I would like to focus on a single concept that is central in our efforts to advance Arizona State University and, more broadly, higher education in Arizona. The concept—“agency to enterprise”—has relevance for all universities, but especially public universities as they advance their objectives in a rapidly shifting environment.

Before we begin a discussion of the future of the American university, let me start by briefly considering what universities and colleges in America represent. What are these institutions called universities, and how are they different from other institutions and organizations in our society? And, more to the point, why do universities need to assert their difference from other institutions and insist on their independence?

At the end of the day universities are teaching, learning, and discovery organizations. There are very few organizations assigned all three functions as their core objective. There are many that focus on single aspects—teaching, learning, or discovery. And there are many ways to structure an organization dedicated to a single function. There are adaptive organizations and there are responsive organizations, but universities are the only class of institution that uniquely combines the functions of teaching, learning, and discovery.

A complex institutional genetic code

What is the lineage of our universities—in a sense, what is our institutional genetic code? It is long and venerable. On the hills around Athens in Greece, and in other parts of Greece as well, academies formed more than two thousand four hundred years ago when individuals of astonishing intellect assembled and began to conceive and advance the core teaching, or pedagogical, methodology that we still use to the present day. So the pedagogical methodology of Aristotle and Plato and the Ionians and still others that evolved in the academies two thousand four hundred years ago is the core element in our genetic code.

Fast-forward fifteen hundred years: medieval Europe. Institutions begin to emerge: Bologna, probably the oldest university in the Western world, was established in the eleventh century; Uppsala University, in Sweden; Jagiellonian University, in Krakow; Oxford; Cambridge; Paris—all of these great centers of learning were established during the Middle Ages. And as these institutions emerged, their contributions to the genetic code of this institutional form were many, but most notably we can single out the central role assumed by the teacher, at once broader and more specialized than Plato's notion of the philosopher-king. Teachers
become individuals focused on given disciplines, scholars with specializations and particular skills. The medieval university began to give us the notion of organizing knowledge into disciplines.

Fast-forward again—through the Middle Ages and the Renaissance and into the late eighteenth century. Industrialization in Europe begins to change the socioeconomic and cultural landscape, spreading from Great Britain throughout Western Europe, and especially into central and northern Germany. Driven largely by industrial competition and the emergence within that particular Germanic culture of the notion of efficient technology-driven competitiveness of the highest order. It is within this ethos that universities emerge as organizations focused on discovery.

A PATTERN FOR DISCOVERY ACROSS ALL DISCIPLINES

The genetic code was transferred relatively quickly from the ancient universities of Europe and Great Britain to our shores. If you study the emergence of the American research university, the establishment of Johns Hopkins University in 1876 served as a prototype, combining the traditional American undergraduate liberal arts college with the German model of the elite scientific research institute offering specialized graduate training. The American research university came into being during the thirty-four year period between 1876 and 1910. During this formative period established older universities reestablished themselves as research-grade institutions and new institutions came into being. The roster includes institutions that set the standard for the American research university, including Harvard, Columbia, Michigan, Illinois, California, Stanford, Chicago, MIT, and others.

This critical evolutionary step in the growth and development of universities set the pattern for intense and focused discovery across all disciplines, the emergence of American-style graduate study leading to advanced degrees, including the Ph.D., and the emergence of the professoriate as teachers, mentors, and high level practitioners all at the same time.

Before we leave the nineteenth century, it is important to note that a particular variation in the American university’s genetic code came along with the passage of the Morrill Act of 1862. The legislation established land grant universities and encoded in some institutions a focus on service to the place where the institution is situated. The ideal of public service is a particular element of the genetic code that influences a number of American universities.

This discussion of lineage suggests that universities have a complex genetic code, organizationally speaking, made up of many thousands of parameters. These genetic markers and the relationships within that code have become a part of the core culture of American research universities, especially among the public universities.

First among these core parameters is the notion of discourse. Free and open discourse—argument and debate that goes back and forth, the way logic is advanced, the way logic is attacked, the way logic attempts to arrive at solutions—is essential to the advancement of new knowledge. Free and open discourse is an irreducible core element in our genetic code.

Another parameter is the system of tenure. Tenure is the guardian of free and open discourse—a safeguard to academic freedom that is essential to the purposes of the university. The system of tenure has its stresses and strains, but nonetheless it has produced an academy that is free to engage all subjects that it deems appropriate.

The traditional organizational structure of universities and colleges, with academic departments as the basic unit, represents another of the standard parameters. Academic departments are repositories of knowledge, and through the curriculum the faculty transmit knowledge to future generations of scholars and practitioners, but this process sometimes produces a certain rigidity in the genetic code that we must strive to overcome. And, of course, scientific method—in general, the raising of hypotheses, the testing of hypotheses—is intrinsic to this process.

Universities are also places where teachers and students can speculate, discuss, and dream about the future. At universities, we discuss such things as normative political designs, cultural interactions, and economic models. Across the spectrum of the humanities and social sciences and natural sciences and fields of technology and professional schools, scholars are engaged not only in understanding what is, but in speculating about what might be, or what might be better.

And all of these parameters serve to advance the central element of the university: teaching. Teaching remains the principle objective of the university. We can debate how to teach, we can debate what to teach, but we cannot debate whether or not teaching is the core principle objective. Teaching is the prime directive.
THE VIRUS OF THE AGENCY

Given this genetic code, what is happening? Using symbolic images of disease purposefully here, I believe that universities are under serious viral attack. Our genetic code is being bombarded everyday by a serious virus. And this attack has been ongoing for forty or fifty years in a significant way, and has intensified in public universities during the past twenty or thirty years.

What is the virus infecting our universities? We could consider various names but I am going to call the virus “thinking like an agency,” or “thinking like a unit of government.” Or we could just call it the virus of the agency. In organizational or ecological parlance, universities have varied their routines and adjusted their behavior and have allowed something harmful to infect their organizational structure, something that runs contrary to their genetic heritage. The virus is self-propagating and very difficult to eradicate without killing the host.

The primary symptom of the virus is make-do logic. We have only so much to work with, and that is what we have to work with, so let us make do. This is make-do logic, and leads to a lack of vision and initiative.

A secondary symptom, closely related, is an obsession with the external political environment. However, rather than modify university aspirations, vision, and planning to the intricacies and uncertainties of the external political environment, the task of university leaders is to design a better curriculum, advance the discovery environment, and focus on the learning process. When universities behave like government, they obsessively focus on a factor largely irrelevant to their success as an academic enterprise.

A third symptom is operation in “conserver mode.” In a 1967 study of the politics of bureaucracy, the policy scholar Anthony Downs identified different types of bureaucracies and bureaucrats and how they run “agencies.” The agency virus has infected so many universities that they have gone into what Downs would call the “conserver mode,” becoming risk averse, lacking innovative and adaptive capacity, and failing to develop and implement a clear strategy for advancing their mission. The agency virus has infected universities so extensively that for many their ability to adapt to changes outside of the institution has deteriorated significantly.

As a consequence of the agency virus, universities have begun to act like agencies. And this has led to greater and more frequent attempts at inappropriate control by those in higher levels of government outside of the university. More attempts to gain control by individuals who themselves operate in the mode of an agency have occurred. Such inappropriate control reduces the independence of the institution, which is critical to its mission, and diminishes the significance of faculty governance.

Governance is undermined by total reliance on a single source of revenue, because with that revenue comes every imaginable constraint, including expectations regarding who is admitted and what is permissible in the curriculum. The hierarchical relationship that allows agencies like the Division of Motor Vehicles or the USDA to perform their repetitive tasks in a standardized and relatively efficient manner is ill suited to the pursuit of discovery. At the national level, the U.S. Congress issues instructions to agencies. And for universities that think and act like agencies, instructions are issued by state legislatures.

A TREATMENT FOR THE VIRUS

So what is the treatment for this virus? The treatment is to reconceptualize the university as an enterprise. Reconceptualizing a university as an enterprise does not mean the institution becomes free from environmental constraints. Constraints are everywhere. Instead, reconceptualization as an enterprise means establishing a position from which to advance the institution past constraints. It means establishing an entity that accepts responsibility for its own future. This discussion goes much deeper than an assessment of funding sources. Accepting the status of an agency is about mentality, mindset, and psychology. It sometimes leads to anticipatory self-censorship, and this is wholly contrary to the genetic code of an institution predicated on freedom of thought. Whether to be an agency or an enterprise is an issue of personal and collective responsibility.

RECAPTURE THE IDENTITY OF THE UNIVERSITY

The treatment for this virus, then, is severalfold. First, focus on recapturing the identity of the university. What is a university and what is it for? Why does this particular university exist in the first place and what is it attempting to achieve? What are its principles and values that supersede all else? Answers to some of these questions are contained in the genetic code, and some are unique to given institutions in their particular locations with
their own faculty assemblages and cultures, and with the nature of their students. Each institution must focus on establishing its own identity.

**INNOVATION, ADAPTATION, AND DIFFERENTIATION**

Second, encourage innovation, adaptation, and differentiation. The logic and rhetoric for the New American University model that we discuss at ASU is all about differentiation. We have taken the genetic code of the academy that is our heritage and are commingling that historic academic tradition with eight new design parameters—eight areas of aspirational design differentiation—that we hope to encode into our institution to produce a unique genetic code. Because we are not in medieval Europe or in nineteenth century New England, we are embracing our setting in Arizona in the twenty-first century and the factors that are influencing us in this environment.

Institutions that behave as government agencies fastidiously operate in a manner that is just like all the other generic state universities, with standard-issue, cookie-cutter departments replicated on models that have gone unquestioned for years. All of these departments at generic state universities look the same, act the same, and think the same. When problems are encountered, generic state universities just look to see what another generic state university did when it encountered the same problem. Generic state universities merely "check the box" and advance the standard solution. And this is the path to mediocrity.

Differentiation is the process by which nature prospers, allowing species to evolve and offering new prospects for evolution to organisms. The same principle applies to organizations. Institutional differentiation could take the form of new schools bringing together scholars from diverse disciplines to tackle large-scale obstacles that confront us. In this manner universities realize more optimal adaptation to the environment.

The environment in which universities navigate has shifted. Residents of many states confronting population growth and competing demands for resources balk at funding higher education at past levels. So the fifteen dollars per one thousand dollars of personal income that were available in Arizona in 1974 to fund the state universities has now been reduced to a mere six dollars. That is all. This represents an environmental shift of great magnitude—similar to a 60 percent reduction in rainfall—and if an organization has not varied its routines, it will have big problems. Any organization confronted by a comparable level of environmental change without any change in its own routine would suffer.

Most organizations believe that they change their routines by providing coping mechanisms. They cope with resource decline. They cope with drought. Who wants to live in a drought? Who wants to be a cactus? A cactus is a life form suitable only for a very narrow band environment, as opposed to an adaptive, changing life form like the coyotes I see in my driveway everyday. The coyote is an adaptive life form that can vary its routine and move forward in spite of vast environmental change.

**TOTAL RESPONSIBILITY**

A third treatment for the agency virus is for the university to accept total responsibility for its destiny, its future, and its fate. Period. When operating in this manner, all other organizations in your environment are entities with which you may choose to interact, and from which you may strive to obtain resources and other valuable assets. Other organizations operate in your environment and may wish to become allies, but the fate of your institution is sealed only by its status either as an agency or an enterprise, a cactus or a coyote.

**AN INVESTMENT MODEL**

Fourth, shift to an investment model. We have shifted to an investment model at ASU, causing some semantic controversy, but the shift to an investment model is more than semantics. The best manner in which to advance a public university is to make the case for investment in it. Here is the argument for investment: If you invest these kinds of resources in these institutions here is the return to you, the public investor and your agents, the legislature. Here is the return that we will give you. If you would like to make that investment we will promise that we will work to deliver that return. If you do not want to make that investment, you cannot expect this return. Here is the negative impact from not making that investment. Here is the impact of that non-return on the overall enterprise—the state—that is in your charge.

When we have made tuition adjustment requests, we present it as an argument for investment. This past year we published an eighty-page white paper on the return on investment to a family making investments in tuition for their children, or students making investment in themselves, and we counted the annual rate of return to the individual over their lifetime at 12 percent. That would be the most significant investment that anyone in this room could ever make over that time frame.
When we made a request to the City of Phoenix for $233 million for the establishment of an ASU campus downtown, we made it on an investment basis. We went to the city with our vision of what we want the university to become, and said, If you make this investment in us, we will be able to start a campus on twenty-two acres of land in downtown Phoenix with three renovated and three brand new facilities. Here is what our schools will be able to achieve with these new facilities, and here is what we will commit. The investment model represents a completely different logic.

SPEED

Fifth: a final element in the treatment of the virus is speed. I wore my academic wristwatch today. It moves very slowly because it is marked in increments of semesters. If you think and move at the rate of semesters, new competitive institutions will outpace you. With the advent of new information technologies as an enabler of universal customized learning, new institutions for learning are springing up in unpredictable places, and the monopoly on higher learning once held by universities is vanishing. New for-profit institutions like the University of Phoenix offer new styles of engagement, new styles of pedagogy, and new ways of learning. Worldwide, China has set out to build one hundred new universities from scratch, and Singapore is encouraging foreign institutions to build campuses in their nation.

If you do not know how to accelerate the pace of an institution, you will not be able to attack the virus. One of the conditions of the virus is to slow everything down to avoid all risk, to analyze the complexities of the political environment, and to wait for the perfect moment in time to advance. Institutions with this mindset are not going to be able to adapt in a manner that allows them to successfully compete for new resources or to serve the changing needs of their constituencies.

SOME DESIGN PARAMETERS

What are some of these design parameters that encourage innovation, adaptation, and differentiation? We could start with “intellectual fusion”—in simple parlance, interdisciplinary or multidisciplinary scholarship. And to correspond to this new design objective, we have reconceptualized the academic organization of the university, creating new colleges and schools that will compete with peer schools nationwide and across the world. Needless to say, these new schools are not top-down initiatives imposed on the institution, but are rather driven by the notion that intellectual fusion, as a prime element of the design of the university, can be a critical element of differentiation.

Some of the new schools that will have become operational by July 1 of this year will give you a sense of our commitment to new ways of advancing knowledge. These include our new School of Human Evolution and Social Change, which includes our former department of anthropology, and our new School of Earth and Space Exploration, which is the new home for our former geology department, our former astrophysics group, our former astrobiology group, our former set of astronomers, and our former distributed systems engineers. Our new School of Social and Family Dynamics is now home to our former sociology department and our former Department of Family and Human Resources.

Our new School of Life Sciences was the first such reconceptualization, reassembling the three biology faculties into dynamic interdisciplinary groups that are free to change over time based on reassessments of optimal organization. The school is comprised not only of scientists but also faculty members from philosophy, law, public policy, and a range of other disciplines able to provide insight and perspective to our 1,600 majors in the field on the full breadth and complexity and richness of the life sciences.

We sometimes refer to another of our design parameters as “Pasteur’s Principle,” by which we mean use-inspired research, or an institutional commitment to solving the problems that confront humanity today. ASU began as a normal school and we wear that badge proudly: teachers first, teachers last, teachers always. Louis Pasteur also came from a normal school of the original Napoleonic design, and this inspired him to pursue research with practical application. When he discovered that germs were the cause of fermentation and could also cause contagious diseases, he devoted himself to the development of vaccines that have protected millions from disease. He conducted fundamental research, but for a reason—to solve a particular problem.

There is a tendency in the academy to consider use-inspired scholarship second-rate. The only scholarship that is first-rate is fundamental discovery driven by nothing other than the miraculous and curiosity-driven academic mind. This is more of the programming from the genetic code we inherited. So rather than have that debate as ASU, we just went ahead and decided that we would make fundamental and applied research equal. A
slight variation in routine offered the option to embrace both approaches as pathways to new knowledge. Similarly, our new schools are a slight variation in routine that offer new possibilities for evolution. Some of the other design parameters include “a focus on place,” “social embeddedness” and global engagement, and all offer the prospect of innovation, adaptation, and differentiation.

But how do you produce differentiation in an institution? You cannot wave a magic wand and restructure the entire university. It would be foolish to attempt to change everything for the sake of change. You have to find what are called “pockets of limited difference” and empower them. This might mean a cluster of faculty members trying to move in some new direction, or a potential new school assemblage. How do you empower them? You move resources to places where limited difference can begin to exemplify differentiation within the institution. And then there is this thing called nature. You let nature take its course: some make it and others do not.

UNIVERSITY AS ENTERPRISE

Not every university that is here today is going to make it over the next hundred years. Those that make it will be the ones that attack and defeat this virus by reconceptualizing themselves as enterprises: taking control of their identities; focusing on innovation, adaptation, and differentiation; assuming responsibility for their destinies; operating at an accelerated pace; and shifting to an investment model.

Returning to a public university after a decade at a private institution offered me some perspective. Private universities cannot rely on legislatures as sources of funding, while public institutions face the risk of becoming excessively reliant on such funding. A successful institution will diversify its revenue sources, seeking long-term investment in the enterprise by multiple sources, generally with no single long-term dominant source.

Yet for public institutions state funding provides bedrock support comparable to an endowment, the primary source of funding for established private institutions. A comparison of legislative appropriations with returns from endowments plotted against the stock market reveals that both perform about the same. If we treat legislative appropriations as if drawn from an endowment, the rate of return will move up and move down, but the movement is negligible over the long run. The endowment equivalent for state appropriation for ASU, roughly $423 million for FY 2007, is $9.4 billion. There are very few institutions with endowments of this scale.

The three state universities in Arizona enjoy a very strong base of support. Instead of expressing concern about the constraints that may exist from time to time in the economic or political environment, academic institutions in Arizona should devote their energies to determining who we are and what it will take to become the kind of universities that Arizona and the nation require in this century.

A ND THAT IS WHAT WE AT ASU ARE DOING, AND that is why we at ASU are seeking investment from all quarters, and that is why ASU has been successful in attracting new investment in the institution, and that is why there is no time to sleep. The enterprise model for the American research university is unique—neither the government nor the market offers us a model. The university is neither a corporation nor an agency, and for a university to operate as an agency is a certain path to mediocrity. Enterprise is the path to success.