., more diverse in all dimensions, more adult learners) and their learning experience (e.g., competency-based learning, technology-mediated interaction, asynchronous and ubiquitous learning environments) will require very significant change in both institutions and the higher education enterprise.
- While there are important actions that can be taken both by colleges and universities and by their patrons (state and federal government, private support) to improve access at the margin, major gains are not likely without a sustained improvement in secondary education.

4. Affordability of higher education

"The traditional model of higher education finance in the U.S. with large state subsidies to public higher education and modest means-tested grants and loans from the federal government is

becoming increasingly untenable”...in the face of unfunded federal mandates such as Medicaid and the priorities of an aging baby boomer population. (Thomas Kane, 2003)

- Despite the fact that public spending on higher education grew more slowly than the national economy during the 1980s and 1990s, American higher education continues to lead the world in cost, at almost twice the level (\$20,245 per student per year) of other developed nations (OECD).
- The rapid increase in the price of a college education, driven in part by cost shifting from tax support to tuition in public institutions, by inefficiency and stagnant productivity gains, and by unbridled competition for the best students, faculty, resources, and reputations, is undermining public confidence in higher education.
- Are colleges and universities paying attention to cost containment, productivity, and efficiency in higher education? Do they have the mechanisms (including governance, leadership, and culture) to achieve these goals?
- Do current financial aid programs conducted by the federal government, the states, and individual institutions adequately address the goals of increased access by those students who would otherwise be unlikely to attend, increased retention or graduation by those who might otherwise drop out because of cost, and reduced debt burdens that might otherwise prevent lower-income students from pursuing low-paying and socially beneficial areas?
- As public support of higher education is increasingly limited by the other social priorities (health care, Social Security, national defense, homeland security), will higher education have the ability to shift to market-driven support from the private sector?
- Would a shift from public funding and public policy to private sector funding and market forces erode still further higher education’s character as a public good (i.e., its broader public purpose)?

5. Accountability of higher education

“The university is the custodian, not only of knowledge, but also of the values on which that knowledge depends; not only of professional skills, but of the ethical obligations that underlie those professional skills; not only of scholarly inquiry, disciplined learning and broad understanding, but also of the means that make inquiry, learning and understanding possible. In its institutional life and its professional activities, the university must reaffirm that integrity is the requirement, excellence the standard, rationality the means, community the context, civility the attitude, openness the relationship, and responsibility to society the obligations upon which its own existence and knowledge itself depend.” (Glion Declaration, 1999)

- The inadequate performance of much of the higher education enterprise as measured by graduation rates, time to degree, learning outcomes, and even literacy.
- The limited capacity of postsecondary education to innovate and adapt to changing needs and conditions.
- The lack of transparency in providing public information about costs, prices, and value.
- The reluctance of many higher education institutions to recognize their public purpose and respond to the changing needs of the nation.

6. Education for an Unknowable Future

“Colleges have their indispensable office, to teach elements. But they can only serve us when they aim not to drill but to create, when they gather from afar every ray of various genius to their hospitable halls, and by the concentrated fires, set the heart of their youth aflame.” (Ralph Waldo Emerson)

- Global connectivity has enabled easy access to information and knowledge by a significant part of the global population. The ability to integrate that information to create value by solving problems with greater speed, reduced resources, and greater application is the new competitive discriminator for individuals, companies, communities, and nations. Yet we must also preserve traditional

objectives such as ethics and moral reasoning as well as an understanding of culture and human values.

- The higher education system must transform itself to develop new teaching pedagogies and educational paradigms that will ensure students have the capacity and capability not just as ones who can recount information, but as ones who can apply that information through complex critical thinking.
- The challenge to higher education today is no less than redefining the nature of a liberal education for a 21st century global society.

7. The erosion in public trust and confidence in American higher education

“A significant gap has developed between the public purposes of higher education, the needs of society that should be met by universities, and the actual performance of these institutions. The growing power of market forces will, in the absence of skilled intervention in the functioning of the market, make a difficult situation worse.” (Frank Newman)

- For higher education to play the role it should in the nation’s future prosperity and security, it must earn an adequate degree of public trust and confidence. Yet like many other social institutions, the perception of the American university today suffers from many public concerns including about, questions about values and integrity, and the eroding credibility of university leaders.
- The shift in public perception of higher education from a public good for all of society instead to primarily a private benefit to students threatens to erode support for the broader roles of the university, e.g., defending and propagating our cultural and intellectual heritage while challenging our norms and beliefs; producing the leaders of our governments, commerce, and professions; and preparing the educated citizenry necessary for a democracy.

CHAPTER 2: GOALS FOR AMERICAN HIGHER EDUCATION

General Goals for the Quality and Leadership of American Higher Education

1. To demand and sustain a higher education system characterized at all levels by world-class quality, nimbleness, innovation, efficiency, and the capability of providing our citizens with the higher order intellectual skills (critical thinking, moral reasoning, an appreciation of cultural and human values, commitment to lifelong learning, adaptive to change, tolerance of diversity) necessary for achieving national prosperity, security, and social well-being in a global, knowledge-driven society.
2. To sustain and enhance the world's leading system of research universities, capable of attracting and educating the world-class scientists, engineers, and other knowledge professionals while providing and applying new knowledge necessary for national prosperity and security through basic research, development, and innovation of world-class quality.

More Specific Goals

1. The nation should demand that all elements of its higher education enterprise (e.g., colleges and universities, proprietary schools, industry education training programs, and new paradigms such as distance learning and global universities) achieve world-class standards in all important areas, e.g., quality, access, learning outcomes, efficiency, and relevance. While setting quantitative objectives for such a highly decentralized enterprise runs the risks of creating unrealistic expectations, it is important to acknowledge and strive to improve performance in those metrics that will be used in international benchmarks (e.g., fraction of secondary school students continuing on to college, graduation rates of enrolled students, fraction of the population achieving various degree levels, learning outcomes including literacy and higher order cognitive processes, the cost of education relative to GDP per capita, and return on investments in higher education in earning capacity and economic impact).
2. The nation must address and correct those factors that have created a strong dependence of access and success in higher education upon socioeconomic status.

America should aspire to the ideal where family income is nearly irrelevant to the ability of a student to attend the college or university best matched to his or her talents, objectives, and motivation.

3. While colleges and universities should be responsive to the projected needs of students, their employers, and the nation, it is essential that they should also strive to prepare their graduates for the unknown challenges of careers and citizenship of tomorrow by providing the higher order intellectual skills necessary to cope with a future of continual yet unpredictable change (e.g., critical thinking ability, a commitment to lifelong learning, the ability to adapt to change, and the capacity to thrive in a world of increasing diversity).
4. Colleges and universities should develop and demonstrate the ability (through the necessary changes in governance, leadership, management, and culture) to control costs, focus resources on well-defined missions, and achieve new levels of efficiency while enhancing both quality and capacity.
5. The post-secondary enterprise should develop and demonstrate the capacity for continuous innovation and quality improvement at both the institution and enterprise level. In particular, American higher education should commit itself to developing new pedagogies, curricula, and technologies to solving major problems like the near absence of scientific and mathematical literacy among today's college generation. It should also embrace and apply to learning the rapidly growing knowledge generated areas such as neuroscience, cognitive science, and organizational sciences. This will require not only seed funding for new initiatives, but a greater tolerance for experimentation and risk taking.
6. While the United States currently has many of the leading research universities in the world, along with demonstrated leadership in key academic disciplines such as science, engineering, medicine, and other knowledge-intensive professions, sustaining this leadership in the face of growing international competition will require both sustained public and private investment and institutional change. The strength and contribution of U.S. research universities will depend on their capacity to attract the very best faculty and students from our nation and abroad while earning the public understanding, trust, and confidence in their increasingly central role in a knowledge economy.

7. While academic reputation will continue to be an important factor in driving institutional competition, of far more importance to the nation is global leadership by our entire research enterprise (including research universities, corporate R&D organizations, and national laboratories) in various academic disciplines of key strategic importance to the welfare of the nation (e.g., information technology, nanotechnology, mathematics, materials science, brain science, genomics, proteomics, and knowledge services).
8. Research universities, government, and industry should develop and implement effective mechanisms for ensuring that the new knowledge developed on the campuses serves society through technology transfer, innovation, and entrepreneurial activities.
9. Both public and private research universities should embrace a social contract that establishes their public purpose and responsibility to society as their highest priority, enabled through a competitive spirit that strives to enhance excellence and institutional reputation.

Strategic Intent (Stretch Goals)

1. It is time to challenge American higher education to redefine the purpose and nature of a college education in today's (and tomorrow's) world and develop methods to assess whether these objectives are being achieved. This will require the development of more sophisticated tools to assess the achievement of the more abstract goals of a college education (e.g., critical thinking, communication skills, inductive/deductive reasoning, quantitative skills, cultural appreciation, systems thinking).
2. To play the role it must in America's future, higher education must continually earn a high level of public trust and confidence by doing in the future what it is not doing today. This will require the postsecondary education enterprise both to address its current challenges and demonstrate its responsiveness to public needs and concerns. It will also require a very substantial effort to build the necessary public understanding of higher education's essential role in contributing to economic prosperity, public health, national security, and social well-being, hence re-

establishing higher education as a public good to all of society rather than simply a private benefit to students and their employers.

3. Earlier federal initiatives to expand access to educational opportunities have had great impact on this nation, e.g., the Land-Grant acts, universal access to secondary education, and the G.I. Bill. It is our belief that the logical goal for a 21st century global, knowledge driven economy would be *universal access to lifelong learning opportunities at the post-secondary level*. The nation should embrace this challenge and develop and implement measures to achieve it.

CHAPTER 3: FINDINGS

1. We have entered an era in which educated people, the knowledge they produce, and the innovation and entrepreneurial skills they possess have become the keys to economic prosperity, public health, national security, and social well-being. Hence the strength, prosperity, and leadership of a nation in a global knowledge economy will demand highly educated workforce and hence upon a world-class system of postsecondary education. An increasingly technology-dependent nation will require as well world-class research universities, capable of discovering new knowledge, developing innovative applications of these discoveries through entrepreneurial activities, and educating those capable of working at the frontiers of knowledge and the professions.
2. The core competency of the American economy is its capacity to innovate. While the characteristics of the American culture—a diverse population, democratic values, free-market practices, a predictable legal system—provide a fertile environment for innovation, history has shown that significant public and private investment is necessary to produce the key ingredients of innovation: new knowledge (research), world-class human capital (education), infrastructure (institutions, facilities, networks), and policies (tax, investment, intellectual property). And, of course, the capacity to innovate depends on more than technological leadership, as the impact of American arts and culture and the broad nature of liberal arts education have clearly demonstrated.
3. Education has become a key determinant of one's personal standard of living and quality of life. The breakpoint between those who succeed in college and those who fail is perhaps the most critical decision point in one's life! In today's knowledge economy, it has become the responsibility of democratic societies to provide all of their citizens with the educational and learning opportunities they need, throughout their lives, whenever, wherever, and however they need it, at high quality and at affordable costs.
4. Many studies have revealed the degree to which access to higher education in America has become increasingly stratified according to student financial circumstances, thereby undercutting the fundamental principles of equity in providing educational opportunities for a democratic nation. A key public policy

issue is how public funds for higher education should be allocated among students from differing socioeconomic circumstances and among institutions of differing missions. Today a very significant fraction of public funds, whether allocated directly to public institutions to enable low tuition, through state and federal financial aid programs, or indirectly through tax policy go primarily to benefit affluent students with modest economic needs, at a time when close to a quarter of Americans are disproportionately and severely deprived of higher education opportunities, particularly at our best colleges and universities.

5. The current labyrinth of federal, state, and institutional financial aid programs has evolved over the years more as a consequence of the political process than any defined purpose or accountability with respect to impact or efficiency in achieving student access or success in higher education. There has been inadequate effort to integrate and restructure the system into a cohesive policy-driven program, despite the obvious benefits and cost savings. As a consequence, while the current system does benefit affluent students, the lending industry, and political objectives, it is both extraordinarily inefficient and ineffective with respect to key objectives such as higher education access, retention, and debt burden. It needs to be replaced with a strategically-oriented, results-driven, and greatly simplified program of grants, loans, and tax benefits that demonstrably works to serve clearly-articulated goals.
6. While American research universities, both individually and as a group, are clearly the best in the world, they face considerable challenges both because of increasing competition for the best students and faculty from abroad and because of inadequate federal and state investment in basic research and facilities (particularly in the physical sciences and engineering.) For example, over the past three decades, federal support of research and development has declined from 2% to less than 0.8% of GDP. Furthermore, the highly skewed nature of the federal research portfolio, in which 62% of campus-based research is now in the biomedical sciences, threatens the long-standing national leadership in key areas of physical science and engineering (e.g., computer science, nanotechnology, engineering systems) and the national priorities based on these technologies (e.g., national defense, economic competitiveness, public health).
7. Furthermore, there are growing concerns about the nation's supply of scientists, engineers, and other knowledge-intensive professionals both because of declining

student interest (due in part to the weakness of K-12 education, the obsolete nature of university science curricula, and inadequate support of graduate education), anticipated retirements, and declining immigration (due to visa restrictions) at a time when other nations are rapidly increasing human capital in these areas.

8. While some elements of American higher education are clearly world-class, such as its research universities, the Commission is less sanguine about the quality and performance of our total postsecondary education enterprise. As noted earlier in this report, there are numerous valid concerns about student access, affordability, quality, performance, and responsiveness of various elements of postsecondary education in America that could threaten its capacity to serve the needs of the nation. Furthermore, many of the best of America's research universities are characterized by complacency engendered by past reputation that could erode future innovation and excellence.
9. Too much of American postsecondary education is not well positioned to meet the changing needs of the nation. American higher education is a mature industry that has become increasingly risk-adverse, frequently complacent, not very nimble, and increasingly expensive. It is an enterprise that has yet to address the fundamental issues of how academic programs and institutions must be transformed to serve the changing educational needs of a knowledge economy.
10. Public policy alone is unlikely to be effective in stimulating higher education to become more responsive to national needs. Public funds at both the state and federal level will be limited for at least a generation by the priority given the needs of an aging population, national security, and tax relief, and will likely be insufficient to meet the growing need for lifelong access to postsecondary education for the majority of our population. Traditional policy tools such as regulation have proven relatively ineffective in driving substantive change in the American higher education system.
11. Unlike most other nations, American higher education is supported by a comparable balance of public and private resources (roughly 45% public and 55% private). While public funds are likely to be constrained, the resources available in the private sector through capital markets and intergenerational wealth transfer will be very

substantial, likely intensifying even further the market forces on colleges, universities, and other elements of the postsecondary education sector.

12. History has demonstrated that change in education is driven far more effectively by incentives and opportunities than by regulation (e.g., the Land-Grant Acts, the G. I. Bill, the Vannevar Bush government-university research partnership, and the National Defense Education Act). Hence it is likely that limited incentives coupled with strong institutional flexibility to respond to market forces are far more likely to achieve systemic change in higher education, aligning it better with national need, than top-down regulation.
13. More specifically, the likelihood that the private sector will be an essential source of additional resources to meet the growing higher education needs of the nation (already at almost 55%) coupled with the highly decentralized and competitive nature of the postsecondary education enterprise suggest that market forces will be more effective than public policy and regulation in stimulating and enabling higher education to respond to the needs of the nation. Moreover, market pressure and competition not only provide the resources for quality, but also stimulate the innovation and build the experience. The challenge therefore is to enable the postsecondary education market to function efficiently and effectively, by empowering more informed consumers of educational services, eliminating unnecessary market constraints and monopolies, and providing the additional incentives and investments necessary for innovation and change.
14. Despite the rapidly changing needs of the nation for new educational and training programs (e.g., knowledge services) and the great progress in areas such as brain research, cognitive science, and information technology, neither universities nor the federal government invest significant resources in R&D concerning learning, pedagogy, and curriculum development.
15. Even though the Commission believes it is only prudent to facilitate the ability of American postsecondary education enterprise to face the challenge and opportunity presented by strong market forces, as a nation we must resist the tendency to portray higher education primarily as a private benefit rather than a public good. Restoring public trust and confidence in higher education is essential for it to play the role our colleges and universities must play in the nation's future. This will require re-

establishing its public purpose, both through the commitments of institutions and through the education and greater understanding of the American public and its leaders.

CHAPTER 4: RECOMMENDATIONS AND POSSIBLE STRATEGIES

It is clear that today the United States must demand and be prepared to support a world-class system of postsecondary educational institutions capable of meeting the changing educational, research, and service needs of the nation.

Yet this goal faces many challenges, including an increasing stratification of access to (and success in) quality higher education based on socioeconomic status, questionable achievement of acceptable student learning outcomes (including critical thinking ability, moral reasoning, communication skills, and quantitative literacy), cost containment and productivity, and the ability of institutions to adapt to changes demanded by the emerging knowledge services economy, globalization, rapidly evolving technologies, an increasingly diverse and aging population, and an evolving marketplace characterized by new needs (e.g., lifelong learning), new providers (e.g., for-profit, cyber, and global universities), and new paradigms (e.g., competency-based educational paradigms, distance learning, open educational resources).

While there is strong evidence that American research universities continue to provide the nation with global leadership in research, advanced education, and knowledge-intensive services such as health care, technology transfer, and innovation, this leadership is threatened today by rising competition from abroad, by stagnant support of advanced education and research in key strategic areas such as physical science and engineering, and by the complacency and resistance to change of the American research university.

To address these issues, the Commission proposes a vision, identifies challenges, and suggests possible strategies in each of seven areas: quality, innovation, access, coordination, research and graduate education, lifelong learning, and public purpose.

1. Quality

The United States must demand and be prepared to support a world-class higher education system, utilizing market forces shaped by incentives, public-private partnerships, and requirements for evidence-based assessment of educational effectiveness to drive all elements of postsecondary toward higher quality, efficiency, innovation, and nimbleness.

Vision: The nation must demand that its postsecondary education enterprise (e.g., colleges and universities, proprietary schools, industry education training programs,

and new paradigms such as distance learning and global universities) achieve world-class standards in all important areas, e.g., quality, learning outcomes, access, efficiency, innovation, and responsiveness to changing societal needs. While colleges and universities should be responsive to the projected needs of students, their employers, and the nation, it is also essential that they launch the major transformations of educational programs necessary to prepare students for a much different world, providing them with the knowledge and skills necessary for the jobs of tomorrow and the abilities to face future problems not yet even identified.

Challenges: While some elements of American higher education are clearly world-class, such as its research universities, the Commission is less sanguine about the quality and performance of our total postsecondary education enterprise. There are numerous valid concerns about graduation rates, time to degree, learning outcomes, performance, and responsiveness of various elements of postsecondary education in America that could threaten its capacity to serve the needs of the nation. The limited capacity of the enterprise to innovate and adapt to changing needs and conditions, coupled with the lack of transparency concerning costs, prices, and value also raise concerns about quality.

Part of the challenge is the reluctance of higher education to accept accountability for learning outcomes. Few institutions provide clear and measurable educational objectives for their academic programs. Even less effort is demand evidence-based assessment of educational effectiveness, although some accreditation agencies are moving in this direction. While there are numerous tools available for such assessment, including comprehensive examinations, capstone courses, senior portfolio and dissertation requirements, and recent developments in testing deeper cognitive abilities (e.g., the Collegiate Learning Assessment tests developed by the RAND Corporation), there is limited incentive for faculties to develop and apply such assessment methods. Hence, current measures of academic quality tend to focus more on inputs such as student selectivity, resource expenditure, or reputation than on the value-added provided by an academic program.

Public policy alone is unlikely to be effective in stimulating higher education to become more responsive to national needs. Traditional policy tools such as regulation have proven relatively ineffective in driving substantive change in the American higher education system. Furthermore public funds at both the state and federal level may be limited for at least a generation by the priority given the needs of an aging population (Medicaid, Medicare, Social Security), national security, and tax relief and will likely be

insufficient to meet the growing need for lifelong access to postsecondary education for the majority of our population. Unlike most other nations, American higher education is supported by comparable balance of public and private resources (roughly 45% public and 55% private). Although strong public support of higher education from both the states and the federal government will be essential in maintaining broad access to quality postsecondary education, the possibility of new resources available in the private sector through capital markets and intergenerational wealth transfer will likely intensify even further the market forces on colleges, universities, and other elements of the postsecondary education sector.

Beyond this, academia and government must be open to new ways of leveraging industry and private-sector resources to address national priorities. Business experience with open source, standards-based methods and service-oriented architectures could prove invaluable to universities in developing new approaches to enhancing institutional performance and standards for learning outcomes. New partnerships among higher education, business and industry, and state and federal government should be established and sustained to achieve world-class quality in the American postsecondary education enterprise.

Yet it is also clear that if markets are allowed to dominate and reshape the higher education enterprise without constraint, some of the most important values and roles of the university will likely fall by the wayside. Creating an effective market requires thoughtfully structured strategic interventions and enlightened public policy to ensure that the market is a force supporting the broader public purposes of higher education.

Possible Strategy: In its pursuit of the vision of a world-class system of postsecondary education better aligned with national needs, the United States should rely heavily upon market forces shaped by public policy and investment and public-private sector partnerships rather than government regulation. This is consistent with our assumption of constrained public funding and the long and effective decentralization and diversity in American higher education. It is our belief that if market constraints such as unnecessary regulation at the state and federal level, monopoly and predatory practices, and inadequate consumer information are addressed, then market forces will drive institutions toward best practices in educational quality, cost containing, productivity, and innovation. Market competition within higher education should be strongly encouraged and facilitated by removing unnecessary regulation and bureaucracy at the state and federal level, challenging monopolistic practices, providing information to better educate consumers of educational services, and providing incentives for

institutions to develop or adopt best practices in areas such as cost containment, productivity, the assessment of student learning outcomes, and innovative academic programs.

However for market forces to be effective in driving quality improvement, we believe it essential to challenge institutions (and their faculty) to develop clear objectives for their academic programs and then provide to the marketplace (students, parents, employers, governments, media) evidence-based assessment of how well their educational programs are performing in achieving these goals. While federally or state-mandated use of specific assessment mechanisms such as standardized tests is unlikely to be effective because of the great diversity of the American higher education system, we do believe that the broad requirement of evidence-based assessment of educational effectiveness through processes such as accreditation could trigger not only institution-based efforts to measure learning outcomes but also stimulate the development and implementation of new assessment tools.

New partnerships among higher education, business and industry, and government will be important in developing best practices in achieving learning performance objectives, quality, and cost-effectiveness (e.g., student unit records systems to track student access and progress, consumers reports on institutional quality and performance, and more sophisticated mechanisms to measure student learning outcomes). Moreover such partnerships will be important in identifying changing educational needs (e.g., the skills required by a services economy or by globalization) and restructuring academic programs accordingly. However such a market-focused approach to the achievement of quality and responsiveness will also require enlightened public policies and investment to ensure that the market forces do not distort the broader public purposes of higher education.

More specifically, institutions should be provided with the flexibility to compete for students, faculty, and resources from both public and private sources on the basis of quality, price, and value. Consumers of educational services (students, employers, governments) should be provided with sufficient information to readily make comparisons among and between institutions (e.g., prices, benefits, job placements, quality of learning, socioeconomic distribution of students, student learning outcomes, and the scale and scope of other activities such as research and public service. Both industry and the federal government could provide assistance in collecting and distributing such information.

2. Innovation

To support American innovation, the nation's colleges and universities must embrace innovation themselves, by developing new learning pedagogies, academic paradigms, and educational forms that are more responsive to national priorities. This will require a very substantial increase in the support of research and development associated with learning and education by the federal government and higher education institutions.

Vision: Leadership in innovation—the transformation of knowledge into products, processes, and services—is critical to competitiveness, long-term productivity growth, and the generation of wealth and hence to United States prosperity and security. Institutions of higher learning must collaborate with industry and government to create a national educational climate and culture that enables innovation to thrive. Not only is this a challenge to our colleges and universities to provide the graduates capable of innovation and adaptation to change, but it also demands that American higher education also develop and demonstrate the capacity for continuous innovation and quality improvement at both the institution and enterprise level. In fact, we believe that innovation (in the use of technology, learning paradigms, organization of learning institutions and systems, financing, and governance) will be both the strongest driver and enabler of change in higher education in the years ahead.

Challenge: There is increasing agreement that the prosperity and security of all Americans will depend on our nation's enduring and evolving capacity to learn, inspire, create, and innovate. Today American leadership in innovation is challenged not only by a global, knowledge-driven economy, but by the need for college graduates capable of applying technology, talent, and capital in new ways, with deep analytical skills and the ability to manage ambiguity, to meet business and societal demands. Here part of the challenge is the changing nature of innovation itself; it is far more open; it spans virtually all disciplines; and it is increasingly global. And it arises not in the isolated laboratory but in the marketplace, the workplace, the community, and the classroom. It requires the development of new academic disciplines such as services systems management, increasingly multidisciplinary research and instruction across the traditional disciplines, and continual learning opportunities to keep abreast of the fast-changing dynamic nature of work. Clearly, sustaining the nation's leadership in innovation will require institutions of higher learning capable of embracing innovation as key both to their quality and capacity to serve the changing needs of our society.

Yet today many segments of American postsecondary education are currently not well positioned to meet the changing needs of the nation. Although there are bright spots of innovation, by and large American higher education is a mature industry that has become increasingly risk-adverse, and frequently complacent and ponderous. Furthermore, much of the enterprise has yet to address the fundamental issues of how academic programs and institutions must be transformed to serve the changing educational needs of a knowledge economy. It is not enough simply to intensify current stimuli, policies, and management strategies and make incremental improvements to organizational structures and curricula.

Changing market pressures such as the high cost of education and the educational needs of adults, coupled with the rapid evolution of information and communications technology stimulating new forms of higher education such as virtual universities, e-learning, and distributed learning models. New paradigms such as open-source and open-content, as manifested in initiatives such as Open CourseWare, the Open Knowledge Initiative, the Sakai Project, and the Google Book project, hold out the potential of providing universal access to both knowledge and higher education. Furthermore, the considerable progress in cognitive and neurosciences research over the past two decades holds great promise for very significant improvements in learning methods and productivity. Yet this will only occur with adequate investment at both the federal and institutional level in R&D concerning learning, pedagogy, technology, and curriculum development.

Possible Strategy: Working closely with business and industry, higher education must give greater priority to the support of the nation's leadership in innovation through new academic programs in areas such as services science, greater multidisciplinary instruction and research, and key involvement in regional innovation economies. To stimulate the necessary level of innovation and institutional transformation within higher education, the federal government should launch a major interagency federal R&D program concerning learning and education, comparable in both approach and funding level to DOD's DARPA, capable of tapping the new knowledge (brain research, cognitive science, organizational science) and technologies (information, communications, and systems technology) capable of stimulating innovation in learning methods, pedagogy, and educational institutions. Key would be efforts to stimulate similar commitments on the part of colleges and universities to substantial internally funded R&D activities associated with improving learning, scholarship, and institutional performance.

3. Access

Access to higher education should receive the highest priority for public funding, whether through financial aid, state appropriations to colleges and universities, or tax policy (e.g., “tax expenditures”). Public funds should be targeted to those students with greatest need.

Vision: The nation and the states must address and remove those factors that have created a strong dependence of access and success in higher education upon socioeconomic status. We should aspire to the ideal where family income is nearly irrelevant to the ability of a student to attend the college or university best matched to his or her talents, objectives, and motivation.

Challenges: Education has become a key determinant of one’s personal standard of living and quality of life. The breakpoint between those who succeed in college and those who fail is perhaps the most critical decision point in one’s life. Yet many studies have revealed the degree to which access to higher education in America has become increasingly stratified according to student financial circumstances, thereby undercutting the fundamental principles of equity in providing educational opportunities for a democratic nation. Today even the most academically talented students in the lowest economic quartile are significantly less likely to have access to the benefits of higher education than the least qualified students in the top quartile—a situation clearly intolerable for a democratic society. Furthermore, more students are borrowing larger amounts at higher interest rates to pay for college than ever before, with debt burdens that are not only influencing student career choices (e.g., high paying rather than socially-beneficial careers) but discouraging many low income students from even attempting a college education.

Part of the challenge arises from the patchwork character of current federal, state, and institutional financial aid programs, designed more to address political objectives and benefit the commercial loan industry than address the needs of students in a strategic fashion. Here a key public policy issue is how public funds for higher education should be allocated among students from differing socioeconomic circumstances and among institutions of differing missions. Today a very significant fraction of public funds, whether allocated directly to public institutions to enable low tuition, or through state and federal financial aid programs, go primarily to benefit

affluent students with modest economic needs, at a time when close to a quarter of Americans are disproportionately and severely deprived of educational opportunity at colleges and universities.

Possible Strategies: Although both the states and the federal government have many objectives in providing public funding to higher education, e.g., regional economic development, public health, national security, or, more pragmatically, voter support, the widening gap between the educational opportunities available to affluent students and those of modest means compels the Commission to recommend that access to higher education, regardless of socioeconomic circumstance, should receive the highest priority for public funding. While the principle of low tuition in public institutions has a long-standing precedence, this subsidy of the educational costs for affluent students should not come at the expense of adequate financial aid programs for those of modest means.

Furthermore, while merit scholarship programs may be appropriate for stimulating student interest in key strategic areas (e.g., science, engineering, and mathematics), these must not come at the expense of need-based financial aid programs. Publicly funded financial aid should rely primarily on need-based rather than merit-based programs, with grants as the preferred mechanism for the lowest income quartile of students, while loans and tax benefits are the preferred mechanisms to assist students from more affluent backgrounds with access to postsecondary education and lifelong learning opportunities (“higher and further education”).

In particular, the current system of federal financial aid programs requires major overhaul—if not total replacement—to achieve a strategic program of grants, loans, and tax benefits that adequately and efficiently addresses in an accountable and transparent fashion goals such as enhanced student access, retention, and reduced student debt burden. Such a program should be strategically-oriented, results-driven, efficient in the utilization of taxpayer dollars, and demonstrably effective.

4. Coordination

Mechanisms such as a federally managed student record system and more direct involvement by colleges and universities in education at the secondary level should be used to achieve greater coordination both within the higher education system and the broader American education enterprise to better serve students and society.

Vision: Both students and the nation could be well served by a higher degree of coordination, particularly in facilitating the transition among various levels (e.g., K-12, community college, undergraduate, graduate, professional, lifelong learning) and elements (public, private, for-profit, corporate training) of higher education. Key to this effort will be the development of a federally managed student record system capable of statistically tracking the flow and progress of students throughout postsecondary education, as well as the development of incentives at the state and federal level for institutional coordination and cooperation among all elements of the American education sector.

Challenge: The Commission strongly agrees with the recent survey in *The Economist* that concluded, "America's system of higher education is the best in the world. That is because there is no system!" Yet it is also the case that the absence of coordination and articulation agreements can be a serious hurdle to students attempting the transition from one education level or institution to another. While competition among institutions is important, particularly in a marketplace increasingly funded from private sources, so too is sufficient coordination to allow a smooth, transparent transitions from one stage or institution to the next in a future increasingly dependent upon lifelong learning. Put another way, postsecondary education needs to be better coordinated and integrated vertically, while preserving the strong market competition horizontally.

Furthermore, higher education needs to be far more tightly coupled to primary and secondary education. Recent studies have revealed the ill-preparedness of high school graduates for college work, along with poor success of higher education in addressing student deficiencies in written and quantitative literacy.

Possible Strategies: The federal government, working closely with the higher education community, should develop and maintain a student unit record system capable of describing the general flow of students throughout the postsecondary education enterprise. There is also a need on the part of students for more specific and confidential information about their own standing and academic progress, particularly should a lifelong education system become available. However this objective requires further study to design a system with appropriate protection of confidential information and privacy rights.

Colleges and universities need to work closely with K-12 education, aligning high school curricula with college standards and providing feedback to prospective students about their readiness for college work. In particular, the senior year of high

school (12th grade), currently regarded as an educational wasteland by many, should be used by colleges and secondary schools both to introduce advanced students to college-level work while providing the remedial education necessary to repair deficiencies in student preparation for further study. It should also be observed here that the commitment to lifelong learning (Recommendation 6) could provide yet additional opportunities for addressing the diversity in K-12 learning experiences and student learning readiness that today leads to all-too-frequent failure at the college level.

5. Research and Graduate Education

The United States should implement strategies such as the American Competitiveness Initiative proposed by the President to enable higher education to increase the talent pool and knowledge base in key strategic disciplines such as the physical sciences, mathematics, and engineering.

Vision: The United States must sustain the capacity of its research universities to achieve global leadership in key strategic areas such as science, engineering, medicine, and other knowledge-intensive professions and attract talented students and faculty from across America and around the world through adequate public and private investment and stimulating institutional innovation and change. Research universities, government, and industry should strive to create effective mechanisms for ensuring that the new knowledge developed on the campuses serves society through technology transfer, innovation, and entrepreneurial activities.

Challenges: There are growing concerns that the scientific and technological building blocks of the nation's economic leadership and national security are eroding at a time when many other nations are gathering strength. Federal support of R&D as a fraction of GDP has dropped in half over the past three decades (from 2% to less than 0.8% of GDP), while the nation's research portfolio has become heavily skewed in favor of biomedical research at the expense of research in physical science and engineering, keys to the nation's technological strength. Numerous studies have suggested that the nation's strategic and economic security is threatened by its current course, living on incremental improvements to past developments and gradually conceding technological leadership to international competitors. Instead it is critical the United States invest in the necessary research, producing the world-class graduates, stimulating the innovation,

and creating the high-skill, high-value jobs that define a prosperous nation in a knowledge-driven global economy.

Possible Strategy: The federal government must restore a level of research funding adequate to support its most urgent priorities including national defense, homeland security, health care, energy security, and economic competitiveness, with special attention directed to physical science and engineering. Federal and state governments and industry should invest in upgrading and expanding university laboratories, equipment, and information technologies and meeting other infrastructural needs of research universities such that the national capacity to conduct world-class research in key strategic disciplines is sufficient to address national priorities. Government and industry should also invest in scholarships, fellowships, curriculum development aimed at enhancing student interest in science, mathematics, engineering, and technology at all educational levels, with particular attention given to encouraging the participation of women and underrepresented minorities, while recruiting talented students from around the world.

6. Lifelong Learning

The nation should commit itself to the goal of providing universal access to lifelong learning opportunities for all citizens, thereby enabling participation in the world's most advanced knowledge society. This will not only require a significant increase in the capacity and quality of postsecondary education in America, but also the development of new types of institutions, funding mechanisms, and public-private partnerships.

Vision: Today the United States faces a crossroads, as a global knowledge economy demands a new level of knowledge, skills, and abilities on the part of our citizens. In earlier critical moments in our nation's history federal initiatives aimed at expanding the role of education had great impact on America, e.g. the Land Grant Acts in the 19th century to provide higher education to the working class, university access to secondary education in the early 20th century, and the G. I. Bill enabling the college education of the returning veterans of World War II. Today, as our nation undergoes a transition from an industrial to a knowledge-based economy, the Commission believes it is time for the United States to take bold action, completing in a sense the series of these earlier federal education initiatives, by providing all American citizens with *universal access to lifelong learning opportunities*, thereby enabling participation in the world's most advanced

knowledge society. The nation would accept its responsibility as a democratic society in an ever more competitive global, knowledge driven economy to provide all of its citizens with the educational, learning, and training opportunities they need, throughout their lives, whenever, wherever, and however they need it, at high quality and affordable costs, thereby enabling both individuals and the nation itself to prosper.

Challenge: The needs for lifelong learning opportunities in a knowledge society are manifold. The shelf life of education early in one's life, whether K-12 or higher education, is shrinking rapidly in face of the explosion of knowledge in many fields. Today's students and tomorrow's graduates are likely to value access to lifelong learning opportunities more highly than job security, which will be elusive in any event. They understand that in the turbulent world of a knowledge economy, characterized by outsourcing and off-shoring to a global workforce, employees are only one paycheck away from the unemployment line unless they commit to continuous learning and re-skilling to adapt to every changing work requirements. Furthermore, longer life expectancies and lengthening working careers create additional needs to refresh one's knowledge and skills through. Even today's college graduates expect to change not simply jobs but entire careers many times throughout their lives, and at each transition point, further education will be required—additional training, short courses, degree programs, or even new professions. And, just as students increasingly understand that in a knowledge economy there is no wiser personal investment than education, many nations now accept that the development of their human capital through education must become a higher priority than other social priorities, since this is the only sure path toward prosperity, security, and social well-being in a global knowledge economy.

Of course, establishing as a national goal the universal access to lifelong learning would require not only a very considerable transformation and expansion of the existing postsecondary education enterprise, but it would also require entirely new paradigms for the conduct, organization, financing, leadership, and governance of higher education in America. For example, most of today's colleges and universities are primarily designed to serve the young—either as recent high school graduates or young adults early in their careers. Yet achieving the objective of universal access to lifelong learning would expand enormously the population of adult learners of all ages. Traditional university characteristics such as residential campuses designed primarily to socialize the young with resources such as residence halls, student unions, recreational facilities, and varsity athletics would have marginal value to adult learners with career and family priorities. Such universal lifelong learning could change dramatically the higher

education marketplace, providing for-profit institutions already experienced in adult education with significant advantages. Furthermore it seems likely that the only way that such ubiquitous access can be provided to lifelong learning to adults with career and family responsibilities will be through technology-mediated distance learning.

Possible Strategies: One approach would be to utilize a combination of transportable education savings accounts and loans, perhaps indexed to future earnings much like Social Security by mandatory earmarking of a portion of an individual's earnings over their careers as a source of funds for their education. Here, in contrast to Social Security that amounts to saving over a career for one's relatively unproductive golden years, instead one would be borrowing and investing on the front-end to enhance their personal productivity and hence prosperity throughout their lives through future education. By making such education savings accounts mandatory, again like Social Security, one would create a sense of ownership on the part of the students, thereby making it more likely that they would seek to take advantage of the educational opportunities provided by their account. A variation on this theme would be to access the capital markets by using the government (either federal or state) to borrow money at low interest rates to be loaned to students, and then provide strong tax incentives to employers to assist students in paying off these loans during employment. Note employer participation would bring another very important consumer to the table, since clearly employers (private or public) would want to demand high quality learning experiences in disciplines of importance to their enterprise if they are going to pay off the student loans of their employees.

A second approach would be an analog to the Land Grant Acts of the 19th Century that assisted the nation in evolving from an agrarian frontier society into an industrial nation. One might imagine a *Learn Grant Act for the 21st Century* to assist the United States in evolving still further to respond to the challenges of a global knowledge economy. It would focus on developing our most important asset, our human resources, as its top priority, along with the infrastructure necessary to sustain a knowledge-driven economy. Patterned after the Land Grant Acts, the Learn Grant Act would involve a partnership among the federal government, the states, and the higher education enterprise in which the federal government would provide assets comparable to the land grants (e.g., the funds resulting from the sale or lease of the digital spectrum), the states would commit to providing base support necessary to ensure access to postsecondary education for their populations, and higher education institutions would commit to the major transformations necessary to provide life-long learning

opportunities of high quality, affordable cost, and necessary flexibility (asynchronous and ubiquitous learning), along with the other knowledge services needed by our society. However, since the growth in the learning population enabled by universal access to lifelong learning would be financed primarily from private sources, this would also require a partnership among students (learners and borrowers), employers (financiers), and government (facilitator).

7. Public Purpose

Higher education must take decisive action to address current concerns about quality, efficiency, capacity, and accountability if it is to earn the necessary level of public trust and confidence to enable it to pursue its public purpose.

Vision: While higher education provides important private benefits to graduates, clients, and industry, in reality it is primarily a public good, created and support by society to serve a public purpose.

Challenges: Like so many other institutions in our society, higher education today finds itself roundly criticized from the right, the left, and the center—indeed, even from within by many of our own faculty, students, and staff—for flaws large and small, fundamental and trivial, real and imagined. Little wonder that at times the academy feels under siege: criticized by parents and students for the uncontrolled escalation of tuition; attacked by state legislators and governors for insufficient attention to state needs; criticized by Washington and indeed our own faculties for rising administrative costs; challenged across the political spectrum for the quality and nature of undergraduate education; and generally blasted by the media in essentially any and all of our activities, from teaching to health care to intercollegiate athletics.

Among this array of criticisms, there is one that stands out in particular: the growing frustration of society with the hesitancy or reluctance of the university to face up to the challenge of change. A rapidly evolving world has demanded profound and permanent change in most, if not all, social institutions. Corporations have undergone restructuring and reengineering. Governments and other public bodies are being overhauled, streamlined, and made more responsive. Individuals are increasingly facing a future of impermanence in their employment, in their homes, and even in their families. The nation-state itself has become less relevant and permanent in an ever more interconnected world.

Unlike many other institutions, at least according to our critics, the university has responded to the needs of a changing society largely by defending the status quo. To be sure, change has always occurred in higher education on glacial time scales—not surprising since the typical career of a tenured faculty member spans three or more decades. But at a time when our society, our nation, and the world itself are changing rapidly, the university still tends to frame its contemporary roles largely within traditional paradigms. It resists major changes in curricula or pedagogy. Students continue to be evaluated and credentialed relative to “seat time” rather than learning outcomes. The technology that is revolutionizing our world has largely bypassed the classroom, which continues to function largely as it has for decades, if not centuries. Tenure is seen not as a protection for academic freedom but rather as a perquisite that shields the faculty from accountability and change. And higher education tends to respond to resource constraints by raising funds from other sources rather than prioritizing programs or increasing productivity.

Possible Strategies: While market forces are likely to dominate public investment and public policy, at least for the foreseeable future, it is essential for higher education to retain its public purpose rather than simply responding to the market demands of the moment. After all, it has been a public good of immense importance throughout the history of the nation, and it must remain so. Here, however, it should be recognized and acknowledged that for higher education to regain the necessary degree of public trust and confidence, institutions will have to first listen more attentively to the concerns of its various and diverse constituencies (e.g., students, parents, employers, public and private patrons) and then respond to these concerns through bold institutional actions and transformation consistent with their public purpose.

CHAPTER 5: SOME REMAINING QUESTIONS

1. Is it time to launch a major conversation both within the academy and across society more generally about the nature of the college education appropriate to prepare citizens for a 21st century world? Are the objectives of those currently in leadership positions in our society who were educated in a century past, valuing traditional paradigms such as liberal learning or more focused professional training, relevant to the challenges and opportunities of a rapidly changing world faced by the new generations of students? How would one go about launching, sustaining, and harvesting ideas from this conversation?
2. What are the best quantitative goals to set out for the U.S. postsecondary education enterprise as a whole? Fraction of population with college educations? Degrees? Graduation rates? Participation based on socioeconomic status? Literacy measures? More sophisticated measures of learning value-added from higher education?
3. What are the best performance measures for individual institutions? Success (graduation rates, placement statistics)? Educational “value-added” (e.g., evidence-based measures of educational effectiveness or student acquisition of cognitive skills)? Cost-productivity-efficiency measures? Innovation measures? How would one collect and compare this information?
4. How should the quality and performance of colleges and universities be assessed and certified? Through traditional institutional accreditation processes? Through the certification process of professional organizations (e.g., law, business, medicine, engineering)? Through popularity contests such as those conducted by US News & World Report? Or through a new and far more rigorous public process that provides evidence-based assessments of educational effectiveness on a student-by-student basis?
5. Are there specific actions that could be taken to stimulate the market pressures necessary to drive change in the university culture in areas such as cost-containment, productivity, and innovation, beyond simply creating better-educated consumers (students, employers, public agencies)?

6. American higher education is highly bimodal, characterized by a small number of extremely expensive institutions attracting the best students and faculty with little incentive to become more efficient, and a very large number of more modestly supported colleges and universities attempting to educate the bulk of college students with increasingly limited resources that tend to erode quality rather than stimulate productivity. The challenge is to provide stronger incentives to wealthy institutions to stimulate greater efficiency, while providing the resources (financial, expertise, leadership) to enable productivity enhancement across the broader higher education enterprise. Possibilities include greater cost-sharing requirements for federal grants, restructuring tax policy to shift the tax expenditures associated with charitable giving and endowment earnings to priorities such as student financial aid, and disentangling the cross-subsidies of the various missions of higher education to better identify where to demand cost containment and productivity.
7. By developing recommendations based on the pessimistic assumption of seriously constrained public resources, will we, in effect, undercut the possibility of making a strong case for enhanced public support?
8. Are there more creative ways to tap capital markets? For example, the success of for-profit postsecondary education companies (e.g., University of Phoenix) in highly selective markets (adults, professional training, etc.) will almost certainly be a growth area. Could for-profit enterprises be created that serve as human capital brokers by supporting workforce development in key disciplines of particularly high need (e.g., info-bio-nanotechnology, knowledge services management) and then becoming a supplier of these graduates to employers? How could conventional universities more effectively tap the capital markets? (Perhaps they also could become compensated suppliers of human capital to employers...)
9. Since many of the proposed objectives are strongly dependent upon the quality of K-12 education, how do we better use the resources of American higher education to dramatically improve the quality of primary and secondary education? To what degree should higher education take on other major social challenges such literacy?
10. The Commission has approached its task (and this report) with a broad swath encompassing all elements of the American postsecondary education enterprise. However an alternative would be to provide a more detailed analysis and

recommendations for each component of the American higher education enterprise that acknowledges the distinct missions, challenges, and opportunities of each tier.

CHAPTER 6: TWO REMAINING CAVEATS

Caveat 1: The strength of American higher education depends upon characteristics such as:

- The great diversity among institutions and missions.
- The balance among funding sources (private vs. public, state vs. federal).
- The influence of market forces (for students, faculty, resources, reputation).
- Its global character (attracting students and faculty from around the world)
- The absence of a centralized system that leads to highly decentralized, market-sensitive, and agile institutions, students, and faculty.
- Supportive policies (academic freedom, institutional autonomy, tax and research policies).
- The research partnership between universities, the federal government, and industry.

These characteristics must be preserved in any effort to better align higher education with the changing needs of the nation.

Caveat 2: As the nation pursues the objective of building and sustaining a world-class system of postsecondary education capable of meeting its changing education, research and service needs in an ever more competitive world, it is also important that it bear in mind the long-standing history and purpose of higher education in western societies. As Frank Rhodes has observed,

“For a thousand years the university has benefited our civilization as a learning community where both the young and the experienced could acquire not only knowledge and skills, but also the values and discipline of the educated mind. It has defended and propagated our cultural and intellectual heritage, while challenging our norms and beliefs. It has produced the leaders of our governments, commerce, and professions. It has both created and applied new knowledge to serve our society. And it has done so while preserving those values and principles so essential to academic learning: the freedom of inquiry, an openness to new ideas, a commitment to rigorous study, and a love of learning.” (Rhodes, 1999).

There seems little doubt that these broader roles of higher education will continue to be needed by our nation. Hence, while responsiveness to the needs of a 21st nation in an intensely competitive global, knowledge economy, so too is the need to preserve these more fundamental roles, values, and public purposes of higher education in America.