

INTERVIEWER: Today is August 19, 2015. I am Joe McMaster. And as part of MIT's Infinite History Project, we're speaking with Israel Ruiz, the executive vice president and treasurer of MIT.

As the institute's chief fiduciary officer since 2011, Mr. Ruiz is responsible for leading all of the administrative and financial functions of the Institute. As such, he is the steward of over \$14.1 billion of MIT's financial assets, including operating revenues and the Institute's capital plan. He works with the president, the Corporation, and members of MIT's senior leadership team to ensure that MIT's financial, capital, and operational resources are optimally deployed to support the Institute's academic mission of education and research.

Since joining MIT in 2002, Mr. Ruiz has served a variety of leadership positions in the financial aspects of institutional planning and analysis. In addition, he has played key roles in several task forces and initiatives, including the Planning Task Force, the Campus Energy Task Force of the Energy Initiative, the Future of the MIT Education Task Force, MIT Sustainability, and Digital MIT. In 2005, he was awarded the highest distinction for administrative staff at MIT, the MIT Excellence Award in the category of working above and beyond the call of duty.

Born in Barcelona, Mr. Ruiz holds a degree in industrial engineering from the Polytechnic University of Catalonia, Spain and a masters degree from the MIT Sloan School of Management. Before joining MIT, he worked as an engineer at Hewlett Packard and at Nissan Automotive.

Welcome, Mr. Ruiz, and thank you for speaking with us.

RUIZ: Glad to be here.

INTERVIEWER: So I read recently a quote that you had mentioned I think maybe in a speech in which you said something to the effect of that MIT changes people in ways you can't find anywhere else. And I thought that would be a good place to begin by asking you how would you say MIT has changed you?

RUIZ: Well I think MIT is a very magical special place. And as a community shapes individuals and also the collective. I think to me it just pushes me. I've always had high standards I think and high expectations of myself. But it's pushed me to kind of imagine and dream beyond those limits. I think it makes you realize that nearly nothing is impossible.

So I think from that perspective it makes a collection of individuals who are passionate about reaching those highs and making it even higher, and I think that's a drive that for individuals that make our community something that you really thrive in it. And to me, it has been completely a thrill in these past few years.

INTERVIEWER: Great. Yeah. Well you mention you've always sort of had high aspirations. Tell me about where that came from. I mean, you're from Catalonia. And maybe you can talk a little bit about growing up and how that may have influenced your path in life here.

RUIZ:

Sure. Yeah. I mean, I grew up in a kind of a low to middle income class family in a neighborhood outside Barcelona, kind of blue collar neighborhood. I'm the first generation to go to college. What I think in the US is World War II in Spain it was the Civil War. So my parents kind of were young kind of teens during the Civil War. They had to educate themselves. I have an older sister who kind of tried to go to college but didn't really find that to be her calling.

So since very early ages I was good at math. I was good at science. I kind of liked to do things, despite what I would say the educators were not the greatest inspiring people that I could find. But I did find a few that were really inspiring.

And I found myself doing all sorts of activities, hands-on activities. Finding people and friends who would like the same kinds of activities. So I ended up working to put myself through the college experience. It worked out.

And from that, really became that I always wanted to do the kinds of things and reach perfection. I'm some sort of an obsessive perfectionist. Despite I understand that perfection doesn't exist, but I think it's always a good goal to have. To the point that I think I expect a lot of myself and a lot of the teams, fully noting and fully realizing that we will never achieve that level of perfection. But I think it's been a helpful journey.

So I think to give you a sense of how college and how education has shaped, so I kind of grew as a kind of a young engineer, if you will, I was able to fulfill my passion to go in cars. And building all sorts of machines was kind of what I enjoyed the most.

My first job, even before I finished college was at Nissan. And I was able to find a mentor who really took me upon his kind of direction to really go travel the world, see a lot of things. And how in practice the kind of the synergy of education and industry and how we apply all those knowledge, we could actually change for good and for better the lives of individuals. And I think that was really what motivated me.

I moved on to Hewlett Packard. Continued to travel the world. And I was able to really at the end of the day kind of ended up in the US as an engineer leading programs and making all sorts of good things that I consider. The business and finance people were not particularly helpful. Let's put it this way.

So I decided to then go for a management education. Say I really want to learn your language. Right? I want to be able to fight back. I want to be able to really engage in not only describing the technical virtues of whatever it is that my team or myself are doing, but really kind of the financials and the business sense for that. So I did that.

I ended up moving from the West Coast to MIT, thanks to a fellowship in Spain (la Caixa fellowship) that's a highly regarded fellowship. And after that, I graduated I think in the wrong time. My whole goal of going back to the West Coast and finding that as I graduated in 2001 right when the dot com had popped and right before 9/11. And that kind of changed the world forever.

So I ended up taking some sort of an internship at MIT. So there's a gap year that you describe. I started in 2002 that's the official kind of employee record of MIT. But in fact, I was working since '01 as a kind of a teaching instructor for a Sloan professor who in many ways kind of took me for the first few months.

And it was then through the work with Chuck Vest and Bob Brown and others that really I became kind of drawn into this community, which had never been part of my plan. But it's become an incredible journey for myself and I think for all of us.

INTERVIEWER: Yeah. What initially drew you to MIT, to the Sloan School? And then, what drew you further in about MIT that made you want to stay? Because that was what 13 years ago or something?

RUIZ: Yeah. Yeah. So those are actually questions that I reflect a lot. And I think both of them have great stories that I think are illustrations, but that you can generalize about who we are as a community.

So as my six year degree back in Barcelona, which is kind of at the end of the day, by my fourth year I've realized that I was getting more from the textbooks. This is kind of basically pre-internet, right, so we're talking the mid '90s. The textbooks were terrific. The professors were okay. And I'm not going to say they were bad, but they weren't really great.

And what I realized is that I could optimize my time by basically not going to class, reading the textbooks, getting the class notes, and starting to work. So I start my work officially kind of in the fourth year of the six year degree. And I was able to do that.

And the textbooks I couldn't but notice that 90% of them were written at a place called MIT. So as an engineer you kind of do this, you kind of read it. You read the names. And I remember vividly I basically stopped going to class.

And the class itself was economics. And the textbooks were economics from Paul Samuelson, who at the time, I really didn't ring much of a bell. I thought the textbook was great. Then you realize most of the people who learn economics are using the same textbook.

And this was, again, in probably '94, actually maybe more like '92, which in Barcelona was a great time to be. This was the year of the Summer Olympic games. Wonderful not to go to class. Just go to the textbook.

Now fast forward to the year I kind of come here, '99. And I got admitted to MIT and the other nice school that we sometimes compare against on the West Coast, Stanford. So I go visit at Stanford. I come visit here.

My first time to Boston in my life. I grew up Barcelona, really nice weather, nice climate. West Coast, same thing. I landed the winter of '99 here. The Charles River completely frozen.

I was at the Sheraton across town. I walked the Mass Ave Bridge in a really, really cold wind. And I made it my way to E52, the home of Sloan, at the time. Today we have two or three more buildings that are the home of Sloan. But at the time, it was E52.

And I didn't know, but the Department of Economics was also co-located there. So I made myself into the building. I kind of went around, wandered around. And I kind of knocked on certain doors and I went up talking to people. And said, yeah, I'm an admitted student, and this. And I just wanted to kind of come visit. And the people were absolutely terrific.

And in one of those knocks the person comes out. And that person says, hey, what do you want young man? And that person was Paul Samuelson. And here you have a Nobel Prize winner. By the time I already knew who he was who basically I just told him, yeah, I'm admitted student. Come in. He drew me into his really little office.

And in probably what it was two minutes, but to me it felt like two hours, he just kind of gave me the sense of what MIT was. Right? So here you have a terrific professor, an amazing intellectual who just spent two minutes on somebody who knocked on the door and was there.

So I called my wife and said that we're coming to Boston. That's where we are. Right? And that's the reason I came to the Sloan School. One was what I wanted to be at MIT, the place where all those textbooks, and just as an anecdote just completely crystallized that aptitude.

Of course, I wanted to just get educated and then go back. What drew me in? Well the first was necessity. Right? Necessity is the mother of all invention. So I had no job. I had quit the job to come here. And it was the wrong time in the US economy to have any kind of job.

So the professor was kind enough to give me a chance to just at least have a holding pattern. But the economy entered into a deep recession in '01, '02. And basically what really made it I was able through this work to get in touch with amazing individuals.

And I was so fortunate to work with the late president Vest, with then provost Bob Brown, and many of the administration and staff members who were not only amazingly smart, but they also cared about the whole of an institution like MIT. And for somebody who grew up abroad thinking about this beacon of science and technology that's nearly unreachable, it kind of humanized a place that can do so much good for the world.

So to me, what's maintained me and I think excited every day to come to work is really this collective group of individuals that you can find pretty much anywhere at MIT, who will stop two minutes to talk to an incoming student or a visitor. Or to talk to administrators who will do the best they can to make this institution the place that we are.

INTERVIEWER: That's extraordinary. That's really extraordinary. Just listening to you talk about your schooling from a young age until you reached MIT really, it sounded like the teachers were okay but not great. But that you were really lucky to find mentors along the way.

RUIZ: Absolutely. Yeah.

INTERVIEWER: Has that been an important part of your--

RUIZ: Yeah. I'd say. I mean, I grew up in a family that probably didn't have the means but had lots of values. Right? And I recognized that, both my parents are deceased now, but they provided a structure of support and integrity that I think I now am just coming kind of to realize how deeply important that was of really a culture of hard work and making sure that you did your best and you had really high expectations, et cetera.

But neither one of them could really be their mentors for their son at this level. I could have the conversations and certainly kind of the support there and everything. But they couldn't really draw that for me.

So I first, because of luck, but then kind of intentionally, I was able to really find a few individuals who were able to act as these mentors, as these people that we probably all necessitate in times of doubt or in times of reflection and questioning we go there for their good deep thoughts and really to make sure that we frame our future in the right way. And I consider myself very fortunate to have found a handful of individuals who have been generous with their time and their ideas to help me become and shape the way that I am right now.

INTERVIEWER: Yeah. It's very lucky. So you've got an interesting perspective now on MIT as an alum, as well as a senior administrator over quite a long period now. How have you seen MIT change during that time?

RUIZ: Well I think we're changing daily. Right? I mean, it's part of the thrill of a place like MIT. It amazes me to this day that I kind of look back and I've been around 15 years. I wouldn't probably to accurately say it's been 15 years. I would count on maybe being weeks or in single years, but not 15 years.

And I think it's a reflection of the speed at which this place moves. And I think maybe when I became executive vice president in 2011 I wanted to understand a little bit more maybe the history of MIT from the business, financial sense. You can find great books about the history of MIT, amazingly written and amazingly informative about how the place became MIT.

But there's very few chapters, and there is very little information about how MIT, my areas of responsibility, really worked. And I wanted to understand certain frameworks for how to think about that. And I had this sense that the years I had been around were particularly extraordinary and call it the 2000s. And I didn't know that.

But I think the 150th anniversary that we celebrated in 2011 was helpful in providing some time for that reflection and thinking back through history and data and going back to the archives. And all of us had an interest in understanding that. And what I realized is that the 2000s were indeed quite extraordinary.

And why do I say that? Well I say that because, for instance, and I know we may talk about this in the future, but MIT in Cambridge was built in three, what I would consider, bursts of construction. Right? The first one moving from Boston in 1916 to Cambridge for the first time. The second one in the 1960s. And then the third time was in the 2000s.

And from 2000, 2001 to today we've added nearly 30% of our campus space. We've added similar amount of people to the campus. We've grown from 4,000 to nearly 6,500 grad students. Our faculty has grown by maybe about 100 bodies.

And the realities of the financials and how we've deployed those financials in support of the mission, as you started the interview with, it's been dramatically changed. Partially with very intent deliberate actions. And partially in response to economic crisis that MIT had to react to and reposition itself to make sure that we were capturing it the right way.

So I think my sense of these last 15 years is that there's been an acceleration of activity that I'm sure at every time MIT felt that way, but when you look at the curve, it becomes kind of an exponential. And we have been riding that exponential in the last few years. And I think anyone that you ask they'll tell you we're all very, very busy and we're all running really rapidly.

But when you look at the outputs of MIT, those being educated students, those being intellectual property, those being start-ups, those being economic development, just general activity, you see differentially the measures how much of output and outcomes we're getting. And I think that's really nice to see because as you know we're all defined about impact. And that's the way we make a bigger impact.

INTERVIEWER: What do you attribute this acceleration to? I mean, I'm sure it's many factors.

RUIZ: Well I think one is, I mean arguably, is resources. Right? We've been I think fortunate to not only get generous donations from our friends and family and alums. But also these were two decades in which the financial markets in the '90s and 2000s helped significantly the endowment of MIT. And the team of professionals that managed that endowment to get extraordinary results for the institution.

I would say the transformation in proportion of how much the research funding of MIT as a share of total revenue has gone from nearly 90% in post-World War II mid '40s to today, which is less than a 1/3, believe it or not, in share. But that's still \$700 million. Right?

So that gives you a sense of scale, how much it's grown. But it gives you the opportunity to say, well MIT now has not only directed money to doing research activities, but it has money to do all sorts of other things that I think the Institution had always the aspirations to accomplish, but never really the resources to get them done.

And the dollars are the beginning. Then you are able to get more graduate students and get more post-docs and get differentially and marginally perhaps more faculty into certain fields and build new facilities and renovate certain others. And all of that, in my mind, is enabling our community of educators and innovators to do better work, more efficient work, more effective work.

And I think that connected in the network of Cambridge in the network of institutions in the global network of how knowledge has rapidly evolved, you I think get to a community that's much better predisposed to having a bigger impact.

INTERVIEWER: Yeah. Yeah. I'd like to sort of turn to some of the initiatives and task forces and accomplishments that you've made over your years here. And I was struck by one that was in 2008, the Financial Planning Task Force--

RUIZ: Yes.

INTERVIEWER: --which I guess was formed in response to the downturn in the economy. And I was wondering if you could talk a little bit about how that downturn affected MIT and what you were able to do in response to that.

RUIZ: Well that one is, it's one that I feel very proud of how the community all came together and reacted to it. And I'll give you some maybe short-term historical perspective, and then go into like how we were able to rally the values of MIT around a cause that was very important to kind of MIT, but also really to the nation.

So this goes back to actually my early days at MIT. So the dot com phenomenon had helped MIT endowment achieve its highest point in 2000. 2000 had closed with a 56% return. An amazing thing that as individuals we would love to replicate. I myself didn't do it, but that's how it was.

But then it got the post-dot com, 2001, 2002, the endowment lost value, certainly not as much, but significant value. But the response of MIT at that time, and this is the time in which I basically joined MIT, the response from MIT did not really start until 2004, and '05. And I think part of it was the realization to say, well, this is just maybe a blip. And let's not act. Let's just kind of wait and see if the good old days come back.

So this is not a criticism of how it was handled, but I think the reality was that MIT was probably late in addressing the dot com crisis. It was also a crisis that differentially affected more MIT than its peers. And it found itself, and we found ourselves, in '04, '05 in a different role-- at the time, I was Director of Finance-- addressing the 2001, 2002 kind of three years late.

At the time, we had to impose pretty severe measures on the MIT community-- talking salary freezes and talking small number of layoffs. Talking about things that as a community we take very seriously. But it was done at a time in which, if you look at the economic factors of the US economy or any global economy, in '04, '05 were absolutely going up. And MIT was actually trying to address the three years before.

So we did it. And it was painful. And we heard some loud voices about that.

So when '07 and '08 hit, we had done I think three things that are important just as a setting. The first one was from '04, '05 through like '07, '08, and this is purely luck of timing, but I think we had concentrated in an effort to really put MIT's financial position on a kind of a break even or better from a budgetary standpoint.

And it was difficult on the community. But we actually celebrated that right before the crisis. So we close the year in June of '07 before everything kind of fell like from the bottom. We had closed the first year of kind of break even budgets. So that gives us some time to think about what's going to happen.

The second one was because of this, MIT was not really in a heavy position of capital construction like arguably we have today. In which we're renovating the entire campus. So we didn't have a lot of things going on. We had a couple, but we were able to somewhat slow them down or not influence too much the capital projects of MIT.

And the third one was, well, because we were in this situation and we, certainly I, feel like was able to present a case for acting quickly but thoughtfully, as opposed to I think potentially later waiting for, we jump onto this very, very, very quickly. So together with our president at the time, Susan Hockfield, and the executive committee and everybody else, we really put together the team to say, well, this is a serious event. We don't know how serious it is, but we certainly need to start addressing it.

But because we had built this, let me call it, reservoir of capacity, we said, we want to do this and we want to activate the network of problem solvers at MIT. And as you know, as a community we love to problem solve. We love to problem solve collectively. And we love to really be part of something that will help this place.

So now the contrast is, well, you are dealing with the worst economic crisis since the recession in the '20s. And we want to form a task force, an academic task force to deal with this problem. So selling this was not easy. But because we had rebalanced and put the budget in good financial form, we said, well, let us try. And let us try to get the community to help us in this.

And if it doesn't work, the only thing we've lost is a year. So the worst that can happen is we'll just go in there and exercise the budget cuts that are necessary the way we did it maybe two or three years later before. So we got that with certain noise, but we got that to say, OK, let's do it. So we put together, and at the time Provost Reif kind of said, you and Marty Schmidt, who is now Provost, but at the time was Associate Provost, said why don't you guys lead this task force, put together these teams.

And we were able to rally 140-150 people-- faculty, staff, students-- around certain themes from revenue generation and can we do better with other opportunities for revenue to how should we procure things? How we should do IT. How housing for a student-- is there any opportunity in the student life domain, et cetera, et cetera.

So that people were not only this 140-150, we were put together something we called the Idea Bank in which the entire community was able to participate and submit ideas. And I seem to recall in the order of 160 ideas made it once you kind of weed out the ones that were clearly not reasonable. And we took it upon ourselves, the leadership of the task force, to respond to every single one of those.

And respond could be, well, it's a good idea, but it will take a lot of effort. And we're not going to do it. We're going to do it right now because this is an amazing idea. Or we're going to take this one and study it further.

So we did that. And collectively, I think the outcome of this task force is we were able to save, and it's documented today, something like 30% of what we needed was coming from ideas in the community. Things that to me were nearly impossible. Right?

So for instance, an example we had kept every undergraduate dorm open during summer despite the occupancy levels at those dorms were in the 6%. The students themselves came up with the idea to say, hey, couldn't we consolidate it into two or three dorms and shut them down and that would save money. And said, yes, that would indeed save money. So the students proposed that. The students accepted it. And that's what's happening today.

It's hard to envision a decision like that without the process that we followed. Same things about procurement. Same things about understanding total choice versus selective choice. So I think it became a conversation that the community felt was able to contribute very meaningfully to the extent that the budget cuts were minimized that the pain was not felt as much as otherwise it would.

And furthermore, I think that type of response, when put in context with what went on around higher education, I believe we fared much better than most. We fared much better in numbers. We fared much better as a community because we were all in it together. We had to make painful decisions. No way around it, but I think it really gave us force.

And it really capitalized on the strengths of this problem solving community. Just give me a problem. Don't give me the solution. Give me a problem and I'll help you. And it really felt good. Despite the really terrible economic conditions in which we were operating, it felt really good.

INTERVIEWER: As I imagine some of that, or maybe lots of it, has carried forward to today. Did we, did MIT come out better for the experience in a sense? I mean, not that it wasn't painful, of course.

RUIZ: Well I think that's certainly economically speaking and financially speaking I think today we've been able to put in place mechanisms to somewhat be ready for what comes next. I mean, by definition, the next crisis we don't know what it is. Right? Because otherwise we would be prepared for it. But I can tell you that we've been able to build that in the next few years following '07, '08.

I think as a community the effects are still here. And the fact that then we mounted a couple of other task forces and we followed similar ideas in terms of idea bank contributions from the community, I think tells you that there was recognition in the value of-- today probably the term that we would use would be like crowdsourcing. Right? Crowdsourcing the intellect of MIT and just making sure that everyone contributes the best they have to for these problems. So I think as a community, no doubt we're better.

And then another thing that we didn't anticipate but it became quite clear is as you work together kind of shoulder to shoulder with a small group of individuals on the same purpose and cause you develop very strong bonds and relationships. And I think those relationships certainly have kept. The network of individuals that worked in those groups has kept in touch. And in many ways just pick up the phone and like, hey, how do you think about this? How do you think about that? And it makes us more nimble and more connected in ways that as we grow they are highly appreciated.

INTERVIEWER: Great. Yeah. Looking at some of the other many initiatives you've been involved with, most or many of the other ones are very sort of forward looking and future-oriented. And I'm thinking of, you know, the Digital MIT, the Task Force on the Future MIT Education, and on and on. There's quite a list of them. What of these initiatives, which ones are you sort of most proud of at the moment? I'm sure you're proud of all of them.

RUIZ: Yeah. So I think what I'm most proud about these initiatives is they all share the same kind of characteristic of somewhat unleashing the power of our community into solving either problems that are right here or tackling opportunities that could be quite transformational for MIT and have a big impact. Right? And I think that's what feels really good, that we're able to bring about a lot of folks that are around here who get the best and who we get the best from them. And try to kind of selectively apply it to certain things.

So I personally think the future of MIT education is a huge one. Right? It feels we're at a special moment in time in which clearly capitalizing on the long history of MIT's educational innovations and certainly, there are many to refer to. Probably one the most known is Open Courseware in 2001, '02, kind of right at the time I was joining. I was involved since the beginning of those times.

But I look back into like my own personal experiences with that textbook from Paul Samuelson and the kinds of educators. And I think for MIT to be able to unleash the power of education, high quality education, for the qualified students that are out there in numbers that it will be impossible to tackle residentially based. I mean, clearly we're not talking about substitution. There are two very different things.

But to unleash the next generation of a textbook, high quality by the use of technology, technology to deliver it, technology to produce it, technology to really assess the individuals, I think this has to me a huge appeal. Because I do know that there are a lot of qualified individuals out there that would love to have access, and in fact, the numbers are there. Right? So this idea of MITx, Open Courseware evolution, MITx, edX, and then this future of MIT education.

We all recognize the value of what this residential campus offers in advancing knowledge and educating the best and the brightest. But there's also a huge value in deploying and impacting a larger number of individuals. So I think that's one in which I feel especially privileged to have been part of. And that I'm hopeful to see the outcomes, the sooner the better.

INTERVIEWER: You know, it sounds like from your description of your education and deciding to just focus on the textbook, maybe not so much on the class, you had sort of flipped classroom in a sense of maybe. I don't know if you flipped it or dropped the classroom actually.

RUIZ: It's the pre-internet mode of flipping the classroom. And I'm sure everybody had done similar things. Right? It was like you asked for your classmates notes or the textbook. And if the exam is just based on content, right which is probably the other failure of assessment, then you're doing fine. Right?

But if what you need is a lab, what you need is a mentor, what you need is a mentor that brings you from this point to this point, but not by directing you every step but by challenging you to get to that step, that is the kind of educator I think we want. It's hard to get that online. And I think that's the experience we want here.

But to me learning the theory of calculus you can probably do it even better online than in a classroom because you can do it at your own pace at your own time, whenever it's convenient. So it's for the more advanced. It's for the kinds of putting it all together for the changing the world kind of experience that I think the residential kind of human interaction is necessary.

But yeah, I mean I do think that we could provide and help provide everybody else that has a content an amazing revolution in education.

INTERVIEWER: So what did the task force recommend with regard to digital education on campus and off?

RUIZ: Yeah. So it's funny because there is actually a line that I think that many folks are highlighting. But so there was Open Courseware. And then in the task force of 2007-08 that we put together, there was this group of revenue generating opportunities. Some of them were well capitalized more on your IP properly, et cetera, et cetera.

But one that they, and it's kind of in the spreadsheet so it's there, right, they talked about e-learning. At the time the term was e-learning. So out of that idea we said, well, maybe so, maybe not. But what we want to do is there's going to be a group that will still study that one further.

So again, at the time Provost Reif charged a small group of faculty to take that e-learning concept and think about it and think about it further. And he asked me to be part of that group. It was chaired by a couple of faculty members. And I was the only kind of administrator in that group.

That group, I would say, developed what I would say the kernel for what became MITx. We delivered a report to the president that basically said, yes, this is actually a great opportunity. And yes, this is something MIT should play in it. And we believe it's the time.

So that I think just gave Rafael the time and the knowledge and the context to say, yes, let's go with it. And let's put that forward. But we didn't have a leader. And until Anant Agarwal, director of CSAIL and professor at EECS, he stepped up to say I'm going to do it. And I'm going to do it with my course. Let's see how it works.

And I think that's kind of the amazing progression. To say, there was a group and I think that group was chaired by Philip Khoury in the revenue generation in '07, '08, that said there's something in here. And then there was another group that took it further. And said, yes, actually indeed there is something here. To now becoming a reality. So there's actually a whole thread of intellectual discussion that links them all.

INTERVIEWER: Right. Yeah, in looking at the report I was struck by the number of times the words bold or boldness or related words and also the word experiment or experimental appear. It's probably almost every page. And what were the sort of bold and experimental recommendations?

RUIZ: Well, I mean, I think we're always carrying this way as experiments because the reality is we don't really know. I mean, we're all in somewhat uncharted territory. Right? It hasn't been traveled before. And we don't really know how much can or cannot be substituted.

So we, like for instance, we know that one of the elements that seems to have a very high degree of causality with learning is the speed of feedback. And kind of if you go back and you want to be bold, so when we're children and we're crawling we're kind of experimenting all the time. And if something pinches you, then you kind of learn from that.

But if something pinches you a week from now, a week for a child is like three years for us. Right? So a week is like, what are you talking about a week? Give him the reward now.

So there's immediate feedback loops. When you put them in the educational context become, well, if you give a problem set to a student and they turn it in and the kind of grade on that problem set is two weeks later, well sure, they will take a look at it. But in two weeks a lot has happened. And maybe it's not the same as if that was kind of an iteration, an iterative process.

Well online, we're able to do that quite effectively to say, there's a problem of the same quality of a problem set. This is your answer. The answer is incorrect. And now you can go back and go back to the point in the lecture in which that professor was actually explaining it, which in the real lecture class it's impossible to do. Right?

You can go back and say, OK, did I understand that right? Yeah, I understand that right. So how can it be wrong? Then there's additional resources in which I can actually find it. Or I can try something else or I can actually go to a forum and ask it. Or finally go to the TA or the professor and say, I really don't get this. There's immediate feedback loop we know it's a high factor in how the learning occurs.

However, on the other side we also know that this is about learning not about the accomplishment of putting a project together. Right? So if we could kind of put these two things together, that will be a bold experiment.

So one that I think, maybe bold is not the right description, but we wanted to experiment with was last summer we wanted to screen so we put together a classroom on entrepreneurship. Bill Aulet, the director of the Entrepreneurship Center, was the instructor of the class. And something like 60,000 people signed up globally.

Of those, I'd say 8,000 or so finished the course with kind of good grades, et cetera. And then we said for this summer, last summer, we want to run an experiment and bring 50 of you to what we called an entrepreneurship boot camp at MIT.

So we were starting to mix these two things. Right? The first thing we've done is you've done the class. You have learned the class. You have a good grade in the class. And now we'll have an application process, if your will, for which of the 8,000 about 800 decided to apply for 50 seats. We had five seats that were free for individuals who could not come. But we actually asked people to pay for that week on campus.

And those 50 individuals came here. They came from everywhere in the world, highly diverse backgrounds. They were able to within a week do things that no one had imagined they could. And to this day, they are sending in us emails about their progress. And every single one of them has formed a start up in the country they came from.

So we were able to demonstrate high impact on individuals by filtering up, if you will, like it's about the accomplishment. Now you've accomplished this class. And now we're pairing you with the best that the residential experience can offer, highly concentrated intense experience. And we're able to change people's lives arguably.

That's not a degree. It's not the same of kind of an MIT residential experience, but it is something. And it's something that I think is starting to tick in the world as highly valuable. So that's the kind of bold experimentation.

There's a ton of ideas in that report about educational experimentation and the curriculum for MIT. How to do things perhaps differently. How to start perhaps with like a cohort of freshmen who would have a different educational experience. MIT has some of those communities already, those cohorts like Terrascope or ESG, the Experimental Study Group. The Experimental Study Group I think has celebrated its 40th or 50th year anniversary. And it's still an Experimental Study Group.

But I think it's important for us to try and learn and see what works best for the kinds of outcomes that we want to see.

INTERVIEWER: Yeah, it's inspiring. Tell me about the sustainability efforts you've been involved in.

RUIZ: Yeah. So this is another one in which individually as an individual I really worry about the environment. And I worry what's going to happen, not to us, but to the generations of our children and grandchildren. And how our activities, post-Industrial Revolution, are affecting the climate and our environment. And what I realized when I kind of took this position was that the traditional thinking is well you kind of do projects on three metrics, cost, time, and scope. And sustainability is kind of an afterthought in most project management theories.

And I wanted to have a stronger voice. In many ways, it's a stronger voice that MIT put together when it created an environmental health and safety system in the early 2000s. And today, I think it's become a gold standard of lab safety and how we as a community treat dangerous operations. So I wanted to instill a voice for sustainability and environmental kind of rigor that could compete at the same level with the cost and the scope and the time.

And in 2011, I think, just kind of one of my first decisions was to form the Office of Sustainability. And I was able to recruit an amazing individual, Julie Newman, as the director of that office. Long tradition in the field. Highly regarded in the field.

And what I kind of challenged her to do was I don't want you to do another one of the ones you've done. Don't recreate another office. I know you can do that. That's not what we need.

What we need is the next generation that can insert itself in the fabric of who we are, that we educate our students in that way, that we use our campus facilities as testbeds for the next technologies. Because in my mind and in a very kind of humbling way, but what I feel is that the cleanest goals that one can imagine can only be achieved today by new technologies that have not been invented. Realistically speaking, there's got to be a transition strategy to a kind of a carbon free emissions world.

Today, we cannot operate even this campus on a carbon free basis. We cannot buy enough wind or solar. Just practically speaking, we cannot buy it from outside contractors. We cannot have even our roofs don't have the potential to do it. So we still need kind of carbon based fuels. We're using natural gas and cogeneration, probably the best one, but that still emits.

So what we need is to be able to as a community invent the kinds of techniques and technologies. And we can definitely use our campus as the platform to scale them up and demonstrate. So I kind of asked Julie, can you lead us there? Right? Can you help us lead us there?

And that I think in time has become quite interesting. Right? Because we got into the climate conversation discussion last year. Maria Zuber has picked that up very clearly with Professor Stocker. And I think we are at a moment in which MIT can be, again, not to overuse the word, but bold in its aspirations of how to get there. And how to lead others by really transforming technologies that in today's efficiency ratios are not working. But we can probably make them work for the future.

INTERVIEWER: Great. Yeah. Yeah, it sounds like MIT could have a very special role in this realm, I would imagine.

RUIZ: I certainly think so. I mean, MIT, you may have heard this before, but I think MIT as MIT has a very strong convening power. And I think what we do here somewhat gets amplified by that.

On one end, we want to be very respectful of that and use it when it's needed. But on the other hand, I think in this case we can really use it for the good of all of us.

INTERVIEWER: Another area that falls under your umbrella, as it were, is campus security. And I think one of the more tangible ways we all see this is when there is an issue that arises. We get an e-mail letter sometimes from you explaining what's happened and what steps are being taken to address it. But of course, a few years ago, we had the marathon bombing and the tragic death of officer Sean Collier here on the campus.

And I'm wondering how that experience, which is still very much with us today, and the aftermath of those experiences, how those affected the community? And how MIT might have changed? Or did it change as a result?

RUIZ: Yeah, I mean, you're really talking about probably the darkest moments of me and probably most of us in the community during that time. It's an incomprehensible act in many ways. And one that should have never touched our community. And had an impossible price in the tragic death of Sean Collier.

But I think when I reflect back and I told you when I started and kind of the accident in many ways because I've been deeply reflecting together with Chief of Police John DiFava and others and all the police officers and the community at large. So I told you I kind of by accident ended up here like 9/11. And I said 9/11 really changed the world forever. And in many ways, I think that's very much true.

MIT is a place that is somewhat unique in the world. When you think about the freedoms we represent, the open campus, the urban campus, the kinds of intellectual discourse that goes on, the kind of freedom of speech we want to protect. But also these spaces to keep it open. To keep anyone from walking in and being able to talk to Paul Samuelson like myself, not being able to be carded in.

And we value that because we believe I think deeply that the quality of these human interactions in a highly intellectual community creates the kind of place we are. You can argue with that. But I think that's a deeply held belief in our community. And certainly, I do have that belief.

So after the tragedy and after, and it had many phases, right, so from just accounting for everyone in the community after the marathon bombings and making sure that everyone was here, we knew we had runners. We knew we had people volunteering. Just making sure that everyone was safe all the way to the actual tragic night of April 18, 2013. It was about maintaining a sense of community and maintaining a sense of being here for each other.

When it really hit us on our campus, the first part was really about ensuring the safety. Within minutes anywhere from the emergency communications to just activating the operational response to making sure that well at the time we didn't know anything that our community was safe close by. And then in the days that ensued, the manhunt. That was all about the whole thing. Right? The intensity of those days is hard to describe with words.

And I think only those of us who were together living it are able to somewhat share that experience. Many ways, it's like what I think soldiers experience in combat. Right? That close knit reaction and community and high sense of protecting our larger community was an unbelievable experience. One that I hope we never had to live, but in fact we did.

Once you move from that, for me it became an effort of maintaining what we had been declaring as these values. Right? So very quickly we could have shifted to be like a turtle. Right? Let's go back into the shell. Let's close down the campus. Let's make sure that everyone that walks in here is not the next killer.

And that was in some aspects some folks around campus were asking for better protection and better security in that regard. And I think that was something that we had to kind of work and talk through because we didn't want that to be the impact of that tragedy.

And the second aspect was one about making sure that we were able to heal together as a community. And a big aspect of that was the creation when I asked. So the reaction and the outpouring of support was tremendous. Certainly from Cambridge Police Department and the entire city of Cambridge from every member of our community and from the neighboring communities.

And what became very clear is that people wanted to do something. And they all had all sorts of ideas to recognize the sacrifice of Officer Sean Collier. So I asked Chief DiFava and at the time associate provost Marty Schmidt to kind of co-chair a group. To imagine what that could be. And to take in all of these suggestions that were coming from everywhere in the community and kind of say, what should we do? And what should we do to really be able to heal together?

And out of that became the Collier Memorial, which in and of itself I think once you just drive by or stop by is an amazing piece of architecture done by Professor Meejin Yoon and assisted by Professor John Ochsendorf and the entire team that worked in it through the kind of year leading to the kind of opening was an amazing process of how MIT, again, comes together to recognize one of its own in the best and most gracious way.

And for us, I think, and certainly for me, to forever remember that we need to uphold those values. That above all, I think, the best thing we can do to honor Sean's death is that we can go back and look back and say, well, MIT is not only the same open and space of intellectual discourse, but it's even better. We haven't closed down. But yeah, I mean, those days were difficult.

INTERVIEWER: Yeah. Still are. Still are. Looking forward, you're very involved in the MIT 2030 Initiative I was wondering if you could talk a little bit about that. And what that means for MIT and Cambridge as well.

RUIZ: Yeah, well, I think this MIT 2030 is a nice framework for thinking about the long-term physical infrastructure of MIT. And as I said, I think in many ways up until 2000 MIT didn't have really the resources to undertake the kinds of physical infrastructure that I believe should be on par with intellectual thinking that was going on forever at MIT.

So in 2000, that changed. And for the first time there were resources to be deployed for that. And I think the first wave of physical kind of investment came in the form of buildings like today were recognized like the Stata building or Brain and Cognitive Sciences Complex, highly transformative disciplines embodied in, again, pretty unique architectures.

Most of them were about creating new additional space. I mentioned that in the 2000s MIT grew something like 30% of its campus base. So we needed breathing space. We needed new spaces. We needed to bring together certain disciplines to be able to generate more knowledge.

So once you look back at I would say the first decade 2000 to 2010, about 90% of that space was added and about 10% of the investment was in renewal. The 2030 framework I think when we kind of inherited it, and this was done, again, about the same time of the financial crisis, '08, '09. I'd say it's a framework that, first and foremost, recognizes the diversity of the physical infrastructure and the structures of the campus and how different in time and needs they are.

So we have 100-year-old structures. We have 40 year structure. We have 50 year structures. And we have spaces in which they were envisioned for certain things. And today they are wet labs and clean rooms.

So how we reposition those spaces and how we are very intentionally using the resources that today we have in kind of reforming, reshaping, and reconfiguring those spaces without necessarily adding but improving the quality of the space was a highly important priority for MIT I feel. Again, to match the ability of our intellectual professionals, faculty, et cetera, to really be able to be in spaces that were adequate.

So 2030 in many ways is the aspiration that when we get there, we will have an entire campus that feels new, that feels adequate for the kinds of mission undertakings that MIT is doing today. That we don't have 100-year-old structures that are not maintained. That we have that wave of buildings that is not only new, highly maintained, but it's highly adequate for the disciplines and the new disciplines that we will be creating. So we're on track for that.

And again, if you look around the campus today, you just quoted a date in which we're having this interview you will see a minimum of 20-25 cranes going on and a lot of activity repairing anywhere from the envelope of the building to the interior of a laboratory and making sure that those things happen while this place continues to hum at a really high speed.

In all of this, one key feature is the building at the center of the campus, really close by where we're having this interview the MIT nano, which is a centerpiece of what we feel will be the next kind of shared laboratory experience that will unleash a lot of creativity and innovation from our faculty and students.

INTERVIEWER: Yeah. That's an extraordinary facility and in the plans and things that are out there. How do you foresee that being used? And what does it represent in terms of MIT's kind of picture of the future for research?

RUIZ: Well, I think there's a couple of things. One is a connection back to your comment on sustainability. Right? So this is the first facility in which the Office of Sustainability kind of became involved. Right?

And this was a building that was thought out, again, in the traditional sense. But because we were able to catch it so we're now on track for building this facility and being the first LEED gold facility of its kind, a clean room facility, which is a highly energy intensive use, in terms of air circulation and cleanliness and everything that needs to happen. So we're very proud of that design. We're very proud of where we're aspiring to achieve with this LEED gold certification in terms of sustainability.

And how all of these parts of the MIT 2030 framework kind of come together. So it's not just about building it and saving money today, but it's really building it right and saving the future for MIT.

Then what will go on and how it's happened I think the professor leading it, Vladimir Bulovic, has been able to reach out to everybody. And I think the reason we all put the focus and emphasis on this facility was because the scientists and engineers and everyone else were identifying nanotechnology and the capabilities that nanotechnology bring to every single discipline from understanding the brain to curing cancer to building prototypes and microfluidic devices, cheap manufacturing, you name it.

So we see these as the center core piece of many, many, many disciplines that will enable individuals. So that's what we're calling kind of a service center. And we envision this as not offices, not labs, but just this core that will serve 24/7 our research community.

So that's very much the way it's been envisioned. So it will have a basement. And the reason it's located right here at the center of the campus right behind the dome in kind of what the construction manager would always tell you don't build it here it's because it's the quietest space in terms of vibrations and electromagnetic interference from the train from the Red Line from the cars. This is the most remote space we have.

It also happens to be at the intersection of key main group buildings that because of our beliefs of these human interactions and spontaneous human interactions, we believe that by putting a service center that serves so many in the community will be a helpful place. It's the water bottle kind of discussion or coffee cup discussion. We believe it will happen at the center of this facility.

So we're building it here with the basement being the digital lab for tools and visualization that will happen. And then the above ground floors will be the two clean rooms plus some prep work at the top. And the undergraduate teaching lab with chemistry department right at the top. So all is all, it's an amazing feat of engineering, both in design and the construction needed to make it happen in this kind of really tight space. But once it's done, and the expected date was 2018, will be highly transformative to our research community.

INTERVIEWER: You know, it's interesting you mention its location and how it connects to the main group. And I'm curious what your thoughts are about the main group buildings, which are just about 100 years old, as you mentioned. The output of those building and buildings that are related, of course, more recent buildings, is just phenomenal. And I think there is some story about, I don't know how true it is, but you know the main group having spawned more Nobel prizes than any other building or something like that.

I mean, do you have thoughts about what it is that made those buildings and then the rest of the campus so incredibly fertile, I guess is the word?

RUIZ: Yeah. I'm not sure there's been a study that can definitively tell you the reasons. But I think there are, again, certainly beliefs that are somewhat shared by many. Right? And I think that the reality of these buildings is iconic nature. At the scale they were built in 1916, they were huge. Right?

They were built with heights that at that time to me seemed a little difficult to comprehend. But they were built in a way that has maintained its flexible uses for 100 years. And has been able to really adapt to in the ways technology and scientific disciplines have evolved.

So in many ways the envelope that they provided, and the core that they provided was so well built and with the right dimensions to accommodate pretty much anything that was thrown at them. So in terms of the mastery of Bosworth's architecture, I think that's one of the one's pieces that you can pinpoint.

The highly interconnected nature of it is something that if you visit the campus in the summer you may not realize how important it is in the winter. But I do believe that that's another big factor of how you are able to basically walk from anywhere to anywhere inside and be able to flow into different corners and different spaces. And again, have these collisions of human interaction that precipitate collaborations that otherwise probably would not be able to happen before.

So if you had a separate building for each discipline, it would be a lot harder in the winter to come up for a cup of coffee. And you see those things happening pretty much every day today. So I think those buildings were built with that in mind. And the belief that the density of intellectual interactions was important to scientific discovery and innovation.

And I think the execution was just magnificent. The fact that these buildings have been able to stay the way they are even with very, very few capital deployed for their maintenance it's really amazing.

INTERVIEWER: Yeah. And as part of plans that you're working on they're getting--

RUIZ: Correct. I mean, as you know, we have one as part of MIT 2030, the first kind of big transformation of the main group buildings was the so-called building two, the home of the math department and chemistry department completely fully renovated.

So one of the things we did was just let's try to test how a top to bottom renovation of a main group building would look like. And what would we encounter. And the reality is we encountered a lot of things. Right? And it's not a cheap renovation. But it's one that hopefully it will last another 100 years with the right maintenance.

And certainly, it makes a much more appealing home for chemistry today and for the math today.

INTERVIEWER: Right. One of the other huge projects you're involved in, of course, is the Kendall Square Initiative. And I'm wondering if you could sort of tell me about those plans and what the goals are. And how the future of that area, that part of campus and Cambridge, is envisioned at this point.

RUIZ: Yeah. Well, I think with we've had a nice chat about what the online opportunity is bringing to MIT. And I think that it would be mostly in the realm of education.

When you think about the next thing of what MIT does and does so well, the research component, and more importantly, how the research gets translated into impact to the world, is where I think Kendall and the execution of the Kendall Project become so relevant and important.

So the goals of Kendall are quite high. Right? So one goal is to really create a very vibrant kind of what we call a gateway or entrance on the eastern side of the campus so that, again anecdotally, when any visitor or anyone comes to MIT and comes out of the T Kendall stop they're going to ask again, where is MIT? And I think that's it's not so nice story, but it is a pretty relevant and true story.

So we want to create a way of drawing people in and understanding that that is the campus of MIT. That's an open campus that everyone is welcome. But that you are kind of going and flowing into all of that campus.

We also want to create a 24/7 environment for kind of what some of the folks refer as work, live, play. And that's the reality. We want to have, and we came out with a project in which we have a tower of graduate student residences that will add something like maybe 300 beds to the capacity of what we have there in Eastgate.

We want to have the working ability by having space that could be MIT space, but it could also be rented to certain types of companies, anywhere from startups to medium size to big size. And what we want to make sure is that the range of activities that goes on in Kendall, and that goes in the properties that are MIT owned, but also beyond MIT, how the Kendall unfolds itself is a portfolio of companies, actors, agents, you name it, that overlap and work collaboratively with the MIT mission.

So that when laboratories at MIT are coming up with great ideas, then you have students or post-docs or other individuals at MIT who have the ability to maybe go in there and start with an idea. And maybe we have a venture capital firm that's right there that wants to chip in. And they can grow maybe in space really close by. And then when they grow, they mature, and go somewhere else.

But we also want to have strong research collaborations with big firms and big name firms that support our kind of advancing new frontiers of knowledge with the research contracts that they take some of our graduate students and some of our post-docs and undergraduates into jobs and internships and you name it. And that there's a bidirectional flow of intellectual ideas and thoughts that, again, goes beyond we talked about the impact of the main group in let's say the 20th century.

So we believe that Kendall should be the new influence, expanded influence into a domain that it's not just about professors and researchers, but it is about technologists and company owners and startup owners that can really accelerate how innovations come to market. That's the belief. That's I think where we're trying to go. That's where the Kendall project embodies.

At the same time that, at the ground level where you and I will be walking around presents a very lively inviting set of retail, coffee shops, the MIT Museum that we're going to move right there, a public space that's active, that you can come here for maybe a movie night, but also for like an innovation night in which you have them meet startup entrepreneurs. Or maybe our theater group puts up a play. And that MIT has the ability to program that space as a lively part of our campus.

So all in all, this project will take something like, once we get the permit, probably in the next few months, hopefully we'll get the permit, and in seven to ten years we hope to unfold all of this.

INTERVIEWER: All right. It's a huge project. And I'm sort of wondering if it's something that draws on your sort of engineering background in some sense?

RUIZ: Well, I've always said that it's funny how I think being an engineer kind of deeply inside helps me in my work day to day. Because at the end of the day, I think we are a community of engineers. I don't want the scientists to get insulted by what I'm saying but even them, they are problem solvers and take complexity and try to reduce it to something that works. So I think being an engineer helps organize those thoughts and an arm a project to help that.

By far, I think Kendall is one of the most complex projects with the number of stakeholders and interests represented, anywhere from the neighborhoods and how the neighborhoods interact with the open campus of MIT and its relationship with the Charles River, to the transportation node of the Red Line and the buses and how it communicates east, west, and north, south. And then, of course, how it really supports the MIT mission in just housing student or housing other folks. But also really interacting with certain companies.

So I think that complexity and the uncertainty and just getting those things done, yes, it does help to be an engineer. But I will not take credit by myself. This is a huge team effort-- the Provost Marty Schmidt, the folks in real estate development, Steve Marsh, and others have spent enormous amount of time in making sure that this becomes a reality and it is possible for becoming a reality.

And it will take a lot of, what I describe in many ways as a curation exercise of how this unfolds. Right? We believe that by MIT being on the lead of how this development takes place, we have the best chance of making it happen in the way that helps the mission of MIT the best way. And I think that's what we're trying to do.

INTERVIEWER: And what's the role or the interaction with the city of Cambridge been with this? Because you mentioned many stakeholders in there, obviously, a very important one.

RUIZ: Absolutely. So in the first few years, the first interactions with the city and the neighborhoods, but it was about getting the rezoning of the parcel so that we could maintain. The whole project is based on the thesis that MIT could maintain its academic expansion needs and current entitlements, which we did, for the region of Kendall Square for the so-called PUD district.

But at the same time, being able to make a claim that by increasing the density and being able to build more on that transit oriented node we were able to really bring not only benefits to MIT, of course, but benefits to the city in terms of additional tax revenue, in terms of additional enlivenment opportunities, and opening up these public spaces, which today are six parking lots.

So I think the city has been a terrific partner in understanding and working with us in shaping it to be a better project. As you know, Kendall has had several iterations. The first one being kind of discussed and lots of feedback on it. And then we were able to incorporate feedback from our community, from the city to come up with a better outcome than the next one.

And I think now we're feeling that the planning board and the city of Cambridge, the city councillors, are all behind the ability to really bring more housing, not only on the part that I've been describing, which is the south of Main, but also north of Main and its connection to Third Street, we're bringing residential housing and additional units of residential housing, which I think for the city is one of the main goals. Right? Creating enough housing capacity in an area in which we believe it's the most efficient one, given it's transportation right there.

The city is now trying to help the project move forward. We will have to go through the permit applications this fall just to be able to have the final entitlements. But I think it was a helpful community-wide discussion, not an easy one. It took three years. But I think that led to that 2013 year in which we got the rezoning approved.

INTERVIEWER: Right. You mentioned early in our discussion sort of several spurts in which the campus has been built. And clearly this is the latest one.

RUIZ: This is the latest one.

INTERVIEWER: Yeah. How does it compare to the one that we're thinking back to 100 years ago do you think?

RUIZ: Well I mean it's much smaller in scale. I mean, I think without comparison the 1916 build was a singularity. Right? And it created the place.

And I think that's part of what happens when you need to create a place that doesn't exist. Right? Landfill kind of the novel, only a couple of landmark buildings were in existence on this side of the river. So I think that was a huge undertaking.

And in many ways, talk about boldness, right, that was a bold move that MIT took. Kendall is in no means anything by comparison. Right? We're talking about 1.2 million square feet of development. That's not in today's side of the campus that's not even 10% of it.

So I think it's relevant. It's more about the relevance of how we're going to use that space and the complexity of all these many stakeholders we discussed and how everyone has I think similar goals, but different interpretations and manifestations of how those goals should really be realized, that I think that's the somewhat the challenging and at the same time the opportunity for MIT to really put a big stake on that.

But I think in terms of development, in orders of magnitude, that's not comparable.

INTERVIEWER: Great. Yeah. As we approach 2016, and MIT's marking 100 years in Cambridge, MIT is such a forward looking place. It seems like there isn't often the opportunity maybe to look backwards. But as we do that, what to you is sort of the significance of that anniversary?

RUIZ: Well, in many ways we were starting to kind of comment on it. But I think the significance is it's difficult to put in perspective the boldness of that bet. Right? To just move from, at the time where MIT was in Boston with a fairly circumscribed physical infrastructure but with a very, very big aspirations and a big vision and the move to Cambridge and the scale of that move and how it got funded and how it got enabled. Sometimes people say, well, we're making big bets with digital and we're making big bets with Kendall or this or that. And when you put all of that in context, you'll realize that without that big bet none of us would be here. Right?

And really, MIT's dreams and aspirations would have not been realized. And I think to kind of put this somewhat backward looking reflection into context, as we think forward, I think you realize how important it is to keep this place thinking that it can bet big. And it can bet big with the right partners and support. And that could be philanthropic support, or it could be city support, or it could be government support. It could be international support. But with the mindset that moonshots exist. And the mindset that impossible is really, truly nearly nothing.

So I think that to me the move to Cambridge represents that big step and how that unleashed the kind of Massachusetts Institute of Technology that we are really privileged to be stewarding today. So I think in many ways that to me sets the tone for the kind of institution we are. And from the architecture to the finances to the scale of the move to everything.

And it's hard to imagine today making a big bet like that at the scale that it represented at the time. And certainly, I think we have certain, I mean, we have big ideas going on every day. But I think that that one was clearly an inflection point in the history of this institution.

INTERVIEWER: Yeah. Yeah. It's interesting to put it into context that way. If you look 100 years from now, and perhaps people will be reflecting back on this period that we're now entering, how do you think MIT will change? Or what do you sort of hope they will say about this period?

RUIZ: Well that's a hard one. Right? But 100 years from now probably we will not be here to be blamed. So my sense is let me put it in a different way perhaps. Is like I would be most proud if 100 years from now folks who were interviewed here were saying things like those folks were able to build the right constellation of activities and assets around the intellectual MIT mission that enabled the mission of education and research to thrive beyond any other realm of possibility. And things like that would be well, educating not only here, but educating beyond the campus.

And things like that would be well by bringing the types of companies and technologies and funders around the campus and closer to campus, I am hopeful that we can accelerate building the right networks of connection between professors and students and researchers and those folks who are meeting the needs today. That will shorten the innovation cycles and hopefully eliminate certain diseases or invent a new path. And without building the kind of the Kendall innovation ecosystem that would have not happened.

So I hope that that reflection in 100 years. In fact, I hope that reflection happens sooner than 100 years. Is something that we can claim. Right? That we can claim that we have built the right environment, not only for individuals to thrive, but for communities and collective missions and purposes to thrive.

INTERVIEWER: You know you mentioned this innovation ecosystem. What does it take to create that or foster it? It's here, of course, already, but we want to build it and grow it. What are the ingredients? What does it take?

RUIZ: Well, I think at the core what you need to have an innovation or a highly functioning ecosystem you need talent. Right? And I think at the core what MIT's always been about is about talented individuals who kind of get together and they form communities that are successful. So how you grow those individuals.

And I think that is highly defined by the density of how many you have and by the diversity of those individuals and those talents. So if you were this huge space in which you have a distribution of talent, then you're somewhat not maximizing these interactions and opportunities for sparks to fly.

So I think it's all about creating the right density and trying to create more dense environments and more diverse environments, but maintaining this high quality talent screen. This seems simple, but the actual execution of it, and I think in many ways to me MIT is just an evolution in time of these principles, that you can start really small, in fact MIT started really small, but once you start deploying these principles constantly you have a chance at becoming MIT.

And what we're doing with all of the kinds of initiatives we've been discussing today I think is trying to amplify the opportunity for this tremendous core that MIT represents in terms of talent. Amplify its impact by being able to interconnect them better, by densifying it, by creating more diversity of interactions. And then all in all, bring the ingenuity of this community to the world in terms of innovations.

INTERVIEWER: Right. Great. I feel like we're just scratching the surface of all the things one could talk about. But I think one thing that occurs to me is, what do you see as sort of the greatest challenges that MIT faces going forward?

RUIZ: Well I think there are some challenges, despite a lot of what we see. And I think a lot of what we focus on just pursuing the big opportunities we have. And I think that's where we do our best work.

I mean, just not to go back to like '07, '08, but I think the evolution of MIT's modeling, which is now highly reliant on the performance of its own assets and the generosity of our friends and alumni and community, is becoming more vulnerable to the volatility that's not caused by any MIT intrinsic force. But it's call of an externality.

And I think in terms of the mission, in terms of my role and certainly the role of many at MIT is about protecting and trying to insulate this mission of MIT that requires stability to get to this exponential innovation curves. Try to insulate this from the realities of the world. And how MIT is being funded. So I think that's kind of a challenge to the core of MIT.

Bigger challenges I think are more about missed opportunities. Right? So what's the challenge of being able to not educate the right workforce, the right students? One of the points that I think are quite relevant in terms of statistics for I think the last five decades, MIT's been admitted the same number of undergraduate students every year. And clearly the population's not the same.

And in terms of percentage, it's made MIT a lot more selective. But should that be? Should MIT stayed at this size? I think the question of size and scope and relevance of its disciplines is one that we should constantly be monitoring.

And it's great to have, and in fact, today we're kind of somewhat constrained by the capacity of the physical space and the capacity of our human kind of faculty numbers. But should we do that? There's no right or wrong answer. But it's one that I think in terms of that one challenge we need to think about is, is the size of MIT the one that we should have?

And I think in terms of, finally, the world presents ourselves with lots of challenge as well. And I think MIT will only become as successful and more successful if it is able to maintain these values that we all share. And in many ways, bringing the diversity of talent here and being able to access this diversity of talent elsewhere. And that free flow of information, travel, open communities, et cetera it feels it's threatened every day.

And we want to make sure that I think that does not challenge our future, but rather enable our future. Right? So we should be aspiring to have that as the future of MIT.

INTERVIEWER: Great. Well it's been a pleasure speaking with you. And thank you very much for your time and for talking with us.

RUIZ: You're very welcome. I enjoyed this so much. Thank you.