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ASU

**A NEW AMERICAN UNIVERSITY:
THE NEW GOLD STANDARD**

**Design imperatives
to guide the reinvention of the American research university,
based on the inaugural lecture of Michael M. Crow as he
assumed the presidency of Arizona State University,
November 11, 2002**

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**A New American University
White Paper from the
Office of the President
Arizona State University**

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A NEW AMERICAN UNIVERSITY: THE NEW GOLD STANDARD

At ASU we are developing a new model for the American research university, creating an institution that measures its academic quality by the education that its graduates have received rather than the academic credentials of its incoming freshman class; one at which researchers, while pursuing their scholarly interests, also consider the public good; one that does not just engage in community service, but rather takes on major responsibility for the economic, social, and cultural vitality of its community. Such an institution provides the best possible education to the broadest possible spectrum of society, embracing the educational needs of the entire population—not only a select group, and not only the verbally or mathematically gifted. Its success will be measured not by who the university *excludes*, but rather by who the university *includes*, and from this inclusion will come the diversity necessary for the advancement of society.

These tenets, first proposed by ASU president Michael M. Crow in his inaugural policy paper, “A New American University: The New Gold Standard” (November 2002), represent a new way of thinking about the fundamental objectives of a university—teaching, research, and public service. As it evolves during a ten-year institutional transformation process, ASU will serve as the prototype for a New American University, redefining the existing conception of the American research university, and spurring the evolution of an institutional form rooted in the past.

The vision of a New American University is guided by eight “design imperatives,” proposed by President Crow, that represent new standards for teaching, research, and public service. The design imperatives are guiding principles and were never intended to represent hard-and-fast categories—most of the aspirations and accomplishments of an academic institution do not correspond neatly to a single design imperative, but rather embrace many. And not all design imperatives could possibly be relevant to any given scholar or student or team of researchers. Their objective is to spur new thinking, suggest new possibilities, and unleash the creative potential of academic communities.

The tactical implementation of the vision is being accomplished through a comprehensive reconceptualization (“design process”) of the university, initiated by President Crow in response to a new era marked by unprecedented demographic change in Arizona, and quantum leaps in scientific discovery and technological innovation. As set forth in the April 2004 white paper “One University in Many Places: Transitional Design to Twenty-First Century Excellence,” the objective of the process is to build a comprehensive metropolitan research university that is an unparalleled combination of academic excellence and commitment to its social, economic, cultural, and environmental setting.

The principal mechanism of the design process is the empowerment of colleges and schools, a model termed “school-centrism.” The school-centric model will produce a *federation* of unique colleges, schools, academic departments, and interdisciplinary institutes and centers (“schools”), and a deliberate and planned clustering of programs on each campus around a related theme and mission. Predicated on devolving intellectual and entrepreneurial responsibility to the level of the college or school, the school-centric model calls for each school to compete for status, not with other schools within the university, but with schools around the country and around the world. Schools are encouraged to grow and prosper to the extent of their individual intellectual and market limits.

ASU has been moving at an accelerated pace to establish itself as one of the leading centers for cutting-edge interdisciplinary research in selected areas, both fundamental and applied. Consistent with the vision of the research university as a catalyst for societal change, ASU favors a research enterprise dedicated to societal relevance and socially optimal outcomes of research.

ASU has embarked on a dramatic research infrastructure expansion to create more than one million square feet of new research space, moving the university closer to its goal of tripling research capacity during the next five years. As a consequence of investment in research infrastructure, an unprecedented acceleration of the research enterprise, and the aggressive recruitment of prominent faculty, the university is projecting a significant increase in both federal funding and private investment, and is exploring possibilities for collaboration with top tier institutional partners.

To a degree rarely appreciated, major research universities, whether public or private, function in a fiercely competitive environment, and in such a context, must operate with “real-world” entrepreneurial speed and ingenuity. Because ASU does not yet have the endowment resources of a more established university, and, as a public institution, has relied heavily on its annual state appropriation, President Crow has implemented what he terms a “culture of academic enterprise,” casting the university as an enterprise responsible for its own fate, while acknowledging that it is an enterprise that the state government charters and empowers, and in which it *invests*.

Research universities are concerned with a certain academic profile in their student body, and have defined their excellence by the academic qualifications of their incoming students—an input-driven model. ASU focuses instead on *outcome-determined excellence*—that is, ASU will admit students with differing interests and indicators of intelligence and creativity, even different levels of high school preparation. It may seem counterintuitive to imagine that one of the nation’s largest universities could effectively focus on the individual student, but ASU seeks to prove that burgeoning enrollment and the quality of the academic experience are not mutually exclusive. Implicit in ASU’s focus on the individual is an explicit commitment to diversity.

ASU currently enrolls almost 60,000 students on four differentiated campuses of equally high aspiration, and because of both demographic trends and the growing reputation for excellence of its undergraduate, graduate, and professional programs, the institution is growing larger. Complementing the overall reconceptualization of the institution, a comprehensive development plan is in place to guide the transformation of the campuses to create a great research university whose buildings and grounds reflect the scope and stature of a world-class institution, providing for its students a vibrant living/learning environment, and fostering an institutional culture consistent with the spirit and climate of the region, as well as its objectives for a sustainable future.

As a public metropolitan research university, the profile of the student body, the character of the research enterprise, and the scope of community engagement differ from that of other institutions. As the only major university in the heart of one of the most rapidly urbanizing metropolitan areas in the nation, a region marked by explosive population growth, demographic change, rapid development, and environmental trends that threaten its sustainability, ASU bears the additional responsibility of providing leadership for a region that lags behind comparable metropolitan areas in a number of educational, economic, and environmental indicators. And although remaining explicitly focused on its region, ASU is moving aggressively to establish a global presence. Because global engagement is critical to the advancement of a major research institution, ASU is building academic and professional collaborations beyond our national borders, focusing initially on Latin America and China.

THE GOLD STANDARD OF THE PAST

Research universities are the preeminent catalysts for societal change—no institution possesses more potential to transform society: improving the human condition, fostering sustained social advancement and economic growth, and providing us with the tools we need for better planetary stewardship. No corporation, no industry, no government agency can rival their scope and impact, because universities alone exist solely to produce and disseminate knowledge. Never before has the impact of knowledge been greater, and no institution, academic or other, has had, or continues to have, more influence than the research university. ASU is one of only 300 major research institutions in the world, and, as such, has the potential to generate new knowledge that is certain to influence almost every aspect of our future.

The American research university has contributed to the wealth and productivity of the nation, and to an astonishing degree, to advancing the health and happiness of humankind. Our cultural landscape has been defined by the creativity and scholarship that takes place in our research universities. Through their undergraduate, graduate, and professional programs our research universities have been largely responsible for educating successive generations of our nation's leaders in government, business, and industry, our educators, scientists, engineers, artists, and healthcare professionals.

The distinctively American model of the research university came into being in the nineteenth century when the German model of the elite scientific research institute, offering specialized graduate training, was “grafted” onto the traditional American undergraduate liberal arts college. Following the lead of Johns Hopkins University in Baltimore, fifteen institutions came to define the American research university: some of them private, such as Harvard, Columbia, Cornell, Princeton, and Yale; others, state and land grant universities, such as the University of Michigan, the University of Wisconsin, the University of Illinois, and the University of California; still others, new universities established through private bequests, such as Stanford, Caltech, MIT, and the University of Chicago. For the past one hundred years, these institutions have produced the vast majority of Ph.D.'s in the nation, and very nearly everyone who attends an American college or university has been taught by their graduates.

Such has been the influence of these institutions that, to this day, every university in the nation measures itself according to their standards. These universities are considered definitive prototypes, and their disciplinary departments are the departments by which all others are implicitly judged. And because academic departments tend to structure themselves to resemble those most highly ranked in their respective disciplines, academic departments tend to resemble one another across the nation, each more or less a pale reflection of some distant ideal: physics at Caltech and MIT, for example, economics at the University of Chicago, and theater at Yale. Although these institutions represent the gold standard, *it is the gold standard of the past*. The model for the New American University proposes a rethinking of the static organizational paradigms of American research universities.

THE NEW GOLD STANDARD: DESIGN IMPERATIVES FOR THE NEW AMERICAN UNIVERSITY

The design imperatives of the New American University represent a rethinking of the organizational principles on which universities have historically been based. The new imperatives reflect the needs of a world that in many ways has changed beyond recognition since the rise of the medieval universities nearly a millennium ago, and even the development of land grant universities 150 years ago. These design aspirations correspond to the explosion in knowledge production, increased specialization in academic disciplines, the rise of new disciplines, and the collapse of disciplinary boundaries that marks the past half-century.

ASU is young and dynamic—great institutions mature over the course of centuries, and although ASU traces its origins to the nineteenth century, its trajectory as a comprehensive research university does not begin until 1958. As such, ASU is one of our nation's youngest major research institutions, yet this may turn out to be an asset. ASU has been formed—but is not bound—by the organizational principles and practices of existing research universities, and, according to the model proposed, will evolve in response to a new era marked by unprecedented demographic change, and the groundswell in scientific discovery and technological innovation.

The new design imperatives will foster a different kind of university, one that is linked to its setting and the needs of our day, one that does not measure its success on the basis of an historic and in many ways antiquated set of organizational principles. The model proposes taking the best from the existing model, because American research universities are without question the finest in the world. But the New American University is a function of its contemporary environment, rather than the replication of an organization derived in another setting and in another time. The New American University represents a new model for the American research university, one that breaks the mold that has constrained these institutions.

DESIGN IMPERATIVE 1. ASU MUST EMBRACE ITS CULTURAL, SOCIOECONOMIC, AND PHYSICAL SETTING:

Leveraging Place

As the only major research university in the heart of one of the most rapidly urbanizing metropolitan areas in the nation, a region marked by explosive population growth, demographic change, unrestrained development, and environmental trends that threaten its sustainability, ASU is under considerable obligation to address the challenges posed by its setting. Moreover, scholars at ASU are uniquely positioned to offer perspective on the distinct historical, cultural, social, demographic, political, economic, and environmental forces shaping this vast region, arguably part of a greater binational region, political borders notwithstanding. It is imperative that ASU scholars examine the relevance of their work to this particular place, cognizant equally of its limitations and its potential.

ASU is a public metropolitan research university, and, as such, the profile of our student body, the character of our research enterprise, and the scope of our community engagement differ from that of other institutions. It is an obvious fact, but nevertheless worth noting, that the people of Arizona remain our largest investor. We must, therefore, consider the relevance of our research to our primary stakeholders, the many diverse constituencies of Arizona. We must seek knowledge about this place, and learn from our experience here, in this place and at this moment in time. A focus on place means learning from local knowledge, as well as considering the local relevance of our research. A focus on place fosters meaningful relationships between the university and its surrounding community, the entire metropolitan region, and the state of Arizona.

It may appear counterintuitive to focus on place in an era marked by technological advances that seem to diminish its significance—access to virtually unrestricted travel and instant global communication are celebrated hallmarks of the present age, and with wireless technology we are still further untethered. Yet at a time when globalization seems to have become a dominant cultural, economic, and social force, the persistent significance of place remains obvious—a sense of place is intrinsic to our very identities. And although we focus on the local relevance of our work, the global mission of the university mandates that we apply the knowledge we gain to problems across the world, including those in regions facing comparable social and environmental challenges such as rapid urbanization in arid climates.

The American West has always been a place where the vaunted individualism of our national culture has received its most resonant expression—nowhere more so than here in Arizona. The Southwest is a broad landscape that has always drawn individuals with an independent streak, and it remains so today. When the Thirteenth Territorial Legislature established a normal school in Tempe in 1885, Arizona Territory epitomized the frontier in our national consciousness. More than a quarter century would pass before Arizona Territory became the last of the 48 continental states to join the union in 1912. Because the state is young and its cities and institutions are not bound by the weight of tradition, because in many respects it is like an unfinished canvas, Arizona still epitomizes the frontier—the social, cultural, and political frontier. Its cities and institutions are not bound by the weight of tradition because they are still being created, a process in which ASU must play a leading role.

In the nineteenth century Arizona Territory epitomized the frontier to Americans crossing the continent, but for countless centuries it had been the land of indigenous peoples, and it remains so today. The Native American population in Arizona is among the most diverse and vibrant in the nation. In the sixteenth century the Spanish became the first Europeans to impact this land of ancient and highly successful cultures—the land that would become Mexico—and with the Hispanic population of our state increasing more rapidly than any other segment of society, we remain part of a great binational region. The past decade has witnessed a 40 percent increase in the statewide population and an 88 percent increase in the Hispanic population of our state. Today one of every four Arizonans is of Hispanic origin. As has already happened in California,

within the next twenty years there will be no majority population in Arizona. There is tremendous diversity in the population of Arizona, and with that diversity comes a high degree of differentiation—culturally, socially, economically, and in educational attainment. An awareness of these factors enables us to build a university that embraces that complexity, and engages these many communities.

A sense of place brings focus to the environmental limitations that we face. We are at a critical juncture in the evolution of our relationship to the environment—the long-term sustainability of our region, our nation, and even our planet remains in doubt—and universities must take the lead in addressing issues of sustainability. We must confront the fact that we do not fully understand the implications of human impact on the environment, and are not adequately prepared to determine policies regarding the intersection of human and natural systems. Although we expect clean air, sufficient water, and unspoiled natural beauty, existing knowledge, technology, and policy cannot ensure that our expectations are met. ASU must develop insights and technologies to manage the desert, and policies to manage urban sprawl, allowing the natural beauty of Arizona to endure, even as millions of people move into the area in the years ahead.

Research universities have been primary drivers of economic prosperity for decades—it has been estimated that 60 to 75 percent of economic growth in the past decade has been driven by technological advances, and that since 1990 nearly all major technological advances were made possible by fundamental academic scientific discovery. But whereas the economic benefit may appear to be a generalized contribution to national prosperity, it accrues disproportionately to regions that are home to major research universities. Apart from the intellectual, cultural, and social depth that research universities lend to their settings, their presence encourages regional economic development. Economists have noted the paradoxical emergent importance of local proximity and geographic agglomeration, or clustering, for economic activity based on new knowledge—the start-ups and spin-offs of university research. Contradicting the assumption that place has become increasingly irrelevant to economic development, “knowledge spillovers” occur, not surprisingly, most frequently in communities adjacent to research universities.

At one time the foundational elements of the Arizona economy were cattle, cotton, copper, citrus, and climate. But in this era of rapid advances in knowledge, in a knowledge-driven economy, the key to economic development is economic diversification. Diversification is promoted by the presence of an educated work force—what has been termed a “creative class.” In a recent study, Richard Florida, a Carnegie Mellon University professor of regional economic development, describes the emergence of a new social sector—more than 30 percent of the national workforce, comprised of artists, musicians, writers, designers, architects, engineers, scientists, and others for whom *creativity* is an essential dimension of their livelihood. In this usage, creativity is a driving force in the growth of the economy, and almost with exception, education is a key determinant to inclusion in the occupations that comprise this sector. Members of the creative class are knowledge workers—in the arts and humanities, in the sciences and technology, in the professions, and in business, industry, and government. There is a demonstrable correlation between the availability of knowledge workers in a local economy and its success. Knowledge workers comprise the educated and flexible workforce that will allow a diversified economy in Arizona to flourish in the decades ahead.

Quality-of-place considerations figure prominently for knowledge workers, and one of the leading indicators of quality is the presence of an institution of higher education. The creative class, it has been shown, gravitates toward stimulating urban environments that boast high concentrations of knowledge workers, cities that offer a sense of community, authentic cultural amenities, ethnic and cultural diversity, accessible outdoor recreation options, and the presence of college and universities. “Creative centers,” to enlist Florida’s term, are “incubators of creativity, innovation, and new industries” (219). These regions succeed largely because creative people choose to live there, and ASU can play a leading role in making metropolitan Phoenix a desirable place to live.

While underscoring the correlation of intellectual capital and competitive advantage for metropolitan regions in a recent report published by the Milken Institute, “Knowledge-Value Cities in the Digital Age,” economic and social analysts Joel Kotkin and Ross DeVol come to the same conclusion as Florida regarding the increasing importance of quality-of-place considerations for talented individuals. Knowledge workers are highly mobile, the authors point out, and their presence rewards regions that attract them. And because a post-industrial economy does not require industries and their workforces to settle in strategic locations—near waterways or natural resources, for example—companies and knowledge workers increasingly locate “not where they must, but where they will.” As a consequence, “wherever intelligence clusters, be it small town, big city, or any geographic location, wealth will accumulate” (3).

The authors note the paradox that in the global and technology-based economy, “enduring competitive advantages lie in location-specific competencies—knowledge, workforce skills, ... entrepreneurial infrastructure, and quality-of-place attributes” (viii). Whereas location was thought by economists to be increasingly irrelevant, the authors concur with Richard Florida’s conclusion that place matters greatly to the very people—the creative class—who are in a position to determine its prosperity. And key both to quality-of-place considerations for knowledge workers and the potential for economic prosperity in a given region are universities: “Cities that tap the knowledge assets in their midst, such as universities and research centers, will benefit from the talent that they attract to fuel local economic growth” (vi).

Through our cultivation of location-specific competencies—leveraging our cultural, socioeconomic, and physical setting—ASU has the potential to serve as the hub of the region’s science-based industries, serving a role for metropolitan Phoenix analogous to Stanford and the Silicon Valley, or MIT and Route 128 in the Boston area. Other examples of universities with R&D activities underpinning regional advantage include the University of California, San Diego; the University of Texas, Austin; and the Research Triangle, comprising Duke University, the University of North Carolina, and North Carolina State.

But “leveraging place” also means a focus on the neighborhoods surrounding our campuses, and several of the design imperatives that follow address ASU’s role in service to the community. “Place” also refers to our campuses, and ASU has implemented a comprehensive development plan to create campuses whose buildings and grounds reflect the scope and stature of a world-class institution, providing for our students a vibrant living/learning environment, and fostering an institutional culture consistent with the spirit and climate of the region, as well as its objectives for a sustainable future.

**DESIGN IMPERATIVE 2. ASU MUST BECOME A FORCE,
AND NOT ONLY A PLACE:**

Societal Transformation

Although universities are identified with their campuses, the essence of a great university is not only in its libraries, laboratories, studios, and classrooms; its irreducible core is the human relationships within its scope. Although it is inconceivable to imagine a great university without its libraries and research infrastructure, the physical manifestation of universities remains secondary to the community of students and scholars who are its spirit. Thus the New American University must be a force, and not only a place, and although the New American University must focus on understanding and improving the quality of its region, adapting to be of the greatest value to its regional constituents, through its teaching, research, and public service it must serve as the preeminent catalyst for societal advancement, essential both to the success of the region and the needs of society worldwide.

The transformational force of our universities comes in equal measure from teaching, research, and public service, but the ambitious effort of American universities to engage society—to reach out to local communities—is perhaps the most obvious indicator of the recognition within academic communities that they are uniquely positioned to foster meaningful societal advancement. Whether providing the best possible education to students, generating economic growth through basic and applied research, contributing new waves of innovation to industry and new scientific advancements critical to society, or offering a deeper understanding of the human condition, the far-reaching influence of our universities is often not sufficiently appreciated.

Yet our universities sometimes remain walled enclaves with little direct engagement with society. If we sequester the scholarship and creativity that is the essence of the university—if we build walls around our campuses—we diminish our own potential, and the magnitude of our contribution to society. The university cannot set itself apart from society, concerned only with the education of the most intelligent children of its more successful families. Certainly we must accomplish that task, but we must also offer openness and access to as broad a segment of the populace as possible. Thus the New American University is inclusive rather than exclusive, and responsible as well as analytical, with public service and social enterprise development intrinsic to its mission. And because it is engaged and not distant, its research enterprise must be dedicated to societal relevance and socially optimal outcomes of research.

With equal focus on local neighborhoods, the metropolitan region, the state, the nation, and the international community, ASU must become a driving force for societal advancement. ASU must become integral to the fabric of its metropolitan region, and maintain a lifelong presence in the lives of its alumni as well as the general citizenry. ASU must develop and implement lasting collaborative relationships with local schools, and with business, industry, government, and cultural institutions, providing direction to policymakers at the regional, national, and international level. We cannot hope to become a university that is ubiquitously present, but we can strive towards that objective, and reach out not only to our students, but also to the families that send us their children, as well as all the families in the many diverse communities of Arizona. To the extent that we realize the full measure of our responsibility to all our constituents—to students, parents, alumni, colleagues, peers, to the citizens of Arizona and society worldwide—we will become a force and not only a place.

DESIGN IMPERATIVE 3. A CULTURE OF ACADEMIC ENTERPRISE: ASU as Knowledge Entrepreneur

Enterprise takes many forms in the academy—it is the signal characteristic of the drive and passion that informs all groundbreaking scholarly and creative endeavor, whether in the arts, humanities, natural sciences, social sciences, the fields of engineering and technology, or the professions. Enterprise inspires inquiry, and fosters the originality and independence of mind that make new knowledge possible. To the extent that we make an original contribution to our disciplines, or, indeed, break free from conventional disciplinary or organizational constraints, our work may be said to exhibit *enterprise*.

Capital, too, may be said to come in many forms, and the currency of the realm in research universities remains *intellectual capital*: knowledge, discovery, and creativity by scholar and student alike—these are the sine qua non of *academic enterprise*. Intellectual capital is the wellspring of a great university, and the source of its potential to improve our world. At one and the same time, intellectual capital is the source of an institution's prosperity—those who conduct groundbreaking research, developing new knowledge and new products with commercial application, have the capacity to generate significant revenues for the university. ASU has the potential to capitalize on its knowledge content and intellectual property, expediting the transfer of knowledge and technology developed in its classrooms and laboratories to the commercial sector. But to unleash the potential of our intellectual capital we must first concentrate on acquiring the necessary resources, both financial and physical, that make success possible. Indeed, research infrastructure and the capacity to generate revenue are intimately linked at a research institution like ASU.

For a relatively young institution that does not yet have the endowment resources of a more established university, and for an institution that has had to rely heavily on its annual state appropriation, it is necessary to build *a culture of academic enterprise*. The university community must discard the mindset that ASU is nothing more than an agency of the state government. A new and more *enterprising* paradigm casts the university as an enterprise responsible for its own fate, an enterprise that the state government charters and empowers, and in which it *invests*. To a degree rarely appreciated, major research universities, whether public or private, function in a fiercely competitive environment, and in such a context, each must operate with “real-world” *entrepreneurial* speed and ingenuity.

The agency model encourages the misconception that state higher education appropriations provide a majority of institutional support for ASU. This is simply not the case. Although the state of Arizona remains the primary investor in ASU, revenues derived from the state for operating costs during the most recent academic year account for no more than 37 percent of our budget. The primary source of our funding comes from the advancing of ideas and programs into competitive arenas for resource acquisition. During fiscal year 2003 the federal government provided 62 percent of award dollars for research, followed by private funding, at 28 percent. Top faculty members are capable of winning hundreds of millions of dollars in federal research grants, with the National Science Foundation being the single largest awarding agency. Without such sponsored project support, ASU could not fulfill its essential research mission, and this, in turn, would seriously diminish its capacity to provide a first-rate education to our students.

Little appreciated is the fact that that the professor of fine arts or French literature indirectly benefits from a federal grant for a project in, for example, bio-optical nanotechnology. In fact, everyone at ASU benefits from what are termed the facilities and administrative costs (F&A), or “indirect” or “overhead” costs, of federal grant funding. Apart from funding the direct costs of a specific project, such as salaries and laboratory equipment, the federal government provides significant reimbursement—in some cases as much as half of total award dollars—for the construction and maintenance of necessary research facilities, even though not directly associated with the given project. The pool of discretionary funding generated through the

recovery of overhead costs can be invested internally to support the research mandate across the campus. Beyond covering the costs of sponsored projects administration and accounting, and operations and maintenance, this means funding for research facilities, start-up funds for faculty, support for graduate students, and the acquisition of library materials.

The partnership between research universities and the federal government has been a formula for success—critical to the development of our knowledge base, and an important source of our nation's prosperity. The federal government recognizes that investment in research benefits the nation and the world, but it is the obligation of universities to envision and plan the research—*and to make the initial commitment to build research infrastructure*. Research capacity has been pinpointed as the single most critical factor in shaping regional economic success, and, as United States Federal Reserve Chairman Alan Greenspan has argued, investment in university research infrastructure is key to building economic resiliency. Success for the research university—and the region—requires investment in state-of-the-art facilities, and the ability to attract top-notch faculty who can compete for research dollars.

During the past few years the people of Arizona have made an unprecedented commitment to university science and technology research that will open the door to a knowledge-based state economy. The approval of Proposition 301 in November 2000 represented public recognition of the need to invest in the future prosperity of our region by providing a long-term funding stream for science and technology investments. And the passage of the research infrastructure bill by the state legislature in June authorizes \$14.5 million of annual state appropriations starting in fiscal year 2007–2008 for lease-purchase capital financing of approximately \$185 million of important new research facilities. It is projected that the research infrastructure projects, when completed, will generate \$70 million of additional research grant and contract revenues annually. Immediate benefits will arise directly from construction activity—as many as 3,000 jobs will be created. The investment will yield \$330 million in immediate local economic impact, and generate approximately \$15 million in tax revenue.

Because research infrastructure is a prerequisite to attracting and retaining preeminent scholars and researchers to ASU, faculty who, in turn, will bring ever greater sponsored project funding to the university, it has been the first priority of President Crow to implement planning for nearly one million square feet of new research facilities, to be built over the next few years. A major achievement during the first year of his administration, for example, was the groundbreaking for the first building of the Biodesign Institute, part of a four-building complex on the Tempe campus. The cutting-edge research complex—the centerpiece of a projected Biodesign Corridor—now houses nine research centers in related fields in the biosciences, biotechnology, and nanotechnology, and will integrate disciplines such as genomics and bioinformatics.

Moving from the agency model to an enterprise model will take many years to accomplish, but ASU has been investing in initiatives that will most rapidly advance the institution. For the past decade, the Office of the Vice President for Research and Economic Affairs has maintained an investment fund used to seed new, early-stage faculty projects with the potential for attracting large outside grants. In order to launch a series of major new initiatives, the pace of investment has been accelerated to rapidly grow a pool of flexible resources. ASU has invested discretionary resources in initiatives and projects that were determined to have the best chance of meeting aggressive financial return-on-investment targets, and which also had the greatest likelihood of bringing national recognition to the institution.

Within this framework ASU has created the Biodesign Institute; the Center for the Study of Religion and Conflict; the Consortium for the Study of Rapidly Urbanizing Regions; the Institute for Computing and Information Science and Engineering; and the Center for Arts, Media & Engineering. Targeted initiatives within existing centers have been seed-funded, such as projects in ethical, legal, and social issues in genomics and nanotechnology through the Center for the Study of Law, Science, and Technology. Since July 2003 more than \$20.5 million in seed funding from several sources—primarily Proposition 301, the voter approved long-term funding stream for

science and technology investments, along with a fraction of the indirect costs from grants awarded to ASU researchers—have been invested through the Office of the Vice President for Research and Economic Affairs in a portfolio of investment that has engaged a broad spectrum of scholars and researchers. Still other research initiatives have been launched using private funding sources and major gifts.

As a major research institution, ASU has the potential not only to generate new knowledge, but to emerge as a powerful engine for economic development, leveraging public investment in the university and contributing to the region's prosperity. Never before has the economic impact of knowledge been greater, and ASU has been moving at an accelerated pace to secure the resources necessary to build the research infrastructure that will allow Arizona to compete for the industries, corporations, and jobs the state needs to prosper. University-based research will contribute to the health and well-being of the people of Arizona, and the region's economic future will depend on ASU's research initiatives making the metropolitan region and state more globally competitive by adding depth to the regional technology mix and diversifying the state's economic base.

The entrepreneurial potential of university teaching and research is limitless. Groundbreaking research leading to new products with commercial application has the capacity to generate significant revenues for the university. ASU has the potential to capitalize on its knowledge content and intellectual property, expediting the transfer of knowledge and technology developed in its laboratories and classrooms to the commercial sector. ASU's technology transfer program is already among the leaders in national higher education, according to rankings released by the *Chronicle of Higher Education*.

Entrepreneurial institutions require investors, and ASU is working hard to attract private support. Since January 2003 ASU has received five historic gifts that promise to bring new excellence to programs across the campus. In January ASU received a \$50 million gift to the business school, the second largest donation in the history of American business education, and at the time the largest gift ever to the university. The gift from William Polk Carey, chairman of W. P. Carey & Co. LLC, a New York City-based investment firm, has endowed the W. P. Carey School of Business at ASU, making possible the development of a world-class business school with a global focus, and increasing ASU's capacity to undertake strategic partnerships with business, industry, and government.

And in June 2003, Ira A. Fulton, chief executive officer of Fulton Homes, Inc., one of the nation's preeminent residential builders, announced a \$50 million gift for the benefit of the College of Engineering and Applied Sciences. The gift endows the Ira A. Fulton School of Engineering at ASU, and will enable a highly ranked national school to become world-class. ASU has also received a \$15 million founding gift to establish the International Institute for Sustainability, a \$10 million gift from the Virginia G. Piper Charitable Trust to establish the Virginia G. Piper Center for Creative Writing, and a further \$5 million gift from Ira Fulton, to the College of Education.

DESIGN IMPERATIVE 4. PASTEUR'S PRINCIPLE: Use-Inspired Research

When Louis Pasteur, the eminent French chemist and microbiologist, conducted his varied research, his concern was always to solve a particular problem. Having discovered that germs were the cause of fermentation, he realized that they could also cause contagious diseases. Pasteur devoted his late career to the development of vaccines that have protected millions from disease. A scientist in the nineteenth century could never have foreseen the quickening pace of discovery that seems to accelerate with each passing decade, but our scientific, technical, artistic, theoretical, and philosophical sophistication today far outstrip our knowledge of the relationship between research and its outcomes.

The complexity of the challenges ahead makes it mandatory to balance the need for, and importance of, continuing basic research (fundamental discovery) with a research agenda focused on addressing actual and immediate problems. If academic research is to be a force for societal transformation—if we are to improve the human condition—we must consider the social implications of our research, and harness our knowledge for maximum societal benefit. This is an approach to scholarship that could be termed *use-inspired*, and will increasingly guide the research enterprise of the New American University.

Disinterested inquiry—research free from vested interest—has always been a hallmark of the academy, and many of the fundamental advances in basic research that are the touchstones of scientific and technological accomplishment are the result of serendipity. Prestige attaches to the creation of new knowledge, but the socially optimal outcome of research is sometimes insufficiently considered in an academic culture that regards knowledge as an end in itself. When our concern is only to contribute to the knowledge base in our disciplines, we sometimes neglect to consider what larger contribution we may—or may not—be making to society. What we must begin to do—and what our current academic culture sometimes neglects—is to consider the purpose behind our work.

Much university research is necessarily esoteric because we are involved in the discovery of fundamental knowledge, a process that is arduous regardless of the field. ASU must be a university in which scholars consider the impact—the transformational effect—of their work on society. ASU must be a community of scholars—scientists, engineers, philosophers, artists, poets, historians alike—concerned with the impact of their work, and giving thought to its possible role in a better society. We must integrate the advancement of knowledge with the transformation of society.

Consistent with the objective of research dedicated to societal relevance and socially optimal outcomes of research, six key principles are considered in determining ASU's pioneering research enterprise: new initiatives must (1) be driven by a long range, visionary, and compelling research agenda; (2) differentiate the university from its competition; (3) provide use-inspired solutions with societal benefit; (4) be well conceived with specific timelines and milestones; (5) be interdisciplinary in conception, with a high potential to become transdisciplinary; and (6) provide a high return on the university's investment.

As we seek to cultivate the excellence of our academic programs, it is incumbent on us to examine their relevance to society—especially to our region—and to structure our programs in ways that not only advance knowledge, but wherever practicable, directly serve the needs of the people of Arizona, as well as the larger national and international communities. As members of an academic community, we must share our expertise both locally and globally to help alleviate the host of problems that beset our increasingly complex world. We have a responsibility to consider not only the value and relevance of our research, but also its outcome. We must seek to make certain that the technologies we develop become available to the disadvantaged, and not just the wealthiest corporations and nations.

DESIGN IMPERATIVE 5. A FOCUS ON THE INDIVIDUAL:

Outcome-Determined Excellence / A Commitment to Intellectual and Cultural Diversity

Our nation's research universities insist on a certain academic profile in their student body. They have defined their academic excellence by the academic qualifications of incoming students—an input-driven model. ASU focuses instead on *outcome-determined excellence*—that is, we admit students with differing interests and indicators of intelligence and creativity, even different levels of high school preparation. There is to be no single profile to which a student seeking admission to ASU must conform. The university will not be limited exclusively to the verbally and mathematically gifted, nor the most intelligent children of the most successful families. ASU welcomes these gifted students, but seeks greater diversity in its student body. The university will judge its success by the success of each student *on a case-by-case basis*.

Implicit in ASU's focus on the individual is a *commitment to diversity*. ASU champions diversity not for the sake of diversity itself, but because diversity brings with it the potential for excellence, balance, and perspective, not only in the academic profile of our student body, but in the social fabric of the university community. Without exception, our nation's research universities have made considerable efforts to encourage diversity and recruit students from varied social backgrounds, undergoing continuous self-assessment in order to produce exhaustive demographic profiles of entering classes to demonstrate success. Without question these initiatives have produced solid results, yet at heart our research universities remain elitist.

In its June 2003 ruling on affirmative action in higher education admissions, the U.S. Supreme Court underscored the significance of diversity for learning when it recognized the evidence of fundamental precepts from developmental psychology, cited in the amicus brief filed by the American Council on Education and 53 other higher education organizations. In its decision the Court acknowledged the impact of what the psychologist Jean Piaget termed “disequilibrium”—either the accommodation or revision of existing conceptions and beliefs required to assimilate new data.

According to Piaget, the disequilibrium and subsequent restoration of “cognitive balance” that forces learners to “refine their thinking” has greatest impact when it comes from *social interaction*. As explained in the brief, “A student, confronted by a peer who has a new or unexpected way of looking at the world, meets that perspective as an equal, and can explore and absorb it more fully than if merely informed of it in, for example, a lecture.” The brief quotes a relevant observation by the economist David Ricardo, who observed that colleges and universities provide “that collision which is obtained only in society and by which a knowledge of the world and its manners is best acquired” (16–17).

ASU must provide both the intellectual challenge and the diverse social milieu that will prepare successive generations of students to become capable scholars, artists, and leaders in business, industry, and government, prepared to confront an uncertain future. Research universities are inherently committed to the principle that teaching is most effectively carried out in a context that encourages the creation of new knowledge—teaching and research are intrinsically aligned. As a research institution, ASU offers students an infinitely challenging academic experience, but must also create an environment that offers each student the individualized attention that one would expect to find in a small liberal arts college. And in addition to facilitating a focus on the individual student, we must ensure that those quintessential aspects of a university education—the excitement of discovery, the craft of scholarly writing, the precision of research, the appreciation for scientific method, the passion for a discipline—become increasingly embedded in the learning process.

Traditional assumptions about teaching and learning are no longer adequate. Learning takes place around the clock, and not only in classrooms, laboratories, and libraries. Regardless of our approach or methodology, as educators we must take every advantage of both traditional methods and new approaches that make students an intimate part of the research process and the creative act, bringing an immediacy and intensity to learning that is often lacking. We must incorporate new findings on the processes of learning and apply these to our classrooms. We must take every advantage of new media tools that allow students to learn individually and through collaboration with others, and to learn at their own pace, sometimes exceeding the parameters of the course.

Consistent with our focus on the individual is a commitment to enhancing the undergraduate experience with learning in small groups. It has been said that students sometimes learn as much from one another as they do from their professors. ASU will facilitate mechanisms to structure education in small clusters of students wherever possible. This does not mean that there will be no large classes—on the contrary, large classes can be among the very best. In addition, we need to expand the size and intensity of our learning environment for our highest-achieving students so that they might infect us all with their irrepressible energy and enthusiasm.

ASU enrolls almost 60,000 students on four campuses, and because of its growing reputation for excellence the institution is growing larger. It may seem counterintuitive to imagine that one of the largest universities in the nation could focus on the individual student, but as demonstrated by the academic profile of recent freshman classes, increasing enrollment at ASU is a consequence of the quality of the education we provide. What distinguishes us from other institutions is the extent of our capacity to attend to students as individuals.

DESIGN IMPERATIVE 6. INTELLECTUAL FUSION:**Interdisciplinarity / Multidisciplinarity /
Transdisciplinarity / Postdisciplinarity**

Over the course of centuries universities have become organized into a rigidly codified hierarchy of academic departments based on the traditional disciplinary affiliations of scholars. Knowledge does not fall within strict disciplinary categories, yet an institutional organization that derives from the medieval academy prevails. But the traditional disciplinary organization of universities is not necessarily the optimal way to organize the institution—or to organize knowledge itself—or to teach students, or to solve the social, economic, and technological challenges confronting institutions.

Although we build on the bedrock of traditional disciplines, if we are to advance knowledge in the face of its rapidly changing nature, and come to terms with the explosion of new knowledge that has come to characterize the academy in recent decades, a new and more fluid organization is urgently needed in the research university. It is no longer sufficient to neatly categorize knowledge into disciplinary-based academic departments—the core disciplines are but one element of our intellectual identity. Accordingly, the New American University encourages teaching and research that is *interdisciplinary, multidisciplinary, transdisciplinary, and post-disciplinary, leading, where appropriate, to a convergence of disciplines, an approach that might more accurately be described as intellectual fusion.*

This is not to say that the core disciplines do not remain essential—our focus on traditional disciplines has provided fundamental structure in the academy. But convergence has increasingly become the cognitive norm in scholarship, whereas convention and habit continue to reinforce the tradition of organizing research into discipline-based departments. Aspects of academic culture so fundamental as to appear inevitable obstruct the acceptance of interdisciplinary scholarship. The dramatically accelerating specialization that marks the academy today and professional advancement based on peer recognition, to name but two factors, favor disciplinary affiliation, leaving interdisciplinary scholars caught in an uncertain netherworld. The paradigm of the heroic quest of the solitary genius working alone in his laboratory is another inevitable limitation to interdisciplinary scholarship because the scale and complexity of the problems that confront us require group endeavor for resolution.

In order to overcome the limitations inherent in traditional scholarship, academic institutions must undertake strategic recombinations of complementary academic units to create programs that both maximize core strengths and facilitate the creation of new knowledge. And in order to overcome disciplinary barriers, teams of scholars must collaborate to advance knowledge and address the great questions of our day. No longer encumbered by the artificiality of disciplinary boundaries, scholars and students alike are enriched by collaboration. It is not unusual for a research team to be comprised of scholars from vastly disparate disciplines—chemists, engineers, physicists, biologists, philosophers, and artists, for example, all working together to solve a problem that could not be adequately addressed by individual investigators working alone.

The school-centric model being implemented at ASU is inherently interdisciplinary. Construed across disciplinary boundaries to address open-ended “real world” problems, new colleges, schools, institutes, and research centers (“new schools”) recently launched or in conceptualization represent either wholly new entities, created *ex nihilo*, or, more often, reorganizations of existing faculties undertaken to create a new interdisciplinary entity. New schools already operational include the Biodesign Institute; the International Institute for Sustainability; and the School of Life Sciences. Currently in conceptualization are the School of Computing, Information Sciences, and Engineering; the School of Criminal Justice and

Criminology; the School of Earth and Space Exploration; the School of Family and Social Dynamics; the School of Global Health and Appropriate Technology; the School of Global Studies; and the School of Human Evolution and Social Change.

Programs that involve multiple departments and schools, that bring together scholars from different disciplines, have unique strengths. The motivation in creating interdisciplinary schools and programs is not to eliminate disciplines as we know them, or to transform core fields, but rather to advance knowledge in the face of its rapidly changing nature, the explosion of new knowledge that characterizes the academy in recent decades. By encouraging intellectual fusion, both core departments and interdisciplinary programs become greater than the sum of their parts.

Academic institutions change slowly, and, despite associations in the public mind to the contrary, may safely be characterized as conservative. But developing the potential of interdisciplinary scholarship requires conservative thinkers to engage in revolutionary thinking. In perpetuating existing disciplinary categories and the vaunted status of the individual investigator, academic institutions maintain the status quo. To adapt a concept from the scientist-philosopher Thomas Kuhn, institutional organization is nothing more than an existing tradition, and therefore a "conceptual box." We do not see new possibilities because we do not expect to see them. The acceptance of a new paradigm requires the assent of the relevant community, he notes. With this in mind, we must act as a community to ensure the necessary preconditions for new and innovative scholarship.

DESIGN IMPERATIVE 7. SOCIAL EMBEDDEDNESS:**Social Enterprise Development through Direct Engagement**

Public service and social enterprise development are intrinsic to the mission of a public metropolitan research university, and central to the vision of a New American University that is linked to its region and the needs of its day; that balances its commitment to teaching with world-class research conducted for the public good; and that takes on major responsibility for the economic, social, and cultural vitality of its region. Public service has long been a defining characteristic of ASU, and we expect that commitment to grow with each coming year. Because our approach to public service is comprehensive, and because we conceive of public service in such broad terms, the extent of our commitment to the community and region is perhaps best conveyed by the concept of *social embeddedness*.

Social embeddedness implies community building through engagement with our neighbors, and the willingness of the university community to assume shared responsibility for the socioeconomic well-being of the region, state, and nation. It means tackling local and regional problems through research and analysis, and providing a forum for public debate. Through the involvement of our faculty, staff, and students, ASU is continually establishing innovative new programs to meet community needs, establishing mutually productive partnerships with our neighbors, and demonstrating a thoroughgoing commitment to local schools. Not least of all, ASU adds dimension to the cultural life of the region—ASU takes great pleasure in welcoming the many diverse communities of the region to innovative new programming in the visual and performing arts. The scope and variety of our programs and initiatives is consistent with the growing diversity of the metropolitan region, and the diversity that is the hallmark of the university community.

ASU is the leading economic engine of our region. The economic impact of a university can be measured in two different but complementary ways. The traditional approach is to look at the university like a business—ASU is a force in the local economy because it is a major employer of local workers, and because the university community, including students, spends hundreds of millions of dollars each year on local goods and services. From this perspective, in fact, the total economic impact of ASU on spending in the state is estimated to be between \$2 billion and \$3 billion annually.

An alternative approach is to assess the economic impact of a university by focusing on the higher productivity and earnings that are made possible because of the knowledge and skills students acquire, and, as studies indicate, the higher earnings of graduates greatly outweigh the costs—higher education is an extremely high-yield investment. Apart from its intrinsic value, the economic value of a college education is reflected in the earnings premium realized by workers with college degrees. Universities produce the knowledge workers that drive the economy. And if Arizona is to thrive, it must support institutions that promote the emergence of a strong class of knowledge workers.

To further enhance the economic impact of ASU, and to accelerate economic development in Arizona, ASU established the Office of Economic Affairs, an entity that will better enable the university to coordinate and exercise its broad impact on the economic health of the region and state. Through such programs as ASU Technopolis, the Office of Economic Affairs will encourage research and other activities across the university that promote entrepreneurship and Arizona's competitive advantage, and link ASU to business, economic development, and policy organizations.

Academic institutions reflect society in a utopian microcosm—certainly we are as varied and diverse as society itself, and if we are not, we should be. As members of an academic community, we must set an example of what it means to be a community, leading the way to open discourse and the free exchange of ideas. ASU must be a place that is open to diversity of thought and culture and expression. We must find new ways to embrace difference, and move ahead of social and intellectual currents. We must think through new ways to govern, and promote evolution in democracy and all our institutions. We must foster new conceptions in the arts and all spheres of culture, and all these things must be done in an environment of openness and free discourse. In this sense, the university is a social incubator where all are free to speak, and all are free to learn, and all are free to speak and learn together in ways that could not elsewhere be imagined.

DESIGN IMPERATIVE 8. GLOBAL ENGAGEMENT:

Transnational / Transcultural

Knowledge does not recognize disciplinary boundaries—nor does it stop at border crossings. Just as scholarship is enhanced by collaboration across disciplines, so too are academic institutions enriched by cooperation across borders. As one of only 300 major research institutions in the world, ASU bears partial responsibility for the future of our planet—there is no aspect of our teaching, research enterprise, or public service that does not have potential bearing beyond our national borders. Because the increasing interconnectedness and integration of societies and economies worldwide makes us, both as individuals and collectively, as nations, interdependent, ASU is moving aggressively to establish a transnational presence.

International involvement is not new to ASU. Our student body is international—ASU and its antecedent institutions have always championed diversity, and today we welcome students from nations across the globe. And by virtue of their professional standing, ASU faculty members belong to the international community of scholars. Through their scholarship and creative endeavor, ASU scholars implicitly address a global audience, and hope to contribute new knowledge to improve the world. Even service to the communities immediately surrounding our campuses can have broader implications—through the development of innovative approaches to universal societal problems, ASU can establish programs and practices that can be taken up anywhere in the world.

Universities have historically played a leading role in facilitating international dialogue, performing critical convening, training, and analysis functions. At a practical organizational level, accelerating global engagement requires implementing policies that support the internationalization of our campuses: establishing collaborations and partnerships with academic institutions and research centers around the world; enlarging the scope of existing departments and academic units to embrace their fullest possible international dimension; initiating new interdisciplinary programs with international scope; developing curricula and research initiatives that foster international awareness and involvement; fostering programs that bring international and domestic students and scholars together, and recruiting the very best international students and scholars to our campuses.

Because global engagement is critical to the advancement of a major research institution, ASU is building academic and professional collaborations beyond our national borders. And because our ties to Mexico and Latin America are already strong, ASU is leveraging its existing strengths by fostering international involvement beginning in the binational region of the American Southwest and northern Mexico. Many of the problems that we in Arizona face do not fall neatly within political boundaries. Economic development, social justice, the implementation of NAFTA, labor market integration, the economic, cultural, and social aspects of immigration, migrant labor, optimal water usage, environmental sustainability—these issues are not unique to Arizona, nor are they limited by the borders of our state. Their resolution will require regional cooperation, and the multiple approaches that become available as we encourage meaningful dialogue with regional institutions, business interests, industry, and government.

Academic communities are uniquely positioned to offer perspective on the full spectrum of issues related to globalization and internationalization, translating scientific research, sociological data, and informed discourse into meaningful public debate and political action. Universities offer a critical arena for dialogue that is sometimes lacking in public life, and have served historically as a vanguard to initiate mutually productive international exchange, beginning with academic colleagues, but leading to strategic alliances with business, industry, and government. And because regional interests are binational, a comprehensive and integrated perspective will only be possible with the combined scholarly resources of institutions on both sides of the border.

In the American Southwest we are immeasurably enriched by our proximity to a great and vibrant national culture. But owing to this proximity we are also in the midst of a great social, cultural, and economic experiment. Through its teaching, research, and public service, ASU is responsible for the success of that experiment. By offering possibilities for education that transcends borders, new generations of scholars, professionals, and leaders in business, industry, and government will contribute intellectual capital, creativity, and entrepreneurial spirit to our binational region, maximizing the potential for a future of cultural reciprocity, social harmony, economic prosperity, environmental sustainability, and binational understanding. Our current focus on Mexico marks only the initial stage of the ASU Pan-American Initiative. And the initiative itself marks only the beginning of ASU's transformation into a global institution.

CONCLUSION: THE NEW AMERICAN UNIVERSITY

The design imperatives of the New American University are based on four guiding principles, outlined by President Crow in his inaugural address. The first guiding principle is that teaching is the prime directive for the ASU faculty, who must teach through their words, but also through their actions, through the values they profess, through the decisions they make, and through their interaction with society. The second principle is that scholarship is the pathway to better teaching, because if a member of the faculty is not active as a scholar, contributing new knowledge and developing new approaches to pedagogy, their teaching will inevitably suffer. Third, while teaching remains the prime directive, creative expression in all forms is our highest goal. In the New American University, no distinction will be drawn between the creative expression of the artist and the physicist, or the musicologist and the long-distance runner—all forms of creative expression are held to be of equal value, and academic honors are secondary returns to the intrinsic reward of creative expression itself.

Finally, the New American University will offer openness and access to as broad a segment of the populace as possible. Such an institution seeks to foster creativity and generate new knowledge, and to disseminate that knowledge as widely as possible, serving students, the local community, and the larger national and global communities. The New American University is an institution that is inclusive rather than exclusive, and its success will be measured not by who the university *excludes*, but rather by who the university *includes*.

The New American University is engaged and not distant—such an institution assumes responsibility for the society it serves, and is not solely analytical. Academic communities cannot be removed from the front lines of social change, and must serve as a forum for cultural, economic, political, and social reform. In a world filled with nuclear weapons, we must promote ethical science and technology development. In a nation with the largest prison population in the world, we must consider social alternatives to current formulas for crime and punishment.

The New American University is complex, because our academic culture is too simple, and too grounded in organizational conservatism. There are no social, cultural, or economic problems that neatly correspond to our academic disciplines, yet academic governance remains focused on perpetuating the existing organizational structure of the university, avoiding discussion of institutional positions on complex issues like cloning and an academic culture dominated by the male Eurocentric values of the past. The New American University is an institution evolving in our polyglot nation, and must henceforth always draw from all cultural perspectives.

President Crow has stated that his objective is to build a great university—a world-class institution that pursues teaching, research, and creative excellence focused on the major challenges and questions of our time, one that will prove of lasting value to the state and nation in the centuries ahead. In its ascent to the top tier of public metropolitan research universities, ASU will serve as a prototype for the New American University. But the implications of the conception are far-reaching, urging the transformation not only of our universities, but of society itself. We are building a new kind of university, one whose fate is tied to our collective fate, and one committed to the collective good.

A SUMMARY OF DESIGN IMPERATIVES FOR THE NEW AMERICAN UNIVERSITY

ASU is developing a new model for the American research university, creating an institution that measures its academic quality by the education that its graduates have received rather than the academic credentials of its incoming freshman class; one at which researchers, while pursuing their scholarly interests, also consider the public good; one that does not just engage in community service, but rather takes on major responsibility for the economic, social, and cultural vitality of its community. These tenets, first proposed by ASU president Michael M. Crow in his inaugural policy paper, “A New American University: The New Gold Standard,” represent a new way of thinking about the fundamental objectives of a university—teaching, research, and public service.

The eight “design imperatives” represent new standards—or guiding principles—by which to measure our progress. The design imperatives were never intended to represent hard-and-fast categories—most of the accomplishments of the university do not correspond neatly to a single design imperative, but rather cut across many. And because the research interests of ASU scholars are so diverse, not all design imperatives could possibly be relevant to any given individual or team. The objective of the design imperatives is to spur new thinking, suggest new possibilities, and unleash the creative potential of our academic community. The overarching objective is to transform ASU into one of the nation’s leading public metropolitan research universities.

DESIGN IMPERATIVE 1. ASU MUST EMBRACE ITS CULTURAL, SOCIOECONOMIC, AND PHYSICAL SETTING: LEVERAGING PLACE

Academic institutions leverage place by embracing their cultural, socioeconomic, and physical settings. Colleges and universities are situated in regions with particular heritages, cultures, and aspirations, and scholars at these institutions are uniquely positioned to address the problems of their regions, and to offer perspective on the distinct historical, cultural, social, demographic, political, economic, technological, and environmental forces shaping them. A focus on place means learning from local knowledge, as well as considering the local relevance of research. If an institution is socially embedded, meaningful and productive relationships between the university and its surrounding community, region, and state will flourish. Not least among these is the role of the research university as a primary driver for regional social change, social and cultural learning, and appropriate economic development.

DESIGN IMPERATIVE 2. ASU MUST BECOME A FORCE, AND NOT ONLY A PLACE: SOCIETAL TRANSFORMATION

Research universities are the preeminent catalysts for societal change—no institution possesses more potential to transform society: improving the human condition, fostering sustained social advancement and economic growth, and providing us with the tools we need for better planetary stewardship. No corporation, no industry, no government agency can rival their scope and impact, because universities alone exist solely to produce and disseminate knowledge. Never before has the impact of knowledge been greater, and no academic institution has had, or continues to have, more influence than the research university. ASU is one of only 300 major research institutions in the world, and, as such, has the potential to generate new knowledge that may influence almost every aspect of our future.

DESIGN IMPERATIVE 3. A CULTURE OF ACADEMIC ENTERPRISE: ASU AS KNOWLEDGE ENTREPRENEUR

Enterprise takes many forms in the academy—it is the signal characteristic of the drive and passion that informs all groundbreaking scholarly and creative endeavor. Enterprise inspires inquiry, and fosters the originality and independence of mind that make new knowledge possible. Intellectual capital is the wellspring of a great university, and the source of its potential to transform our world. It is also the source of an institution's prosperity—those who conduct groundbreaking research, developing new knowledge and new products with commercial application, have the capacity to generate significant revenues for the university, and to encourage investment in our product. To the extent that we make an original contribution to our disciplines, or, indeed, break free from conventional disciplinary or organizational constraints, our work may be said to exhibit *enterprise*.

DESIGN IMPERATIVE 4. PASTEUR'S PRINCIPLE: USE-INSPIRED RESEARCH

The complexity of the challenges for global success that confront us makes it mandatory to balance the need for, and importance of, continuing basic research (fundamental discovery) with a research agenda focused on addressing actual and immediate problems. Much university research is necessarily esoteric because we are involved in the discovery of fundamental knowledge, but we must integrate the advancement of knowledge with the transformation of society. If academic research is to be a force for societal transformation—if we are to improve the human condition—we must consider the social implications of our research, and harness our knowledge for maximum societal benefit. This is an approach to scholarship that could be termed *use-inspired*, and will increasingly guide the ASU research enterprise.

DESIGN IMPERATIVE 5. A FOCUS ON THE INDIVIDUAL: OUTCOME-DETERMINED EXCELLENCE / A COMMITMENT TO INTELLECTUAL AND CULTURAL DIVERSITY

Our nation's research universities are concerned with a certain academic profile in their student body. They have defined their academic excellence by the academic qualifications of their incoming students—an input-driven model. ASU focuses instead on *outcome-determined excellence*—that is, we admit students with differing interests and indicators of intelligence and creativity, even different levels of high school preparation. There is no single profile to which a student seeking admission to ASU must conform. The university will not be limited exclusively to the verbally and mathematically gifted, nor the most intelligent children of the most successful families. We welcome these gifted students, but seek greater diversity in our student body. And we will judge the success of our university by the success of each student *on a case-by-case basis*. Implicit in our focus on the individual is a *commitment to intellectual and cultural diversity*.

DESIGN IMPERATIVE 6. INTELLECTUAL FUSION: INTERDISCIPLINARITY / MULTIDISCIPLINARITY / TRANSDISCIPLINARITY / POSTDISCIPLINARITY

If we are to advance knowledge in the face of its rapidly changing nature, and come to terms with the explosion of new knowledge that characterizes the academy in recent decades, a new and more fluid organization is urgently needed. Intellectual fusion is the *cognitive* norm in scholarship, whereas the fragmentation imposed by disciplinary categories is an historical social construct, however useful. Knowledge does not fall within strict disciplinary categories, yet an institutional organization that derives from the medieval academy prevails. It is no longer sufficient to neatly categorize knowledge into disciplinary-based academic departments—the core disciplines are but one element of our intellectual identity. Accordingly, the New American University encourages teaching and research that is *interdisciplinary, multidisciplinary, transdisciplinary, and post-disciplinary, leading, where appropriate, to a convergence of disciplines, an approach that might more accurately be described as intellectual fusion*.

DESIGN IMPERATIVE 7. SOCIAL EMBEDDEDNESS: PUBLIC SERVICE / COMMUNITY ENGAGEMENT / OUTREACH

Public service—or community outreach—is intrinsic to ASU’s mission as a public metropolitan research university, and central to the vision of a New American University that is linked to its region and the needs of its day; that balances its commitment to teaching with world-class research conducted for the public good; and that takes on major responsibility for the economic, social, and cultural vitality of its region. Public service has long been a defining characteristic of ASU, and we expect that commitment to grow with each coming year. Because our approach to public service is comprehensive, and because we conceive of public service in such broad terms, the extent of our commitment to the community and region is perhaps best conveyed by the concept of *social embeddedness*.

DESIGN IMPERATIVE 8. GLOBAL ENGAGEMENT: TRANSNATIONAL / TRANSCULTURAL

Because research universities bear partial responsibility for the future of our planet, there is no aspect of our teaching, research, or public service that does not possess global implication. ASU faculty members belong to an international community of scholars, and through their scholarship and creative endeavor implicitly address a global audience. Even service to the communities immediately surrounding our campuses can have bearing worldwide—through the development of innovative approaches to universal societal problems, ASU can establish programs and practices with application anywhere in the world. If we are to build an institution that proves of lasting value to the state and the nation in the centuries ahead, we must forge partnerships with peer institutions around the world, and make an institutional commitment to global engagement that is thoroughgoing.