

## IILUminate Blog Transcript: Paul Brockman on Why Research is Important to Universities

Recorded May 13, 2025. Listen to it here.

ANNOUNCER: 00:07	[music] This podcast is brought to you by ilLUminate, the Lehigh Business blog. To learn more, please visit us at business.lehigh.edu/news.
STEPHANIE VETO: 00:19	Welcome to ilLUminate, the podcast for Lehigh University's College of Business. I'm your host, Stephanie Veto. In this episode, we're talking with Dr. Paul Brockman about the importance of research at academic institutions. Dr. Brockman is the senior associate dean for Faculty and Research and holds the Joseph R. Perella and Amy M. Perella Chair. His research focuses primarily on corporate decision-making. Hi, Paul. Welcome to the show.
PAUL BROCKMAN: 00:45	Hello, Stephanie. Thanks for inviting me.
VETO: 00:48	So, one, when I was looking at your CV while researching you for this episode, I was blown away by the amount of research you've done. So how did you get into research, and more importantly, do you ever sleep?
BROCKMAN: 01:06	Oh, yes, I do sleep. And of course, we'll talk about this later, but there's a big difference between quantity and quality of research. So what you've observed is the quantity and hopefully the quality also is at a good level. In terms of what got me interested in research, it's a strange story, perhaps. There are really two experiences that led me into this line of career choice. First, I had been working in corporate finance and accounting for a number of years back in the early 1980s. And I got a chance to work on the trading desk of a commodities brokerage firm. We, the company I worked for at the time, mostly traded futures and options contracts, along with some spot commodities like gold and silver and platinum. This was kind of the heyday of when precious metals were booming. We had the Hunt brothers who were cornering the silver market at the time. So silver markets, the silver prices were being driven up. It's also a time of high inflation. So people were using precious metals to hedge. Anyway, the traders, we used to get our market updates through the Reuters trading screens every morning before we started trading. We also used to read both in-house and externally produced research reports. And I really liked the analytical aspects of those reports. I used to talk to our in-house analyst about what he did on a day-to-day basis and found it very intriguing. So that was the first kind of indication I was interested in research.
BROCKMAN: 02:43	The second opened up a different window for me. I had been taking classes in the evening and on the weekends to get my MBA and also to fulfill the requirements to sit for the CPA exam. I was having a coffee in the evening before classes started in a very crowded cafeteria. And a older professor came and sat next to me and we started talking. He was an accounting professor who had been brought out of retirement to teach a couple of evening classes. And I have to say, even though I had been taking college classes on and off for five or six years by that time, I really didn't know what college professors did other than, at least in my mind, torment students and provide us with grades. Anyway, he had mentioned that he had been brought back into teaching because there was a shortage of PhDs in several of the business disciplines,



	particularly in accounting and finance. At the time, I had no idea that people actually did PhDs in accounting or finance. I don't come from a family where I was actually first generation to get a degree. So certainly no one had a master's or PhD. Wasn't quite sure what they did. But that kind of intrigued me that there was a big, maybe not deficit, but at least demand for accounting and finance PhDs. And around that same time, I had seen a Wall Street Journal article on the front page, I still remember it to this day, saying that there was a shortage of finance PhDs and that many universities were scrambling to try to recruit the faculty members. So anyway, I kind of combined this intrinsic interest in the analytical aspects of research from my job and then also learning about the high demand for PhDs from this retired professor. And that got me interested in thinking about doing a PhD and pursuing research.
VETO: 04:43	I love that. And hearing your story, it really makes you think, from the outside, you think research is sciences and anything like that. But then you think about business and where you got your start working in precious golds and silvers and things like that, there's so many avenues that you can do. Business is such a broad topic and there's so many little specific areas that you can really, really focus on. So I can see how you kind of catch that bug or just trying to track things down and figure it out and dive deep into your research. So I can really get a sense of why it was intriguing to you to start.
BROCKMAN: 05:28	Yeah, that's exactly the case. And even to this day, if I watch the opening session in Asia on CNBC, I still feel the same sense of almost wonder just on how that all fits together and what kind of decisions are being made by allocating scarce resources and fixing prices. And to me, it's still as stimulating today as it was 40 years ago.
VETO: 05:59	Awesome. So why is it important that universities conduct research?
BROCKMAN: 06:06	Okay, that's a very good question. And to me, there's a couple of aspects that go into this question. First of all, I want to be very clear what I mean by research. I think back to the third grade when we would do what we call research projects that typically meant, at the time, reading through encyclopedia articles, through magazines, through books, and then summarizing what we read, and then maybe expressing a personal opinion as part of the conclusion to a paper. So that's what we meant in general, at least at that time, what I had in my mind about what research entailed. From a university perspective, and I didn't really learn this until I started the PhD program, the form is similar to what I just described since grade school and high school, but the content is very, very different. When research professors talk about research or PhDs in general, what we're referring to is fundamental original research. For this type of research, the main criterion, which is a big hurdle, is that this type of research has to add new knowledge to whatever the academic discipline is that you're researching in. So research that has to make a significant contribution to your field of study. It has to be new. So much of the time in a PhD program is spent acquiring and learning the current body of knowledge. You can't add to that body unless you know what that body is. And this is then tested through very torturous field exams and comprehensive exams. And the job of the PhD student is first to master that current body of knowledge and then to produce new original research typically in your dissertation that will expand the frontiers of knowledge. That's really what your job is as a researcher to expand those frontiers of knowledge. So the fundamental or original research, that produces new knowledge.



BROCKMAN: 08:16 And so not to go on and on, but why is knowledge important? Well, it should be pretty self-explanatory, but at least from my point of view, in a nutshell, knowledge, and particularly scientific knowledge, this is what's really created the modern world. We've been the same species for roughly 300,000 years. That number's always under revision. But we've had essentially the same body types, the same mental capacities for a long time. So I think about, well, what explains the differences between the human condition, say 300,000 years ago, 30,000 years ago, 3,000 years ago, 300 years ago, versus 30 years ago versus even in today's world, with high tech, 3 years ago. And that's really the rapid advance in technology, the accumulation of knowledge. This to me is the fundamental feature between how our ancestors lived and how we live. And this move from kind of way back hunter-gathering to an agricultural revolution certainly required a particular increase in knowledge. And then the move from agriculture to the Industrial Revolution certainly required an even larger increase in knowledge, which not coincidentally followed the scientific revolution in the 1500s to maybe 1700s. That said, the current information technological revolution of things like quantum computing and artificial intelligence, this is going to require a much higher level of systematic institutional research. And this is really the type of research we do at universities. So much of our production and accumulation of knowledge that's producing this cumulative body of knowledge occurs in universities. It includes breakthroughs in medical research, computer science, material science, etc.

**BROCKMAN: 10:22** So I'd say from the perspective of human society, it'd be really impossible to overstate the importance of knowledge-producing research. From an individual university's perspective, let's say Lehigh, besides contributing to that increase in knowledge, the importance of research comes down to some pragmatic, some practical issues, such as it determines, to a large extent, the university status. So the global rankings, for instance, in the U.S. News & World Report, as well as the QS World University Rankings, if you take a look at them, all of the top-tier universities in the world are research universities, Harvard, Yale, Princeton, MIT, Caltech, Stanford, Oxford, Cambridge, in Asia, Tsinghua University, National University of Singapore, etc., these are all research schools. You really can't hit that target unless you're producing fundamental research. And we have what we call the Carnegie Classification of Institutions of Higher Education. Lehigh just this year moved from R1. So of the top two, I think there are maybe six different categories, but certainly the top two are called R1 and R2. We were in R2 up until this current year. R2 is considered high research activity. The R1 schools are about 140 to 150 of them, they're classified as very high research activity. So this is really what we're playing for on a pragmatic point of view. This is what gives us our status, our stature within the academic community.

BROCKMAN: 12:10 And one last thing I'll mention is, one way to look at it combining research and business is that we're really in the knowledge business. And I always think of it as three different components. There's discovery and then distillation and then dissemination. At the discovery, this is the high end, the high intellectual end, this is really where you create, you produce, you invent new knowledge. And this mostly gets published in the academic journals. The next level is distillation. There are textbook authors that take those academic journals. They distill that information down into more bite-sized, readable vignettes, put them into book chapters. And that's an important process, distilling all of those scientific discoveries. And then the



third category, what I call dissemination, is really the teaching part of what we do at the university. So this is more along the lines of pedagogy and just how do you effectively teach the next generation of students. That is, from my perspective, why research and knowledge are really key human activities.

VETO: 13:27 So say I'm a parent wanting to send my child to a university and I'm like, I don't care about your research. I want you to teach my kid new things. Why should an outsider be attracted to an R1 institution for just any student looking to go into a liberal arts institution?

BROCKMAN: 13:51 Well, I'd say a few things along those lines. I think students benefit from what I'll call the intellectual rigor of being trained in a research environment. This type of environment is the absolute cutting edge. There is nothing beyond an academic research institution in terms of knowledge production and knowledge accumulation. So you'd be taught by faculty who are at the cutting edge of knowledge in whatever field you're interested in. Our research faculty just here at Lehigh have been often quoted and recently quoted in The Wall Street Journal, The New York Times, Washington Post, Fortune Magazine, on CNBC, on CNN, etc. So your son or daughter would get exposure to that level of research. Also, we have faculty here who their research has been used in congressional testimony. We have faculty whose research papers have been used to write new regulations for securities markets, also used for the Financial Accounting Standards Board in terms of setting new accounting standards. So at the highest level of what's going on in the world, I'd say at the world scientifically, but more to the college of business in the business and economics world, also health policy, we have economists here in health policy whose work has been cited in congressional testimony when determining health policy.

BROCKMAN: 15:34 One other example I just mentioned, about three weeks ago, I was watching on CNN, Fareed Zakaria's Global Public Square, originally an international relations major. So this is always of interest to me on Sunday mornings. And Fareed started off with a debate among several well-known economists, including Larry Summers. Larry is a former president of Harvard. He's an economist, potentially a Nobel Prize winner at some point. Certainly the former Secretary of the Treasury. And before he introduced these individuals to have a debate on trade policy, he brought up on the screen a recent article in the Journal of Financial and Quantitative Analysis. This is one of our top-tier journals in the finance field. And this paper was published by a current Lehigh colleague of mine in the finance department, Jesus Salas, and a former Lehigh colleague of mine who used to be in our accounting department, Grace Lee. And they showed the relationship between tariff exemptions and political party affiliations. So this is the type of exposure to this type of faculty that you get by sending your son or daughter to a research school such as Lehigh. That's not to denigrate a purely liberal arts school. These are highly motivated teachers who are experts in pedagogy. And they typically have small classes and engage students in very active discussions. But we offer a certain type of intellectual rigor that I don't think you can find outside of a research school.

VETO: 17:19 Say I am a researcher. Why is a university setting an ideal place for doing research instead of, say, being a part of some think tank or business? Why universities?

BROCKMAN: 17:35Well, you might be surprised there's a lot of overlap between think tanks, research<br/>institutions, government agencies, particularly regulators, and what we do at the<br/>university, at a research institution. We have a lot of people that move back and forth



among those different agencies. The modern research university really began just very briefly in the 19th century in Prussia before Germany was a country with the Humboldt University of Berlin in the early 1800s. And it was so successful and produced so much scientific research, particularly for the German chemical industry, that it was copied around Europe and then made its way over to the United States, particularly through Johns Hopkins and then MIT, the Ivy League, Big 10 schools, big research schools, University of Chicago, Stanford, Berkeley, etc. And these institutions really have what I'll call a research ethos. And they're able to attract a critical mass of PhD-trained researchers. That's important for co-authorship. We put on active research seminars where people present their research on a weekly basis. We hold conferences. Several colleagues might be journal editors. I might talk about journals at some point. These are really the gateways into what constitutes new knowledge. But all of these individuals in that capacity is at the research school, research institution, and that will attract the faculty. We also have, of course, particularly in physics, chemistry, biology, and engineering, we have the equipment, the labs. For us in the business' disciplines and economics, we have large databases. We also have an active PhD program in economics. And bringing in a PhD student, it's also really kind of leverages up what you can do at the institution.

VETO: 19:47 I love hearing stories about different departments collaborating. And you hear a lot about that at Lehigh, but also I love hearing stories about different universities collaborating in their research. And I think it just makes for bigger ideas and topics and more resources for everyone. Can you talk a little bit about the importance of collaborating within colleges at Lehigh or any university or within universities throughout the world?

BROCKMAN: 20:22 Yeah, that's always been, for me, one of the most interesting features of what I do is being able to meet people from different cultures. I've always been interested in travel, living different places, learning languages, engaging in different cultures. And I didn't plan on an academic position as giving me even more access to all of that, but it certainly has. So I should have maybe counted how many different co-authors I have before talking to you, but it's a lot. And they're from all over. So I have co-authors from China, from Hong Kong, from Singapore, from Australia, from North Africa, from Turkey, from many countries in Europe, from several countries in South America, from Canada, the US. It's an extremely merit-based process. You don't really care what someone looks like, what religion they have, what party they belong to. You care about one major thing. What can they contribute to the research project? And to publish in the top-tier journals these days, it's so competitive, you need to build a very competitive team, regardless of where they come from. And so I have a coauthor, some of which I've never met. So this is always interesting. Somebody sends you an email and they've seen a paper that you've either published or it's on the Social Science Research Network, SSRN, as a working paper. And they're interested in that topic. They've got some ideas. And you start talking about potential collaboration. They've got some databases. They know how to run some econometrics. Maybe they're good at writing, something that they want to add to the paper. And then you start putting together a project and trying to turn out a paper.

BROCKMAN: 22:28 Within the college here, I've always worked with people that are right down the hallway from me. That's always a big advantage. Again, I probably should have counted the number of co-authors I have here in the building, but it's got to be eight or nine at least that are here. And I always had the same view when I worked in



	Canada. I had co-authors that I still have from Canada. When I worked in Hong Kong, same thing, when I was at University of Missouri. Many co-authors, one of whom ended up coming here. And I've continued to work on papers with. And then several co-authors that I've met here, both in accounting, mostly in that accounting and economics and also occasionally accounting and finance, and then occasionally outside of finance and occasionally management department as well.
VETO: 23:22	Holy cow. I'm going to ask another question off-topic, and then we'll jump back into everything. But I was reading you taught in Hong Kong. What was it like doing research or even now, what's it like conducting research with different cultures and different ways of working and ethics, like work ethics, and just anything like that? How's that been?
BROCKMAN: 23:46	Well, again, it's been, for me, extremely rewarding and interesting. I like working with others on papers, and I do think that to some degree, how well you work as a co-author will determine how successful you'll be, especially in the long run. Sometimes you get people on a paper who don't do that much or don't do things that well. And you tend not to invite them on other papers. What's interesting is, no matter where someone is coming from today in the world, their training was very similar when they did their PhD. And we're talking about people that do PhDs. It's very rare to find somebody publishing in the top-tier journals, whether they're in government or private sector or research institute or an academic institution that didn't do a PhD. It's not that it's a matter of having the proper credential. It's that without that training, it's almost impossible to have the skill set necessary to compete to get into those top journals. But when I went to Hong Kong, I was very fortunate. I ran into somebody that I knew from Canada. And he was from the accounting department. I was in finance. I talked to him about a couple of projects I had in mind. We visited the Hong Kong Stock Exchange, made a little presentation that allowed us to get their data. So then we had a very nice database from Hong Kong, which included all transactions. And we parlayed that database into, I don't know, probably 10 or 15 different papers, some of which were in the top-tier journals. And that's kind of the process.
BROCKMAN: 25:40	It's very similar whether I've worked with people coming from, well, name a country, no matter where it is, they were trained pretty much the way I was trained, which means they first learned pretty much everything, whatever there is to know currently in your field. And then you typically are going to have to specialize in a particular field, a subfield within, say, finance, maybe corporate finance, investments, perhaps banking. And you know what the top-tier journals are. You read that literature, we call that the literature. And you come up with ideas of how to expand that literature, which is the same thing as expanding our knowledge base. So it's very smooth. It's very easy to work with people from different countries. You all have the same objective. You all have similar training. I've found it pleasurable and productive.
VETO: 26:43	I think it speaks for itself. You've explained it so well, but can you sum up what research at a university means for the students?
BROCKMAN: 26:55	Well, yes. I think, first of all, it means a lot in terms of the marketability of their degree and the status of the institution that they came from. As I mentioned before, the top-ranked universities in the world are all research schools. So that means a whole lot right there. That also attracts employers to those schools. I mean, it's not just because Harvard is an Ivy League school that recruiters are going to go there, in the same way with Lehigh, it's not just because of our name, it's because of our
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status. It's because of our reputation, which predominantly comes from our ability to produce research. It also provides a lot of intellectual rigor in the classroom and cutting-edge knowledge that research professors will have, and also that students can work with. So there are possibilities of working on projects, more or less from an apprenticeship point of view with faculty when students are at a place like Lehigh or any other research-oriented school. VETO: 28:14 And what about the research that doesn't always include students? Why is that still important to the university itself? **BROCKMAN: 28:22** Well, this might sound like heresy to some degree, but I would say a lot of the research won't directly include students because they simply, especially undergraduate students, they simply don't have the training to work on that type of research. But they benefit, again, from-- well, let me go back to kind of some basics. A lot of the research that's done that gets produced in the academic journals, if you look in a textbook that the students are reading and that they're doing the questions on, where does that textbook get its sources of information? Those sources are all, if you look at the end of the chapter or maybe in the footnotes, you'll see what journal articles the textbook author used in order to make the assertions that he or she made in those chapters. Basic research goes into those textbooks, that's what textbooks are based on, when we teach corporate finance or investments or strategic management, whatever it be. And then the students are picking up that knowledge after it's been kind of distilled through a textbook. VETO: 29:48 Yeah, that knowledge has to come from somewhere, that information that they are using to learn and reference. It needs to start somewhere. So yeah, I get that completely. So then let's talk about how research impacts the doctoral student. What's the role of a doctoral student? BROCKMAN: 30:05 Doctoral students are extremely important for the university. They're definitely the most intellectually challenging students to teach and to mentor. There's a global competition for top PhD students. A PhD program will typically be quite different from, say, a master's program, certainly than an undergraduate program. In many of the business disciplines, I'll just take my own finance discipline, a PhD program, you typically recruit maybe three students a year from around the world. And so with so few slots available, these students are highly competitive. They typically were in the top 1 to 3 percent of their graduating classes. They typically would score in the top 1 to 3 percent of any kind of graduate entry exams like the GMAT. And it's a major investment that the university makes in a PhD student in a doctoral student. They're not going to pay any fees to the university. So the main thing that you get from PhD students, they might do some teaching, but for the most part, what you get is the reputation for your university once they graduate and go on and publish on their own. The relationship often starts as a bit of an apprenticeship, and then it becomes a coauthorship. BROCKMAN: 31:35 As you mentioned before, as we talked before about co-authoring with people from around the world, well, typically your PhD students are coming from around the world as well. I had many PhD students, three of whom I chaired. One was from Turkey, one was from Ecuador, and one was from Russia. This is not unusual in finance. I've published several papers with these. They went from apprenticeship to co-authorship. I've published several papers with these PhD students, a couple of them in the top-tier journals. And then I kind of feel like a grandfather a bit. I've



	worked with PhD students of my former PhD students. Currently have a paper right now that I'm working on with a professor at University of Frankfurt, who is a PhD student of one of my PhD students. And what you will notice is the top pecking order, I would say, of research institutions, there's nothing that makes them more proud than to be able to brag about their top PhD students. In other words, the people that they trained. And oftentimes we can trace a bit of a genealogy from at the very top end, let's say a Nobel Prize winning PhD advisor who then produces a Nobel Prize winning PhD student. And that's the type of relationship and culture that you want to build with a PhD program.
VETO: 33:11	So it's the PhD students that don't sleep, basically, right?
BROCKMAN: 33:15	The PhD students definitely don't sleep. I did my undergraduate degree at Ohio State, or as I need to now say, The Ohio State University. We had a graduate tower in between two undergraduate towers. And we used to always joke, only partially, that there were no off switch switches on the lights in the graduate tower. The lights were just always on. And it really is. It's an extremely intense period of study.
VETO: 33:49	*So you've been in education since the 90s, right?
BROCKMAN: 33:55	That's right.
VETO: 33:56	And how have you seen research grow or change over those years?
BROCKMAN: 34:02	It has changed a lot. First of all, like many other activities around the world, globalization has brought on additional competition. When I was doing my PhD from 1990 to 1994, it was pretty rare to see in the top-tier journals. And most fields will have maybe three to five top-tier journals. When I say the top-tier journals, this is fairly agreed upon. There's a consensus. If I talk to anyone in finance, anywhere in the world, and I bring up the Journal of Finance, the Journal of Financial Economics, the Review of Finance, etc., they're going to know that these and a couple other journals are the top-tier. They're the hardest journals to get into. They'll have rejection rates of 95-plus percent.
VETO: 34:56	Holy cow. Holy cow. I mean, how many people apply per year?
BROCKMAN: 35:04	Well, there'll be a lot that submit papers. I mean, it's a bit of a it's not a random selection of people that are submitting papers to the top-tier journals because they know that it's very unlikely to get in. So it's usually when I say 95% rejection rate, that's among a fairly elite group of people who are submitting to those journals in the first place. But yeah, they'll have thousands of submissions depending on the journal per year trying to get in. And they're all trying to make the same claim that their study has produced new significant knowledge. And as a referee, we go through a process called double-blind review for most journals, as a referee, you'll get one of these papers and your job is to tear it apart and to explain to those authors who you don't know why this is not a top-tier publication and why it does not add significant new knowledge to what we already know. So that's the competitive nature of getting into the top-tier journals. And when I was in my PhD program, that's all you do. You read top-tier journals to learn what is the cutting edge out there. There are very few researchers, at least in finance, from an institution outside of the United States, perhaps Canada, one or two from Europe, that could publish in those journals. I don't mean to say that the researchers weren't from outside of the US, I'm saying that they were probably trained and currently working at US institutions. That's changed



dramatically since I was a PhD student. Today, we have top-tier publishers across the world, all over Europe, all over Asia, all over Australia. I'll take two examples. Hong Kong has eight universities, Singapore has multiple universities, all of which produce top-tier journal articles. The competition has increased tremendously since the time I was a PhD student.

- VETO: 37:24 And so it's, to sum it up, if you want to have a, what's-- how do you say? Maybe a foot in the door or if you want to have a presence, if your university wants to have a presence, you need to be one of those universities. You need to be a top research university. It's vital.
- BROCKMAN: 37:43 It is vital to be a top research university or to even be classified as a research university, R1 or R2, as I mentioned before, with the Carnegie classification. That's based on how many PhD students you have, how many grants you get. I haven't talked about grants because grants are relatively less important in the business disciplines than they are in engineering and the natural sciences. But you have to be able to publish in the top journals and or bring in the big research grants in order to get classified as a top research institution.
- VETO: 38:26 So we know that Lehigh is now an R1 institution, but how else have you seen research grow over the years? You've been at Lehigh for 15 years now, 16?

**BROCKMAN: 38:39** Yeah, this is my 16th year. And again, I hate to bring everything down to one or two numbers or statistics, but in many ways, you can distill it down. I could take somebody's CV, their resume, from anywhere in the world, and within a very short period of time, determine whether this person is a top-tier publisher, mid-tier publisher, a non-publisher. And that's not the only metric in terms of, of course, what kind of person that the person is, or even what kind of intellectual they are. But in terms of research, it's pretty easy to rank order. And that goes for individuals, that goes for departments, that goes for colleges, that goes for universities. And if I were to rank order, I mean, the statistic I would have looked at coming into Lehigh 16 years ago, is we would maybe publish between one-- it's going to vary a lot between one and five top-tier journals per year. There's going to be other journals and good quality journals. But usually for top-tier journals, we're talking about the business disciplines. We're talking about what we call the UT Dallas top 24. So the top 24 journals in the world and/or the Financial Times, Financial Times of London. They publish a top 50s journal, which also includes top 50 journals in the world. That includes business and a few economics journals. Anyway, we would typically publish maybe one to five per year with a lot of variation. And today, we're now publishing between 15 and 20. Now, that is a big, big jump. And that's a jump made when it is harder to publish in those same journals today than it was 15 or 16 years ago. So Lehigh College of Business has done a tremendous job in terms of increasing its intellectual footprint, its research status, among other colleges.

BROCKMAN: 40:46 And we've been able to recruit-- when you have that kind of publication, you can then recruit from the top-tier research institution. So we're able to recruit and retain a much stronger research-oriented faculty than we could before from around the world. We currently have faculty that are globally known in their particular disciplines. Many of them have been invited to give keynote speeches at leading conferences around the world. The Finance Department, we currently do a joint research conference at the Securities and Exchange Commission headquarters in



Washington DC every year. So our profile through research has just increased dramatically over the last 15 to 20 years.

VETO: 41:35 I have so many more questions, but in the interest of time and not to keep you much longer, can you sum up what all of this means for universities?

BROCKMAN: 41:48 First, I'll start with what I think universities mean for society. And I really can't think of an institution, of course, I'm inside of the academy, so could potentially be accused of bias, but I can't think of a more important driver of human well-being and flourishing than research. You think about the modern world, everything from iPhones to medical devices to vaccines, you name it, it came out of research. And this is what universities do, research universities, first and foremost, discovery, also distillation, also dissemination of that knowledge, producing new knowledge, moving that knowledge around, applying that knowledge in innovative ways. This is really what separates us from how people lived 300 years ago or 30 years ago, and how people live in a country like the United States versus less fortunate countries. A lot of it comes down to production and use of knowledge. And that's really what the primary goal of a research institution is. And to work in such an institution, to me, it's a tremendous privilege to work with people that are engaged in that kind of process and to be putting out that type of research.

BROCKMAN: 43:24	And I think one of the questions you had, if you don't mind me going out for just a second, and your email had to do with why do I think more people aren't aware of this. Well a lot of researchers, we work in the background. There are a lot of people who contribute to, let's say, that iPhone, how many mathematicians, how many computer scientists, how many material scientists, how many engineers, electrical, and others did it take with PhDs doing research to produce an iPhone? Well, we don't know any of their names. I mean, most of us have no idea. When I got my COVID shot, I don't know who produced that COVID shot, but there were research scientists behind that. And this is really what's transformative in the world and will continue to be even more transformative as we go forward. So to me, this is the role of a research institution, and it's one of the most impactful institutions in society.
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VETO: 44:27 Paul, thank you so much for taking the time to talk with us. And everything was awesome. Absolutely awesome. Thank you again.

BROCKMAN: 44:36 Thank you very much, Stephanie. I appreciate it.

VETO: 44:39 This podcast is brought to you by ilLUminate, the Lehigh Business blog. To hear more podcasts featuring Lehigh Business thought leaders or to follow us on social media, please visit business.lehigh.edu/news. This is Stephanie Veto, host of the ilLUminate Podcast. Thanks for listening.

\* The portion highlighted in yellow was removed for length from the audio of the podcast.