Ladies and Gentlemen, please welcome ASU President, Michael Crow.

What we were trying to do with these catchy videos is give you a sense of exactly this concept. The velocity of change. It’s something that’s really hard to understand in your personal life. Human beings have never experienced change at the rate that it’s being experienced now. What I mean is that, change used to be experienced over multiple generations. You’d talk to, if you had the blessing to meet your great-grandparents, they’d tell you stories that were different than the world that you lived in but not dramatically different. Now, we’re seeing change that’s likely to occur within single generations. Fractions of generations within a person’s lifetime as a worker or in their career. These are really, really fast things. You can wish—how many of you wish that it would all slow down? How many? Yeah, too bad.

It actually doesn’t work that way. We’re being empowered by things that are beyond belief. In 1971, the big fancy intel chip had a few thousand transistors on it and transistor didn’t exist until just before 1950. Today there are billions of transistors on a single chip. Billions. Billions on a single chip. This velocity of change is being driven by everything that you can possibly imagine. What I wanted to try to do today was talk about this journey that we have been on where a late-comer university to the research university game.

What I mean by that is, we evolved after almost all of the other research universities had already evolved. In 1960, we were just coming out of being only an education college, or a teacher’s college. We didn’t begin any research activity until the 1980s. Other major research universities were already world-class institutions in 1960. None of our competition was not already what they are now by the time we were allowed by public referendum to become a research university. What I want to do is, I wanna talk about, where we were 30 years ago, 1988, how the university worked, how it operated, what we could achieve, how we achieved it, where we are now, 2018, 30 years later. I’m not fool-hearty enough to predict the future 30 years into the future, but we can make some speculative, informed guesses about where we might be and what the world might look like.
We’re gonna cover a 60-year time-frame. 60 years is not that huge of a piece of time. How many of you are over 60 like me? A few? Yes? Yeah. Brittany Benedict, our student body president, still finds that hard to believe that there’s people at the university that are over 60, but Brittany, it’s true. Buckminster Fuller who was a mid-twentieth century architect, designer, dreamer, conceptualizer, said that, you never change things by fighting the existing reality. To change something, you build a new model that makes the existing model obsolete. Welcome to ASU. Welcome to ASU. I mean that seriously. You cannot derive the kind of change that you want. You have to build a new model, a new thing, a new way of working. I’m gonna walk through how some of that works.

This is the King’s Library. It’s actually not the building itself. It’s a few thousand books, less than 20,000 books. It’s sitting in London right at the entrance of the British Library. It had a profound effect on me years ago when I saw it for the first time going into the entrance. Built around it is this massive, massive library organization that you can imagine carries with it the history of the British empire and everything you could possibly imagine. King George at the time, 1762, every book available on the planet that he could acquire, is in that piece of glass. All of the written known knowledge that existed at the time that they could acquire. That’s it. The King’s library. 1762. In the context of time, that was yesterday. Nothing has been the same.

We move forward now, and we see that knowledge is expanding, is evolving, is advancing at such a rapid rate that what used to take a hundred years to double knowledge, like 1900. What we think of as knowledge or information or ways in which we look at things now, are doubling every few minutes. If I can map a cancer genome of a specific cancer, the volume of knowledge and information contained in the models deriving and understanding of that genome of that cancer, is an unbelievable expansion of human knowledge and human understanding. This acceleration that we have—and the reason for going through these things, it used to be, if we could go back one slide. It used to be that a single person, a great intellect like Thomas Jefferson, highly educated for his day, he could know everything there was to know about biology. He could know Greek philosophy. He could know a little bit, not a little bit, a lot about everything that there was to know. How do you make that work in this world?

You can’t give up. You have to come up with new ways of thinking, new ways of learning, new ways of moving forward. What I wanna walk you through is the absolutely unique
opportunity that we have at ASU, being a late-comer, to the world of research universities and our design and our configuration. Now, here’s this thing. I’m not a big believer that we haven’t achieved things that are off-scale compared to anything that humans before us have achieved. I’m not a big believer that the past hasn’t produced an unbelievable outcome. I’m a believer that all of us are unbelievably privileged to be sitting in this room for all of those things that have come before us and everything that has been achieved. I’m just gonna walk you through some of the things that have happened just in the last 30 years.

Polio cases have decreased by more than 99 percent on the planet in the last 30 years. Life-expectancy has continued to rise in the last 30 years. Not the last 100 years, the last 30 years. There’s one country, by the way, where these numbers are now negative that you happen to know very well. It’d be the one you live in. this is globally. Life-expectancy in the United States has gone down for 2 years in a row and I’m gonna come back and talk about what that means.

Global literacy is now nearly 90 percent. The planet was, historically, illiterate.

[10:00]

All levels, all cultures, all ways. Illiterate. What happens when all humans are literate? All of a sudden, people in places like Saudi Arabia say, you know what? We’re gonna drive. Information just gets around in a different way. People living in extreme poverty has decreased by a billion people since 1988. Thanks to economic development, largely in Asia, thanks to free trade alliances, thanks to global engagement, technological advancement, technological enhancement, everything that you could possibly imagine. The reason for walking through these points, is just to indicate that we’re cresting on an unbelievable wave of achievement. We’re cresting on an unbelievable wave of human potential, just as we enter into an era where these technological changes and technological opportunities will create things that humans sitting in this room right now, all of you, we can barely conceptualize what our children and grandchildren will be able to know and learn and how they might be able to learn and what they might be able to achieve.

This is a funny one that I pulled out of Steven Pinker’s recent book on the world, today’s the best day in the history of the world. This is a funny one, so let me just walk you through it. It turns out that light, lumen-hours, so humans lived in darkness for most of our existence. Darkness. When the sun went down, that was it. Not so good? Oh, yeah. Frank got eaten by the tiger last night. Bill and
Sally didn’t make it back to camp. This is the change in—how many of you have lived without electricity for longer than a camp-out? Not as much fun as having electricity.

Imagine light, ubiquitous light, ubiquitous light on the planet and what does that change? This is what the calculations are from Our World in Data by Max Roser: 35,000 pounds is estimated to be the cost to produce a billion lumen-hours, meaning it was not doable. You couldn’t do it with whatever was existing at the time. Since, roughly 1900, thanks to Thomas Alva Edison and a range of other people, and a range of technological advances, the cost for a billion lumen-hours in British pounds to provide ubiquitous light to human beings, is almost nothing. Okay, well, the next one of these is gonna be ubiquitous computing. The next one of these is gonna be ubiquitous this, ubiquitous this, ubiquitous that, and they’re all gonna cost nothing. Then, those are gonna become the foundational basis on which learning and achievement and human potential and human drive and human ambition, human creativity, are all going to be empowered in ways that we have never even fully understood. Because only small numbers of us have been freed to be as maximally creative as we might be. This is just an example of how things, in fact, change.

Now, here’s a thing that we all ought to be very cognizant of. This is not a casual statement. 65 percent of all school-entering—children entering primary school today will be working in job types, not jobs, job types that do not even exist. Now, none of you in this room believe that. None of you believe it. Who is the person that commands a fleet of drones to carry out—I was talking to a farmer the other day from Western Arizona, talking about his new drone pilot. What the drone pilot was working on with his $87,000.00 tinker toy drone that he has that could do about a tenth of what he hoped that the drone could ultimately do, so drone pilot. Drone pilot for agricultural assessment. Drone pilot for this or this or this. I’m not talking about just simple little jobs. These jobs don’t even exist. We don’t know what the categories are.

This a funny picture. Universities are really slow to adapt. They are so slow to adapt, it’s unbelievable. They have problems adapting. We think, we were arguing whether or not this picture was from the ‘80s or the ‘70s. What’d we finally decide, Kyle?

Male Voice: Late ‘70s.

Speaker: Late ‘70s. You look at the hairdos and the funny little smiles and stuff. It’s just to make the point they’re slow to adapt. Here’s been
the evolution of universities. Some of you have seen this before in the
United States. The Greek academies, Harvard, Princeton,
Columbia, a range of others that got founded 3, 400 hundred years
ago. Public colleges began to immerge. Georgia, South Carolina,
North Carolina, Michigan, Virginia. Land grants got set up.
Michigan State, Purdue, Iowa State. Schools like that.

MIT, Cornell. The American research university evolves in the late
19\textsuperscript{th} and early 20\textsuperscript{th} century. Evolution, evolution, evolution. Some
of you’ve heard me talk about before, we think a new kind of
university is being formed. A national service university, which is
scalable, engageable, not sequestered on itself, not focused on
itself. We think there’s two prototypes now operating. One used to
be a teacher’s college located in Greater Phoenix Arizona, called
Arizona State University. The second is Purdue University, one of
the land grants, which has now decided to scale. Decided to move
into a national service modality.

1988. 30 years ago. Some pictures from Arizona. Pictures around
the world. How many of you know half of these? Oh, come on.
Okay, who was above the fifth grade in 1988? Let’s look at that.
Okay. Roseanne, Martin Luther King holiday issues in Arizona,
the building of the library, President Nelson from ASU, Rain Man
movie, the wrestling team winning the national championship in
the 1980s, 1988 to be exact, 30 years ago exactly. The world
looked different, issues are being resolved in different ways. We
went to the Rose Bowl in ’87.

State investment per student in ASU at the time almost $10,000.00.
Important number to note. Almost $10,000.00. University had a
small operating budget of $415 million. In today’s dollars, by the
way. 14.2 percent, four-year graduation rate. We’re like, bad.
Some have argued that, this was good. We should harken back to
the 1980s for the good old ‘80s. Resident undergraduate tuition by
the way, $2,500.00. Remember this number later. In 2017 dollars.
At the time, seems cheap but it really wasn’t ‘cause nobody could
afford that. How do we know that? Under 3 percent of the students
attending the university came from pell-eligible families in 1988.

Looking back 30 years, what we had was a great foundation for a
university that we were struggling to build that was having some
issues figuring out how to operate, heavily dependent on the state,
very much driven by a public investment model. It wasn’t really
drawing in the full-breadth of talent from all of the families in
Arizona. Unless you believe, and maybe some of you do, that
talent is determined by your parents’ income. We actually believe
in the revolution. Nothing’s determined by your parent anything.
Except how they raise you. Their social status does not determine your social status. Their social status is a starting point for you, not the ending point.

Higher education is a mechanism by which socio-mobility has been enhanced. Three percent of the undergraduates coming in 1988 from pell-eligible families—bad. The state is dramatically diverse. This is a highly diverse place. Less than 10 percent of the student body came from minority families in 1988 in the freshman class. Research, here’s where we were. We were losing out to the fabulous research university Mississippi State. That’s in Starkville, Mississippi. Oklahoma State, where I threw the javelin a couple times in Stillwater. New Mexico State in Las Cruces and Hawaii, obviously, on one of those islands over there. These were the major research universities. We were just getting into this game. Wisconsin, UCLA, Washington, Texas, and Ohio State. Who’s not heard of the ones on the right? Does everybody pretty much think that the ones on the right are major research universities? Probably. Just remember this. Remember this is where we were. This is where we started.

Now, we’re gonna take a look at the present. Most of this talk’s gonna focus on the future. This is where we are now. A few things going on. I love this picture here of the earth taken by Lunar Reconnaissance Orbiter Number One, which is managed on this campus by a group of faculty graduate students and undergraduate students. Flipping that device in a way where they could take that shot of the Earth, this one right here. This notion of our projects with Adidas, the new Walter Cronkite School of Journalism, the downtown Phoenix campus, the, again, back to wrestling championship.

I’m an old wrestler, so anytime the wrestlers can win, it’s really fantastic ‘cause wrestling’s really, really hard. The university is [laughing] the university is tremendously transformed in 30 years, but with technology only dramatically affecting us for about the last five or six years in a dramatic way. Now, we’ve changed some of our outcomes. Oh, this is a good outcome. I like this screen also. I’m gonna put this screen in my office. With this picture. All the university presidents and provosts and mark provosts and Mark Searle and admission directors—is that who ranks this? You can see who we beat out. What this really means is really one thing. That here in Arizona, between 1988 and 2018, we were allowed to innovate, and we did. We were focused on finding ways to be a different university and we found those ways. People looking around in the rest of the country said, this could also be number
one in the U.S. for innovation or the craziest university that’s ever been made. Now, we’re happy to do that, so long as they keep those other ones up with us. ‘Cause otherwise it makes us look strange. If it just says, crazy.

This is some progress that we’ve made. I like the notion that we dismantled our traditional anthropology department and with fantastic faculty leadership, we built a new school for human evolution and social change. Then, just this year, the National Science Foundation ranked in Number One in the funding for research related to anthropology, ahead of those others that you see listed there. This one here, second in geological and earth sciences. You can see who we’re beating. Stanford, MIT, Penn State, Michigan. This notion here in engineering. Better than, or more research funding, than Stanford, Carnegie Mellon, Cal Tech, or Cornell. What this means, this one here on tenth year of production, a Fulbright student awards. The award that goes to, in the last ten years, we beat Stanford, we beat Princeton, and we beat the University of Texas at Austin, in producing Fulbright Scholarship Awards for our undergraduate graduates. This is an unbelievable achievement. It is nothing compared to where we can go. Nothing.

We have the capacity and the design options and the capability and the advancing of this university to move in a way where we can, with this charter as our driver, with this charter—this charter’s now, I think, becoming a part of the foundational culture of the institution. Our institution is built on inclusion versus exclusion and the measured success of our students. It’s built on research that’s measured against the public benefit and it’s built around the notion of, did you or didn’t you take responsibility for the outcome of your community. Imagine a university with that charter, with 3,600 faculty, with the beautiful place that we’re located here, the fantastic campuses that we have, the fantastic facilities that we have, the way that our student leadership has evolved, the way that things are moving forward, the kinds of commitments that we have from our donors and from others that are helping us to move forward. The support that we get. We wish more from the legislature. We wish more for those of you that are here. Nonetheless, we can make this happen. We can advance this charter at scale going forward. I’ll show you how that works.

This is our operating budget now. That’s mostly derived from our interaction, for the delivery of our services in competition against others in an open market. That open market approach has allowed the university to become more innovative and more creative.
That’s our state investment per student. You remember the other number, 9,700. These are both in today’s dollars. That investment number is below where we’d like it to be but it’s an investment number that we’re happy to have received and it’s an investment number that gives you a sense that we’re not running a public agency, organization, or a public welfare organization. We’re running a public enterprise organization.

Here’s our graduation rate now. Around 50 percent, 4-year graduation rate, which is an unbelievable achievement. This is at the top of graduation rates for all universities that still admit B students. Only some research universities still do that. Most research universities have given up on the admission of B students. They stopped doing it. We still do it. We show you the graduation rate here. 71 percent for A students, 46 percent four-year graduation rate for B students. 71 percent compares to the University of California’s four-year graduation rate across all nine of its campuses, which is 62 percent. The average four-year graduation rate for students with B averages coming into an American public college is around 15 percent. We’re very happy with this kind of achievement. We’re more happy with this five-year graduation rate. 75 percent of our students work. They don’t necessarily have the complete and total freedom to complete their degrees in only a four-year time-frame. That’s our present undergraduate tuition. I’ll give you a sense of what that really means.

This is our net tuition. This is after grants. I’ll show you a chart about grants in a second. This has been, people have been picking on us a little bit relative to this. We like to be picked on, it’s really fun, but we really like to be picked on when people have the actual data to pick on us about. We like to argue about the data. This chart shows you the following. If you’re a kid from Arizona and an undergraduate attending this university and you come from a family—by the way, the white line is the tuition cost. The white line is the approximate tuition cost. If you’re moving across this direction here, what we’re basically showing you, is that blue is financial aid from the university. Green is financial aid from the federal government. Orange is the average student payment. The brighter orange is the student financial aid. I guess actually yellow is the state financial aid, which is almost nothing. What this basically tells you is that all students from all groups and all classes are getting student financial aid from the university.
This tells you to the left side of the chart, because of federal financial aid, many, many, many students are able to attend the university without a financial barrier. This tells you that the average tuition for a student, average, full-time resident student coming in is about $2,200.00, as I said in the previous slide. What this means then, relative to our freshman class, this is the university today. This is the pre-technological university. This is the university just beginning to figure this out. Just take a look at green versus blue. Green was the freshman class by family income and size in 2002. Blue is the freshman class in 2017 by both income and size. There are no financial barriers to attend the institution. You may think there’s a financial barrier. There are no financial barriers. We have a way to work it out through work-study, through grants, through gifts, through financial aid, through packages, through the range of other things.

We’ve been able to, now, actually create in the blue line, for the first time, the university actually being representative of the socio-economic diversity of the state. 34.2 percent receive Pell grants today. Students from Arizona, 40.8 percent. That’s within the range of the totality of pell-eligible students as a percentage in the state’s population. That is a huge achievement for this institution. 50/50 diversity. 50/50 diversity.

Research, okay, we’re not on that right side anymore. We came over on this side. No other university in the country’s been able to do that. This is the ranking of non-medical research expenditures. We don’t list on there ‘cause we don’t wanna embarrass them too much. We don’t list that Stanford is below us. UCLA is below us. USC is below us. Arizona is below us. The reason for saying that is that, I just wanna go back, that diversity, that pell-eligibility, that freshman class, and that achievement are considered impossible. Now, an empowering force for us for that, or the empowering forces for us for that, were culture change and the fantastic adaptation of our faculty to an unbelievable group of individuals supported by our staff to be able to work in this environment. Do those two things together, and their willingness to be creative with technology at every possible level. Unbelievable faculty.

2048, again, we can’t predict the future, but we thought this picture was pretty good. This is from a French magazine. In the year 1900. Estimating what things would look like in the year 2000. Apparently, if you look to the right side of the picture, you’re gonna grind books up into some kind of thing and you’re gonna send signals to those children over there. Now, this was drawn in 1900 about the prediction of the year 2000. It is fundamentally not
wrong. It’s conceptually not wrong. It’s just that grinding of the paper of the books is probably not the way that it would actually work. You’d have to come up with some other way. Now, I don’t really like this woman in any possible way. The reason, in this next clip, is that there used to be an old way of teaching.

[30:00]
Teaching through skepticism, teaching through critique, teaching through offering bad outcomes, teaching through a certain sort of style. Let’s look for a second on the old way of teaching. Let’s run that.

[Video playing 30:14 – 31:14]

Before I explain this next one to you, ‘cause some of you are gonna have to guess what the next one is, that last one, on the old way of teaching, literally, present the problem, present the problem, present the problem. Complain, complain, complain. I never liked that method of teaching. I hate that method of teaching. There’s no solution in the method. There’s no engagement of the newest thinkers that we have. The next generation of thinkers, the next generation of dreamers. You must engage them, not in somehow being taught what we know, but being taught what we know and how to solve the issue and actually deriving the solutions themselves. Not later, now. Now, that requires a complete reconceptualization of teaching. A complete reconceptualization of everything.

Now, let me confuse some of you. these squares here are 20 lightyears by 20 lightyears across. You can see this is a huge, huge, or seemingly huge, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 220 lightyears across place in our present galaxy. Some of you familiar with television and a whole series of things associated with Star Trek, will realize that there were some really bad people living over here called the Kardashians. The Bajorans. Right here, little did I know, until you look at this map, so this is the Vulcan sector. Anybody remember Spock? How many have seen Spock in some form in your life on television—in a commercial, in a movie, in a show? Who hasn’t? Let’s see your hands? It’s unbelievable. There’s one person back there. David, is that you? Yes, it is David. It turns out that the planet Vulcan is here, and their Earth space station is right over there. Earth is that star right there. Our sun, Sol, is right there. Vulcan, it’s about 16 lightyears, is that right Kyle? 16 lightyears and how fast can you get there at warp 5?

Male Voice: Twenty-seven days.
Twenty-seven days from Vulcan to Earth in warp 5. You may not know that we have images from the future. Oh, by the way. If you think 220 lightyears across this and, let’s see, 20, 40, 60, 80 lightyears north and 220 lightyears across is a lot, it’s 30,000 lightyears to the center of this galaxy. 30,000 lightyears to the center of this galaxy. Just to give you some sense. By the way, I don’t know if, anybody here from our school for Earth and space exploration? Yes. Didn’t we have a fantastic discovery announced in the New York Times this week by one of our faculty members, Judd Bowman? Ariel, why don’t you just shout out to everybody ‘cause it’s really—I’m just, this is just a commercial. When somebody decides to be able to do something where they use an experimental technique to prove something—bring a microphone to Ariel. He did know I was gonna call on him. Too bad.

Judd Bowman is a young professor here in our school of earth and space exploration. He’s been theorizing about how early in the life of the universe could a start be formed? Now, how would you determine that? Since the universe is around 15 billion years old based on our present physical understanding. What did Mr. Bowman and his colleagues discover?

He led a team that found the first starlight. The earliest starlight.

The first starlight. The first star created was discovered.

Absolutely. The first star created. This stuff,

oh, that by the way, that dude is 15 billion lightyears away. Just to put that into perspective. We’re gonna go to—this by the way, is one possible future. Now, you’re on Vulcan. This is a construction of a school. I only dreamed I could go to a school like this. You meet young Spock at school.

Obviously, that’s not the whole school. Somewhere they have to teach how to do mind melds and death grips and all the other things that Vulcans can do. The point of that though is this notion of this interface. A technological interface with a single learner as a part of their learning. Just keep that image in your mind. A technological interface with a single learner just with a part of their learning experience. Now, there’s also futures that are not necessarily good. This is a clip from a movie that’s coming out at the end of this month. This is all about virtual reality. Which, by
the way, how many of you know that virtual reality is taking off like a jet engine? A few of you. Three of you. Okay. Well, we’ll all be dead soon anyways. Here’s what comes next. Another possibility. Let’s take a look at this.

[Video playing 36:52 – 37:15]

They don’t always work out so well, though. This happens to be downtown Columbus, Ohio at some point in the future. Downtown Columbus, Ohio, at some point in the future, I don’t know where Ohio State went, I don’t know where Battelle is. The Battelle Laboratories, all that cool stuff. Basically, what happened here is that you gotta be careful. I don’t want anyone to leave the room thinking that we don’t realize that you need to be careful about technology. You need to be very, very careful finding ways to enhance learning, not to replace learning. Finding ways to enhance reality, not to replace reality. If you replace reality, you get whatever this is. I’m gonna go see the movie. I can’t imagine that it probably has, before there’s a good outcome, a really bad outcome. Let’s finish that clip. You’ll see what happens.

[Video playing 38:06 – 38:16]

When I was in graduate school on, every week, where’s Rick Shangra? He and I were in graduate school together. We would watch the Technology Run Amuck movie series. We were, basically, in academy producing thinkers about the future and designers of democratic institutions going in the future. That’s the graduate school that we went to. We literally would go to the Technology Run Amuck movie series to see all of these horrible outcomes. I wanted you to know that, there is a cautionary note on all advancement relative to all technology. What might a future student at ASU, or anywhere, expect? Here is where you’re gonna have to walk with us. Now this is 2048. Seamless, uninterrupted access to resources and experiences. Well, if they’re all filtered by yourself and you’ve got no knowledge navigator, you’ve got no professors, you have no one that you’re working with, you can have a good outcome or a bad outcome. We’d like to produce good outcomes.

Transparent crowd verified information and accountability. Crowd verified. Somehow, verified. It is true. We don’t have that yet. We don’t know true. We’re getting confused about true. We have to work on that. Freedom to personalize your interactions and experiences. This is a build-your-own phone. Put your own technology into whatever you want. Component parts. Enables you
to do whatever it is that you think you need to do. The super computer that you’re gonna be carrying around in your pocket, which is beyond anything that you have ever seen, it’s beyond the tinker toy that you’re carrying now, which is just a tinker toy. What will it be able to do and how will it be able to assist you in learning in 30 years? We’re going 30 years from those big walkie talkie things that lady was wearing on her head, whatever that was. The things that we’re gonna have, we don’t have a sense of everything that we do. Unlimited access to crowdsourced expertise and artificial intelligence that provides personal guidance. Tooker House down here, this is some of these early generation Amazon Echo Dots that are in one of our residence halls helping some of our freshmen engineers learn a little bit about interacting with some of these voice-activated intelligent databases and so forth.

Instantaneous and convenient access. Bring me a pizza now. You don’t have to ask for it. You just have to look at it in a certain way or scan your retina or whatever. That would be really good. Immersive virtual environments that facilitate socialization, collaboration and entertainment. The building of things together. The solving of problems together. The working on teams on a global basis. How would I solve this problem here? There’s a group of American kids working with a group of kids in Africa and they’re working in some kind of way to link and to connect. You start accelerating the way that we’re solving our problems and use all of these things as learning experiences.

Now, the way that things work, unfortunately, education is considered around a rigid model of life stages. We have one model for some people. They’re raised by their parents before kindergarten. They go K through 12, they might graduate, they might not graduate, that’s bad, and then they go into their career, whatever that happens to be. Some people then do that and then they go to technical school and then they go into their career. Some people then go to a college. Undergraduate, graduate sometimes, and then they go into their career. It’s a linear process. An old-style process. An old-style model and I don’t think that it’s gonna hold up.

It’s more likely that something like this is gonna happen. This idea that, I don’t know if Luke Tate is here or Jacklyn Smith, are either of them here? Jacklyn’s here. We have a team of people working on our idea of universal learners. Universal learner looks something like this. Pre-K learning, which is your absolutely most important cognitive development phase of your life with your
parents, with your family, with some mechanism to bring you to some level of learning, awareness. I put K-12 in parenthesis, I
don’t know what it’s going to be, going future, but obviously it’s gotta be different from what we presently have or we’re just gonna get the same result. There’s no amount of just yelling at the system. There’s no amount of yelling at the system that will make it any better. It must be conceptually redesigned. Then, from the time you leave with your whatever a high school diploma’s going to be in the future, from that point forward, you become a lifelong learner. From that point forward. Your lifelong learner activity is concentrated in this age frame, but here if you take jobs and personal fulfillment and lifelong learning and you make that then for the rest of your life, it’s a completely different conceptualization of learning. A completely different conceptualization of life.

It’s the merging of the yellow and the red here. The bringing of those two things together. Now, no institution is ready for that. Nobody’s ready for that. We’re all structurally rigid, fixed. Universal learning at ASU, this is where we’re headed, this is what we’re trying to lay the foundation for. We’re trying to be of service to all learners. That doesn’t mean making the university some— a few years ago somebody said that ASU was interested in world domination. We’re actually not interested in world domination. They had a picture of mine that they had doctored where they ground my teeth into little triangles and they had me menacing. It was just funny. My sister thought it was real. How can we create a fully immersive learning environment filled with thousands of faculty and tens of thousands of students? Most of those students who are learners with us and workers with us. They’re a part of everything that we’re doing. I’ll talk about that in a second. Then, at the same time reach anyone who wants to learn. The welder who needs a new course.

The person, sadly, I was talking with Andy Tobin, speaker Andy Tobin just a little bit before the show. Right now, we have a pejorative term that we’ve developed in higher education to somehow make us feel somewhat superior to other people. If you can’t finish what we’re doing, we call you a dropout. Actually, those are the people that should call us failures. We failed the student. We didn’t create an opportunity. Then, we make it almost impossible for that person to go back and finish college. Oh, could you show me your transcript from when you were 18 years old and you were a big screw-off? Oh, I’m sorry. You never get to recover. Just really sorry. You can take a few classes at some night school
somewhere. What we’re interested in is changing this notion of what is universal learning.

[45:00]

The way we do this, we start with a knowledge core, that’s us. That’s the university, the faculty. We take everything that we’ve got. Our departments, our schools, everything else. We then create a learning environment around that that we call full-immersion. Full-immersion pre-K where we’re engaged with them. We’re engaged with families. We’re helping teachers. We’re helping parents. We’re doing everything that we can with every tool that we have. Everything that we can bring. K through 12 learners and on-campus ASU learners. That’s our full-emersion environment.

Our digital emersion environment, we now have an online high school. We have an online post-secondary of distance learners, returning non-traditional learners, people that weren’t able to finish college, people that weren’t able to go to college. We have a way to connect to them from the university. Digitally immersive massively open learners, this is on any scale. Do you wanna plug into a course at ASU? Do you wanna find some way? We’ve got a young woman here from Afghanistan who lived behind Taliban lines 18 months ago. She found us in this blue zone. She took some of our courses, said, if I take courses, or try to go to school here where I’m living in Afghanistan, I’ll be killed. Can I come to your university? She’s a student at this university right now. Here, physically, with us.

Education through exploration. I picked on Professor Anbar there earlier. This is everybody changing the whole learning process around game-based learning of very complicated subjects using interactive group and individual gaming as a way to enhance your learning. Then, infinitely scalable, this is not the, we wanna dominate the world, it’s that we don’t wanna leave anybody out if they wanna be connected. We don’t wanna leave anybody out. You take all of this together, and this is where we are now, in 2018. This is going to intensify on every scale in every dimension and in every way. We think that, in our new model of a national service university, we can make this kind of model work.

This next slide, I’m not gonna go through this. These are all the things that we wish we had. We wish we had infinitely scalable teaching. We wish we had tools and we’re working on a whole bunch of these where math and science mastery at a certain level could be made ubiquitous and available to the entire population. I guarantee you, I guarantee you, if we could pull that off, many, many, many, many things would change. This notion of ubiquitous
content delivery mechanisms, intelligent tutoring platforms. Ways to connect humans in a tutoring modality with large numbers of students to be able to help everybody to be able to move ahead. This is where we’re headed.

What are we doing to service these universal learners? We’re working in all of these dimensions right now. We have our digital preparatory school. We have our expandable open-scale offerings, ASU online. We have our global freshman academy which has students which have signed up for a course and are engaged with us right now from 195 different countries around the world and some dudes that are hanging out in Antarctica. That’s not a country. We have new technologies. These are things we’re working on. Virtual reality technologies and Professor Anbar is here again. Just imagine, all this content is us and the Smart Sparrow company from Australia, working together to create a new learning environment, a new way to learn by playing a game. Let’s take a look at this video. This is under development now.

Imagine this is a piece of your classroom. Not everything, a piece of what you’re doing. You’re with a group of students from all over. This is your learning environment. One of your learning environments.

[Video playing 49:00 – 49:06]

Students are across the top. Bad Red Bull scene. You learn by doing, but you don’t wanna go through that.

[Video playing 49:25 – 50:00]

[50:00]

This is our video, our project.

[Video playing 50:08 – 51:18]

This is not an example of replacement of anything. This is an example of augmentation. How can a life-long learner study this, master science, master problem-solving, master working with a team while they’re also getting their degree in English? While they’re also studying music? While they’re also producing a movie? While they’re also writing poetry and doing all the other things that they can do? What we’re looking for, are ways to augment learning. This really quick video here—I’ll just narrate this on the side.
Biology’s really hard to understand for some people, chemistry’s really hard for people to understand. We have a lot of students who don’t make it through college or don’t do as well in college because they get scared off by certain things. This is another method to teach biology. How do you bring energy into a cell? This is, again, from one of the groups here at ASU. This notion is that you change the way that we learn so that three dimensional thinkers don’t have an advantage over those that, most of us are, two dimensional thinkers. Most of us can’t get this stuff. I won’t show you too much of this, other than you can imagine that we now have thousands and thousands and thousands and thousands of ways to do this. Again, not to replace anything. Only to augment it, so that you can intensify learning. You can spread learning, so you can make learning happen.

The last phase here is, a little bit about what’s going on right now. This is a book written in 1996 by Neil Stephenson called The Diamond Age, or his subtitle, A Young Lady’s Illustrated Primer or Primmer depending on how you learned to pronounce that word. That’s the young lady. It’s a system that was designed in the science fiction book in 1996. Now, this is a map of that system from the book that was drawn by a guy with the name Beat A. Schwendimann. Beat put together this notion of a book that connects to you.

Think of your iPad. Think of a learning device. You’re at the university, you’re at college, you’re at school, you’re in Kindergarten, you’re learning in your life. You have a thing that’s attached to you. It’s your learner. It’s your learning assistant. What we have, is a group of students, a bunch of them are over here. How many of you guys are from Luminosity? Just stand up. We have a group of students, they’re not all here, but this is a bunch of them right here, who are taking this—yep. They’re taking this learning system that was conceptualized in a science fiction novel. They’re doing everything that they can to construct it. Now, the idea is that, with a device like this, all learning becomes empowered, so that all the basic learning can be handled through these kinds of systems and then everything else you want to do in learning in your life, moving forward, can then be on top of that. Let’s just take a look at how our group is doing.

[Video playing 54:20 – 57:40]

That’s a active project that’s underway right now, self-funded within the institution by a group of students that are working on it.
The point is that we are now a fundamentally transformed institution. Committed to the notion of inclusion verses exclusion and the success of our students by every means possible. By every human tool that can be devised, by every assistant that can be devised, by every way to augment a teacher or a professor that can be devised and then connecting all of that, going forward in the next few decades as a fundamental part—this is a fundamental departure from a university construct. Universities were places that you went to and sat with the faculty to learn from them and show and develop your own personal intelligence.

That’s fine, but that’s insufficient. That’s insufficient. We are constructing for this ASU of the future going forward to 2048. An institution that will be built around this integration of great students, great faculty, great learners, great team-builders, great team members making all these things happen. For us, we are immensely excited about what lies ahead. That’s it.

[End of Audio]