Event Session

Proptech & AI

Date: February 25???26, 2025

00:00:02 --> 00:00:06:	Astro has now officially given us the OK that we
00:00:06 --> 00:00:09:	can get started and so he will rest for a
00:00:09 --> 00:00:12:	minute while we get our program started.
00:00:12 --> 00:00:13:	I am Rick Porter.
00:00:14 --> 00:00:17:	I'm the director of a Master of Real Estate Development
00:00:17 --> 00:00:19:	program at Georgia Tech.
00:00:19 --> 00:00:22:	And what we want to share with you today is
00:00:22 --> 00:00:26:	not necessarily just what we happen to be doing with
00:00:26 --> 00:00:31:	a academia and real estate development, but specifically bring a
00:00:31 --> 00:00:35:	conversation to you relative to some of the things that
00:00:35 --> 00:00:37:	we do within our program.
00:00:38 --> 00:00:43:	We're in the College of Design within the College of
00:00:43 --> 00:00:49:	Design as well with the idea that technology is related
00:00:49 --> 00:00:55:	to efficiency and efficiency ultimately has got to be one
00:00:55 --> 00:01:00:	of our goals associated with affordable housing.
00:01:01 --> 00:01:04:	So when we think about academia and real estate development,
00:01:05 --> 00:01:07:	one of the aspects that that I bring to the
00:01:07 --> 00:01:10:	discussion is that we are still in what I call
00:01:10 --> 00:01:14:	a first generation degree real estate development focused on real
00:01:14 --> 00:01:19:	estate development, whether it's housing or other aspects of real
00:01:19 --> 00:01:22:	estate development does not have a long history in post
00:01:22 --> 00:01:23:	secondary academia.
00:01:24 --> 00:01:27:	So we have a program where we want to make
00:01:27 --> 00:01:30:	sure that we expose our students to what we call
00:01:30 --> 00:01:33:	the four pillars of real estate development.
00:01:33 --> 00:01:38:	Looking at the physical context or the physical

	characteristics, how
00:01:38 --> 00:01:42:	do we interface with public policy and the regulatory infrastructure.
00:01:42 --> 00:01:47:	Obviously finance and feasibility is a big component of what
00:01:47 --> 00:01:50:	of of of the development world and it's a lot
00:01:50 --> 00:01:53:	more fun when it gets consumed.
00:01:53 --> 00:02:05:	So market demand and we are have one too many
00:02:05 --> 00:02:09:	there we go.
00:02:09 --> 00:02:13:	So within our program, we do look across real estate
00:02:13 --> 00:02:18:	development, but for the last few years and even today,
00:02:18 --> 00:02:22:	housing is obviously a hot topic and it's a big
00:02:22 --> 00:02:25:	interest of the students in our program.
00:02:25 --> 00:02:28:	While we are not a research type degree, the more
00:02:29 --> 00:02:32:	or less culmination of of the students time with us
00:02:32 --> 00:02:34:	at Georgia Tech is a capstone project.
00:02:35 --> 00:02:39:	And the capstone is student driven research and a topic
00:02:39 --> 00:02:44:	that the student is interested in semester long where they
00:02:44 --> 00:02:48:	can take a relatively deep dive into to any number
00:02:48 --> 00:02:48:	of topics.
00:02:49 --> 00:02:52:	Here's a couple of things that we have looked at
00:02:52 --> 00:02:55:	over the years and specifically that are related, if you
00:02:55 --> 00:02:58:	will, to, to your mission to all of our missions
00:02:58 --> 00:03:02:	actually and looking at efficiencies and particularly affordable housing.
00:03:03 --> 00:03:06:	We had a capstone that looked at affordable housing easements.
00:03:06 --> 00:03:10:	Think about it in terms of conservation easement where in
00:03:10 --> 00:03:14:	fact there is permanent affordability in working with a a,
00:03:14 --> 00:03:17:	a a donor of the easement as well as a
00:03:17 --> 00:03:22:	recipient of the easement that would manage that residual land
00:03:22 --> 00:03:23:	development.
00:03:23 --> 00:03:27:	Using GIS ality to identify those parcels of land that
00:03:27 --> 00:03:31:	end up in the public realm, very often non conforming,
00:03:31 --> 00:03:36:	very often think about right away where there was additional
00:03:36 --> 00:03:40:	right away that was acquired more so than was needed.
00:03:40 --> 00:03:44:	A A a student took GIS, identified those parcels and
00:03:44 --> 00:03:47:	then did planning around those parcels.
00:03:47 --> 00:03:52:	Public contribution of land, if you will, toward affordable housing
00:03:52 --> 00:03:56:	comprehensive plan based zoning and G that that that basically
00:03:56 --> 00:04:01:	moves beyond geography based zoning to outcome based zoning.

00:04:01 --> 00:04:04:	Now, I'm fully aware of the controversies around zoning and,
00:04:04 --> 00:04:07:	and how that, but the good thing about academia, we
00:04:07 --> 00:04:10:	can go into a lot of topics that we don't
00:04:10 --> 00:04:13:	necessarily have public hearings on all of them, but we
00:04:13 --> 00:04:16:	can study things that that in this case, for instance,
00:04:16 --> 00:04:19:	if and if you have a comprehensive plan and if
00:04:19 --> 00:04:22:	that comprehensive plan is very specific with a need such
00:04:22 --> 00:04:26:	as affordable housing, a proposal for affordable housing that is
00:04:26 --> 00:04:29:	meeting that need is not bound by geography, it's bound
00:04:30 --> 00:04:30:	by outcome.
00:04:31 --> 00:04:34:	Interesting concept looking at how to layer Lytec and historic
00:04:34 --> 00:04:35:	tax credits.
00:04:35 --> 00:04:38:	That's been done time and again.
00:04:38 --> 00:04:42:	However, from a student perspective and, and from, from our
00:04:42 --> 00:04:47:	program perspective, looking at more efficient ways to layer two
00:04:47 --> 00:04:50:	types of tax credits and then a clean sheet of
00:04:50 --> 00:04:52:	paper discussion we have had.
00:04:53 --> 00:04:55:	A couple of years ago, we had a student look
00:04:55 --> 00:04:57:	at a capstone that said what would an affordable housing
00:04:57 --> 00:05:00:	ordinance looked like if you had no ordinances?
00:05:00 --> 00:05:02:	If we did not try to layer this into every
00:05:03 --> 00:05:06:	imaginable ordinance and, and, and determine how we, we work
00:05:06 --> 00:05:09:	our way through the 400 pages of the UDO that
00:05:09 --> 00:05:11:	we're all proud of.
00:05:11 --> 00:05:12:	I understand that.
00:05:12 --> 00:05:14:	But if in fact we had a clean sheet of
00:05:14 --> 00:05:15:	paper, what would it would look like?
00:05:15 --> 00:05:17:	So these are just some of the ideas that we
00:05:17 --> 00:05:18:	have worked on.
00:05:19 --> 00:05:22:	I started teaching about 20 years ago.
00:05:22 --> 00:05:26:	I'm a real estate developer, third generation by profession.
00:05:26 --> 00:05:29:	So what today I'm playing the role as I would
00:05:29 --> 00:05:32:	as a developer, one of the first mantras of real
00:05:32 --> 00:05:36:	estate development, as you start a project and you begin
00:05:36 --> 00:05:37:	to put a team together.
00:05:37 --> 00:05:40:	And so we have this literal and figurative table that
00:05:40 --> 00:05:43:	we are sitting around, and your goal is always to
00:05:44 --> 00:05:46:	be the dumbest guy at the table because if you
00:05:46 --> 00:05:50:	surround yourself with good people, the project's going to work.

00:05:50 --> 00:05:53:	Well, I'm clearly the dumbest guy on the stage today.
00:05:54 --> 00:05:56:	And I have an opportunity to introduce you to three
00:05:56 --> 00:05:59:	of my colleagues that will take the program from here.
00:06:00 --> 00:06:03:	We anticipate that we will present all three in a
00:06:03 --> 00:06:06:	row, and then we will have some time for interface
00:06:06 --> 00:06:08:	toward the the end of the session.
00:06:08 --> 00:06:11:	First, I will introduce you to Doctor Javier Irizari.
00:06:12 --> 00:06:12:	Dr.
00:06:12 --> 00:06:16:	Irizari is the Associate Dean of Academic Affairs in the
00:06:16 --> 00:06:20:	College of Design, currently wearing a second hat as an
00:06:20 --> 00:06:24:	interim chair of the School of Building Construction.
00:06:25 --> 00:06:29:	Has been involved in the industry as well as academia
00:06:29 --> 00:06:32:	for many years and was very early and and taking
00:06:32 --> 00:06:37:	a look at new technologies as it relates to construction.
00:06:37 --> 00:06:39:	Sort of personal dear to me.
00:06:40 --> 00:06:43:	I've had a chance to work beside him for many
00:06:43 --> 00:06:43:	years.
00:06:43 --> 00:06:47:	I'm a private pilot, so he got involved in drones
00:06:47 --> 00:06:47:	very early.
00:06:47 --> 00:06:50:	So it was fascinating to me to think about.
00:06:50 --> 00:06:52:	Well, I thought these were toys.
00:06:52 --> 00:06:53:	Is this actually something?
00:06:53 --> 00:06:57:	And he has spent many years understanding the value of
00:06:57 --> 00:06:58:	that technology.
00:06:59 --> 00:07:00:	He's our first presenter.
00:07:00 --> 00:07:03:	Secondly, I will introduce you to Miss KK Loy.
00:07:03 --> 00:07:07:	KK is a practicing architect, been practicing for a number
00:07:07 --> 00:07:11:	of years, came back into academia to pursue her Master's
00:07:11 --> 00:07:13:	in Real Estate development.
00:07:13 --> 00:07:18:	Still in the program has already started her underlying research
00:07:18 --> 00:07:23:	for what will be her capstone, looking at various aspects
00:07:23 --> 00:07:27:	of technology as it relates to design and then ultimately
00:07:27 --> 00:07:31:	to be delivered in the world of of real estate
00:07:31 --> 00:07:32:	development.
00:07:32 --> 00:07:35:	From my standpoint and a personal note, KK is one
00:07:35 --> 00:07:37:	of those that always says yes, you know, she is
00:07:37 --> 00:07:40:	just she's great from the standpoint of, you know, I've
00:07:40 --> 00:07:42:	got this idea I got this idea she's working with
00:07:42 --> 00:07:45:	some industry folks now that came to me and wanted
00:07:45 --> 00:07:47:	to do this and I can go through and say,
00:07:47 --> 00:07:48:	hey, are you interested?

00:07:48 --> 00:07:51:	Yep, I'm interested let's, let's, let's see what happens.
00:07:51 --> 00:07:53:	So that's that's that's great from a director standpoint.
00:07:54 --> 00:07:56:	Finally, I'll introduce you to Stacy Scapano.
00:07:56 --> 00:07:57:	Stacy.
00:07:57 --> 00:08:01:	Stacy finished our program some time back again, came to
00:08:01 --> 00:08:05:	us with years of of construction experience currently with JE
00:08:05 --> 00:08:08:	Dunn has been with Skanska and some other programs.
00:08:08 --> 00:08:11:	And if you look at Stacy's title over the years,
00:08:11 --> 00:08:15:	there's always something about innovation, there's always something about technology
00:08:15 --> 00:08:17:	and what he's done with construction.
00:08:17 --> 00:08:20:	He's going to share some information that he worked on,
00:08:20 --> 00:08:23:	frankly, as you know, when when he was with us
00:08:23 --> 00:08:26:	at tech and continues to work on as it relates
00:08:26 --> 00:08:30:	to technology and scaling from the a modular housing standpoint.
00:08:31 --> 00:08:34:	So I will now turn it over to Doctor Irizarry.
00:08:36 --> 00:08:38:	Thank you Professor Porter.
00:08:39 --> 00:08:40:	Good morning everyone.
00:08:41 --> 00:08:42:	How y'all doing?
00:08:42 --> 00:08:46:	It's great to see full House and it's my pleasure
00:08:46 --> 00:08:49:	to be here to share a little bit about what
00:08:49 --> 00:08:54:	we do with technology related to the construction industry in
00:08:54 --> 00:08:58:	the College of Design and in our School of Building
00:08:58 --> 00:08:59:	Construction.
00:09:00 --> 00:09:02:	So a little bit about our school.
00:09:03 --> 00:09:06:	It has a variety of academic programs.
00:09:06 --> 00:09:10:	We have a bachelor's of science in construction science and
00:09:10 --> 00:09:11:	management.
00:09:11 --> 00:09:14:	We have several minors that we also offer to students
00:09:14 --> 00:09:15:	in the institute.
00:09:16 --> 00:09:19:	We have a masters of science in building construction and
00:09:19 --> 00:09:22:	facilities management, our masters in real estate development.
00:09:23 --> 00:09:27:	We also have a online program in Occupational Safety and
00:09:27 --> 00:09:31:	health at the masters level and one of the first
00:09:31 --> 00:09:33:	doctorates in building construction.
00:09:34 --> 00:09:37:	So the a lot of what we do in the
00:09:37 --> 00:09:41:	school of building construction on the graduate and in some
00:09:41 --> 00:09:45:	of our graduate programs is look at the infusion of
00:09:45 --> 00:09:50:	technology in every aspect of the construction life cycle.
00:09:50 --> 00:09:55:	So different sectors of the industry, commercial, residential, and those

00:09:56 --> 00:09:59:	are just some examples of the tools that we use
00:09:59 --> 00:10:04:	to teach students what technology can do for the industry.
00:10:05 --> 00:10:10:	And you'll see a list of things that are drones,
00:10:10 --> 00:10:11:	robotics.
00:10:11 --> 00:10:13:	We have our friend Aster, you may have seen them
00:10:13 --> 00:10:15:	in the corner there sitting quietly.
00:10:16 --> 00:10:20:	And that is something that we are very proud to
00:10:21 --> 00:10:25:	be able to share with our students and not only
00:10:25 --> 00:10:29:	in the classroom, but also in application.
00:10:29 --> 00:10:36:	We collaborate with construction industry partners in exploring the what's
00:10:36 --> 00:10:40:	next for technology used in the construction industry.
00:10:41 --> 00:10:44:	So this is an example of a project that we
00:10:44 --> 00:10:46:	did with the Unilever Company.
00:10:46 --> 00:10:50:	It had commercial project where we use drones to evaluate
00:10:50 --> 00:10:56:	the interaction between lifting equipment when you have multiple lifting
00:10:56 --> 00:10:58:	equipment at the same time.
00:10:58 --> 00:11:03:	We also did some of the 1st laser.
00:11:04 --> 00:11:05:	Where's the laser?
00:11:08 --> 00:11:09:	OK, I went too far.
00:11:11 --> 00:11:13:	The one that says P2K.
00:11:13 --> 00:11:17:	So that one was Hartfield Jackson International Airport several years
00:11:17 --> 00:11:18:	ago.
00:11:18 --> 00:11:22:	We were one of the first entities that was allowed
00:11:22 --> 00:11:26:	to fly drones next to the airport to do earthwork
00:11:26 --> 00:11:31:	recognition and and side work inspections for off site parking
00:11:31 --> 00:11:31:	lot.
00:11:33 --> 00:11:40:	And this one you'll recognize our main character Astro.
00:11:40 --> 00:11:43:	So that's a Boston Dynamics quadruped robot.
00:11:43 --> 00:11:47:	And the idea of using this in the classroom was
00:11:47 --> 00:11:51:	to introduce students to the opportunities and and also explore
00:11:51 --> 00:11:55:	the challenges of using robotics in construction environment.
00:11:56 --> 00:12:00:	This application was in a manufacturing facility on campus where
00:12:00 --> 00:12:05:	we tested the capabilities of the robot for material handling.
00:12:05 --> 00:12:09:	So you can imagine this on a job site as
00:12:09 --> 00:12:13:	the image on the left where we can designate places
00:12:13 --> 00:12:20:	where construction personnel can request and receive materials and tools
00:12:20 --> 00:12:21:	in the job site.

00:12:23 --> 00:12:28:	So I wanted to introduce as to a little bit
00:12:28 --> 00:12:33:	more so the Boston Dynamics quadruple that you see.
00:12:35 --> 00:12:40:	It's a very interesting piece of technology.
00:12:41 --> 00:12:45:	It has the capability to carry a lot of sensors.
00:12:46 --> 00:12:49:	The ones that you see on it right now are
00:12:49 --> 00:12:53:	a 360?? camera that we use on job sites to
00:12:53 --> 00:12:58:	collect progress imagery of of work that is being performed.
00:12:58 --> 00:13:02:	And we also can use it to perform safety inspections.
00:13:02 --> 00:13:06:	It has a camera on the top that can zoom
00:13:06 --> 00:13:07:	in 30 times.
00:13:07 --> 00:13:11:	So from a safe distance it can inspect the safety
00:13:11 --> 00:13:13:	of work face activities.
00:13:13 --> 00:13:16:	It also has an onboard computer and a lighter unit
00:13:16 --> 00:13:20:	like autonomous vehicles do have that would allow it and
00:13:20 --> 00:13:23:	give it the capability to to be able to drive
00:13:23 --> 00:13:24:	itself.
00:13:25 --> 00:13:29:	So right now I am trying to do my best
00:13:30 --> 00:13:36:	driving it because it's not on autonomous mode and now
00:13:37 --> 00:13:44:	Astro will do something that it doesn't do very often.
00:13:57 --> 00:13:58:	Thank you Astro.
00:13:58 --> 00:14:04:	So the, the, the reason to show that I'm, I'm
00:14:04 --> 00:14:07:	sorry, oh, give him a treat.
00:14:10 --> 00:14:12:	Yes, I'll have an SD card with a virtual tree
00:14:12 --> 00:14:13:	later.
00:14:13 --> 00:14:14:	I'll stick it in there.
00:14:14 --> 00:14:17:	So, so the, the reason why we show this is
00:14:17 --> 00:14:22:	because this technology is so advanced that it has incredible
00:14:22 --> 00:14:25:	stability and it can navigate on job sites with very
00:14:26 --> 00:14:27:	demanding environments.
00:14:28 --> 00:14:30:	I promise I wasn't going to do this, but I'll,
00:14:30 --> 00:14:31:	I'll do a little bit.
00:14:34 --> 00:14:35:	So it's very stable.
00:14:35 --> 00:14:36:	I didn't mean to kick it.
00:14:36 --> 00:14:37:	It wasn't a mean kick.
00:14:38 --> 00:14:41:	It was just to showcase that it is very stable
00:14:41 --> 00:14:45:	and our students are learning a lot by having this
00:14:45 --> 00:14:47:	quadruped robot in the classroom.
00:14:48 --> 00:14:50:	So let me move forward.
00:14:58 --> 00:14:59:	Went backwards.
00:15:00 --> 00:15:03:	OK, So I wanted to end and, and we'll we'll
00:15:03 --> 00:15:08:	have an opportunity to have a conversation later on by
00:15:08 --> 00:15:13:	just telling you that the future of the construction industry

00:15:13 --> 00:15:14:	is very bright.
00:15:15 --> 00:15:20:	Technology will make things a lot more efficient, that will
00:15:20 --> 00:15:24:	contribute to affordability of of different sectors.
00:15:25 --> 00:15:28:	And we are very happy that we get to share
00:15:28 --> 00:15:32:	these tools with our students and with the support of
00:15:32 --> 00:15:36:	industry partners, being able to explore what's next for the
00:15:36 --> 00:15:37:	construction industry.
00:15:38 --> 00:15:41:	So now I will pass it to my colleague.
00:15:41 --> 00:15:46:	But before I do that, I'm going to have to
00:15:46 --> 00:15:51:	get asked her to walk down the stage.
00:15:51 --> 00:15:52:	Sir, Yes.
00:16:05 --> 00:16:06:	And go to sleep.
00:16:10 --> 00:16:11:	Thank you.
00:16:16 --> 00:16:19:	Well, I don't have a fun robot, but maybe you
00:16:19 --> 00:16:22:	guys will still like mine, yeah.
00:16:31 --> 00:16:34:	So I'm here today in a unique position to share
00:16:34 --> 00:16:38:	2 interesting stories, so I hope you guys will enjoy
00:16:38 --> 00:16:38:	them.
00:16:40 --> 00:16:44:	The first one, we're going to go over an undergrad
00:16:44 --> 00:16:47:	computer science capstone and then I will introduce an AI
00:16:47 --> 00:16:49:	tool in depth versus.
00:16:49 --> 00:16:52:	I think a lot of AI presentation has been quickly
00:16:52 --> 00:16:56:	flipping through different tools, but here I pick one and
00:16:56 --> 00:16:59:	we'll take a deep dive and hopefully you guys will
00:16:59 --> 00:16:59:	find it useful.
00:17:02 --> 00:17:07:	So the first capstone project consists of five different undergrad
00:17:07 --> 00:17:10:	Anthony, Ben, Chris, Kevin, and Adolfo.
00:17:11 --> 00:17:14:	They have all been since graduated and probably most of
00:17:14 --> 00:17:17:	them flew out to San Francisco because they're a computer
00:17:17 --> 00:17:18:	science majored.
00:17:19 --> 00:17:22:	So they talked to a lot of different people when
00:17:22 --> 00:17:26:	they were deciding what to do with their capstone.
00:17:26 --> 00:17:31:	And finally, after visiting a lot of construction sites, they
00:17:31 --> 00:17:36:	wanted to automate a system to streamline the development, design
00:17:36 --> 00:17:38:	and construction industry.
00:17:39 --> 00:17:41:	And this is how Rick was put in touch with
00:17:41 --> 00:17:41:	them.
00:17:42 --> 00:17:46:	And Rick guided them towards the direction of a permitting
00:17:47 --> 00:17:47:	direction.
00:17:48 --> 00:17:52:	I think permits can be complicated and it can take
00:17:52 --> 00:17:53:	a long time.

00:17:53 --> 00:17:57:	So hopefully if they're creating a software that will help
00:17:58 --> 00:18:01:	cut down cost and time and it will be quite
00:18:01 --> 00:18:05:	useful if it was ever bringing to the the real
00:18:05 --> 00:18:05:	world.
00:18:06 --> 00:18:09:	So and then Rick put me in touch with them
00:18:09 --> 00:18:14:	because none of the undergrad had construction background.
00:18:14 --> 00:18:17:	So when Rick handed them a set of civil drawings,
00:18:17 --> 00:18:18:	they were beyond confused.
00:18:18 --> 00:18:22:	So I essentially stepped in as a non computer science
00:18:22 --> 00:18:26:	advisor that helped answer any question they had.
00:18:26 --> 00:18:29:	Kind of went through how does the development and permitting
00:18:29 --> 00:18:32:	process goes and point out all the different parties that's
00:18:32 --> 00:18:33:	involved.
00:18:33 --> 00:18:36:	And at the same time, we parted up with a
00:18:36 --> 00:18:39:	large commercial development called CP Group.
00:18:39 --> 00:18:42:	And I think many people in this room likely have
00:18:42 --> 00:18:42:	heard of them.
00:18:42 --> 00:18:45:	They own the CNN and the Bank of America building.
00:18:46 --> 00:18:50:	So Ryan from CP Group joined a conversation and he
00:18:50 --> 00:18:51:	was instrumental here.
00:18:51 --> 00:18:56:	He provided more resources, a lot more drawings, and he
00:18:56 --> 00:19:00:	gave them sort of the the real world world experience,
00:19:00 --> 00:19:04:	kind of what worked for development and what didn't.
00:19:04 --> 00:19:08:	So then we all work together within these several weeks
00:19:08 --> 00:19:10:	of the capstone process.
00:19:12 --> 00:19:13:	So what came about?
00:19:13 --> 00:19:18:	It's a website and an app that's scripted by Python
00:19:18 --> 00:19:20:	called Sitesync.
00:19:21 --> 00:19:25:	The general idea is that Sitesync is a portal used
00:19:25 --> 00:19:30:	by city permitting office and when permit applicants comes and
00:19:30 --> 00:19:35:	submit the set of construction documents, instead of having a
00:19:35 --> 00:19:40:	permit coordinator takes it over and spend hours verifying the
00:19:40 --> 00:19:40:	set.
00:19:41 --> 00:19:44:	The site sight sink would take the first step and
00:19:44 --> 00:19:47:	it will compare against either zoning codes or building codes.
00:19:48 --> 00:19:52:	It will flag anything major and then hand it off
00:19:52 --> 00:19:53:	to a human.
00:19:54 --> 00:19:57:	So in this case we are streamlining permitting process.
00:19:57 --> 00:20:00:	This will essentially save cost.
00:20:00 --> 00:20:01:	And cut down time.

00:20:01 --> 00:20:04:	And of course it's a city's time as well as
00:20:04 --> 00:20:05:	the applicants time.
00:20:06 --> 00:20:09:	And I think the biggest pauses that comes out of
00:20:10 --> 00:20:12:	it is that we are leveraging AI to do the
00:20:12 --> 00:20:16:	tedious work and freeing up humans to kind of solve
00:20:16 --> 00:20:18:	the greater challenges.
00:20:18 --> 00:20:21:	It's not here to replace job, it's to put us
00:20:21 --> 00:20:21:	in better use.
00:20:25 --> 00:20:28:	So I think everybody knows that there's a lot of
00:20:28 --> 00:20:32:	different components in a in a construction documents.
00:20:33 --> 00:20:39:	We have building codes, the ADA interior design and zoning
00:20:39 --> 00:20:39:	code.
00:20:39 --> 00:20:43:	So I think after walking them through many of these
00:20:43 --> 00:20:48:	aspect, they picked life safety and with a major focus
00:20:48 --> 00:20:49:	on means of egress.
00:20:52 --> 00:20:54:	So here's the how how the software works.
00:20:55 --> 00:21:00:	First, it extracts the metadata from the drawings that's submitted
00:21:00 --> 00:21:01:	by a user.
00:21:01 --> 00:21:02:	So this will distinct.
00:21:02 --> 00:21:06:	So this is a step where sightseeing core read the
00:21:06 --> 00:21:06:	drawings.
00:21:06 --> 00:21:10:	It will see what's the wall, what's the furniture, what's
00:21:10 --> 00:21:12:	the door, and then it will process the image and
00:21:12 --> 00:21:16:	take out any symbols that's in the way when calculating
00:21:16 --> 00:21:16:	an egress path.
00:21:17 --> 00:21:20:	So it will take away the doors, the room tags
00:21:20 --> 00:21:21:	and any dimensions.
00:21:21 --> 00:21:24:	So lastly it will pathfind.
00:21:24 --> 00:21:28:	The path finding part will run through all the simulation
00:21:28 --> 00:21:32:	of every individual possible path to find the shortest as
00:21:32 --> 00:21:34:	well as the non compliant ones.
00:21:35 --> 00:21:39:	And the team actually put together a one minute demo
00:21:39 --> 00:21:39:	for us.
00:21:39 --> 00:21:43:	So I'll run you guys through how that works.
00:21:45 --> 00:21:47:	Could we please play the video?
00:21:49 --> 00:21:50:	Perfect.
00:21:51 --> 00:21:52:	Thank you.
00:21:52 --> 00:21:57:	So here Anthony is actually uploading a life safety sheet
00:21:57 --> 00:21:58:	from CP group.
00:22:01 --> 00:22:05:	And then quickly it recognizes all the doors and the
00:22:05 --> 00:22:08:	tacks and it gets rid of it and then it

00:22:08 --> 00:22:11:	the green line, it's running every possible path.
00:22:12 --> 00:22:15:	Now I do want to give the caveat that the
00:22:15 --> 00:22:18:	team only has several weeks to develop the software.
00:22:18 --> 00:22:19:	So yes, there are bugs.
00:22:19 --> 00:22:22:	It's not perfect, but I'm proud on what they did
00:22:22 --> 00:22:25:	in the short amount of several weeks.
00:22:25 --> 00:22:28:	Imagine what this can do if we had a bigger
00:22:28 --> 00:22:30:	team with a lot more time.
00:22:30 --> 00:22:34:	So it will go through all the different paths and
00:22:35 --> 00:22:38:	at the end it will show you the the lasting
00:22:38 --> 00:22:39:	path.
00:22:39 --> 00:22:40:	I think it'll get there.
00:22:45 --> 00:22:45:	There you go.
00:22:46 --> 00:22:49:	So yeah, this is this is what we worked on
00:22:49 --> 00:22:51:	last year's capsule.
00:22:51 --> 00:22:52:	Again, this is undergrads.
00:22:52 --> 00:22:55:	So if anybody in the group is interested in this,
00:22:55 --> 00:22:58:	please come talk to us after because I, I would
00:22:58 --> 00:23:02:	love to keep this conversation going because it can be
00:23:02 --> 00:23:02:	very useful.
00:23:04 --> 00:23:08:	OK, so the second story I have is introducing an
00:23:08 --> 00:23:10:	AI software called D Blocks.
00:23:11 --> 00:23:15:	D Blocks is a software that leverage zoning to provide
00:23:15 --> 00:23:21:	insights, viewing zoning as the earliest indicator as investment opportunities.
00:23:22 --> 00:23:26:	The founder is Olivia, their Chief Revenue Officer.
00:23:26 --> 00:23:28:	Michael, both of their emails are on there.
00:23:28 --> 00:23:30:	Feel free to take a photo because you might want
00:23:31 --> 00:23:33:	to reach out to them after this presentation.
00:23:35 --> 00:23:36:	OK, I'll flip the slide.
00:23:38 --> 00:23:41:	Here's how this software came about.
00:23:41 --> 00:23:44:	I think many people in this room touch zoning at
00:23:44 --> 00:23:46:	one point or another.
00:23:46 --> 00:23:48:	And yes, it's complicated.
00:23:48 --> 00:23:51:	It's sometimes it's hard to navigate, especially in a metro
00:23:51 --> 00:23:52:	city like Atlanta.
00:23:52 --> 00:23:55:	And when you don't have the full picture, it is
00:23:55 --> 00:23:58:	hard to optimize an investment if you are the developer
00:23:59 --> 00:24:00:	or looking for opportunities.
00:24:01 --> 00:24:05:	And Olivia saw this issue almost a decade ago, so
00:24:05 --> 00:24:08:	she decided to create a software that can bring some
00:24:08 --> 00:24:09:	solutions.

00:24:09 --> 00:24:13:	So here she has a software that can data integration,
00:24:13 --> 00:24:16:	automation and outgoing a bit more detail on what that
00:24:17 --> 00:24:20:	really means and and in terms it will optimize the
00:24:20 --> 00:24:22:	parcel and attract more investment.
00:24:26 --> 00:24:27:	Here's a bit of background story.
00:24:28 --> 00:24:32:	She and her team spent about the past seven plus
00:24:32 --> 00:24:35:	years digitalized zoning and that's a big job.
00:24:36 --> 00:24:39:	And only about a year ago they started the AI
00:24:39 --> 00:24:41:	transformation.
00:24:41 --> 00:24:45:	Currently there's about 280 cities that they have digitalized and
00:24:45 --> 00:24:48:	the list I have here are the active cities and
00:24:48 --> 00:24:52:	Atlanta is somewhere in the middle of the list.
00:24:52 --> 00:24:55:	And if you scrint your eyes, you can see that
00:24:55 --> 00:24:58:	the Fulton and DeKalb are being digitalized.
00:24:58 --> 00:25:01:	What that means is when you use D blocks, you
00:25:01 --> 00:25:05:	can select any parcel under fold in the DeKalb and
00:25:05 --> 00:25:09:	you can pull the building on top and manipulate to
00:25:09 --> 00:25:12:	come up with a deal that works for you.
00:25:12 --> 00:25:15:	And I'll show you a demo towards the end.
00:25:16 --> 00:25:19:	And as I was talking to her, I was curious
00:25:19 --> 00:25:23:	on how the client base is like because it is
00:25:23 --> 00:25:26:	a subscription and it's not affordable.
00:25:26 --> 00:25:29:	So a lot of the major clients are very large
00:25:29 --> 00:25:34:	institutional developers, international real estate companies, as well as national
00:25:34 --> 00:25:36:	brokerage firms.
00:25:36 --> 00:25:40:	And currently, they have about 180 active clients ever since
00:25:40 --> 00:25:43:	the AI rolled out, which is about only a year
00:25:43 --> 00:25:43:	ago.
00:25:43 --> 00:25:45:	So it's catching up quick.
00:25:47 --> 00:25:51:	So I was talking to the Chief Revenue Officer Michael,
00:25:51 --> 00:25:54:	and I told once I told him about the conference,
00:25:54 --> 00:25:58:	I said, hey, let's put a demo together for our
00:25:58 --> 00:25:59:	neck of the woods.
00:25:59 --> 00:26:03:	So he and I work together, selected Grove Park, which
00:26:03 --> 00:26:05:	is the West side of Atlanta.
00:26:05 --> 00:26:08:	It's close to downtown, it's close to the Gulch.
00:26:08 --> 00:26:09:	So it's got a lot of potentials.
00:26:10 --> 00:26:13:	So the video here you'll see is US selecting a
00:26:13 --> 00:26:17:	parcel in Grove Park and then putting a multi family
00:26:17 --> 00:26:19:	building on top.

00:26:21 --> 00:26:22:	Could you play the video please?
00:26:28 --> 00:26:33:	Is it OK?
00:26:33 --> 00:26:36:	So to start off, you have zoning information on the
00:26:36 --> 00:26:39:	left and open source information on the right.
00:26:40 --> 00:26:43:	Michael here is identifying all the parcels zoned under multifamily
00:26:43 --> 00:26:46:	and it's highlighted in this green color.
00:26:46 --> 00:26:49:	Next, he's changing the requirements to suit the projects.
00:26:50 --> 00:26:54:	He filled out the developable office or area more than
00:26:54 --> 00:26:59:	50,000 square feet and the existing area under 5000.
00:27:00 --> 00:27:02:	And then he's pulling up the information from census data.
00:27:02 --> 00:27:07:	All these you're seeing are live and this information include
00:27:07 --> 00:27:12:	media, medium income, population, residential rates, along with a few
00:27:12 --> 00:27:14:	other zoning categories.
00:27:16 --> 00:27:20:	And then we select the site, you'll see him select
00:27:20 --> 00:27:22:	the diagonal blue pieces.
00:27:23 --> 00:27:26:	So this is where we're going to do our actual
00:27:26 --> 00:27:27:	test fit.
00:27:29 --> 00:27:33:	So right here he's he's pulling all the zoning information
00:27:33 --> 00:27:36:	that you can find on the city website, the FAR
00:27:36 --> 00:27:39:	law coverage classification setbacks and all that.
00:27:40 --> 00:27:42:	Now we're going to the next part of the software,
00:27:42 --> 00:27:44:	which is a feasibility study.
00:27:45 --> 00:27:48:	So then you see this massing in 3D and this
00:27:48 --> 00:27:52:	is where you can put in how many affordable units
00:27:52 --> 00:27:54:	you want, how many market rate units.
00:27:55 --> 00:27:58:	You can change the size of the units and the
00:27:58 --> 00:28:02:	amenities as well as any parking requirements that fits your
00:28:03 --> 00:28:03:	project.
00:28:06 --> 00:28:09:	And on top of that, you can change the multi
00:28:09 --> 00:28:11:	family income and the cost assumptions.
00:28:12 --> 00:28:15:	So you have the hard cost, soft cost, any rental
00:28:15 --> 00:28:19:	rates, all these are customizable to suit your own project.
00:28:21 --> 00:28:24:	We thought this is a good site because it's right
00:28:24 --> 00:28:26:	in front of a middle school, so a lot of
00:28:26 --> 00:28:27:	people will want to live there.
00:28:30 --> 00:28:34:	So lastly on the right, he is automating the financial
00:28:34 --> 00:28:39:	projection and then he click export the the report and
00:28:39 --> 00:28:42:	there's a report that comes out and I'll have a
00:28:42 --> 00:28:43:	slide of that.
00:28:44 --> 00:28:48:	So here's 4 slides of report starting with sort of

00:28:48 --> 00:28:49:	the basic summary.
00:28:49 --> 00:28:52:	It has an overview for property and zoning and it
00:28:52 --> 00:28:54:	has the demographic trends.
00:28:54 --> 00:28:57:	Again, these are from open source like Census Bureau, even
00:28:57 --> 00:29:00:	though they kind of looks like Co star, but they
00:29:00 --> 00:29:02:	don't draw any information from the paid service.
00:29:03 --> 00:29:07:	So then lastly, which is probably what we most interested
00:29:07 --> 00:29:12:	in the financial return analysis since this project is done
00:29:12 --> 00:29:16:	under rental, it has the vacancy rates, the operating expense,
00:29:16 --> 00:29:18:	the NOI return on cost.
00:29:19 --> 00:29:23:	Again all these elements can be manipulated manually through the
00:29:23 --> 00:29:26:	software and like I mentioned in the past, it is
00:29:26 --> 00:29:28:	a subscription software.
00:29:28 --> 00:29:33:	Currently it costs $280 per month per seat per city.
00:29:34 --> 00:29:38:	And if you guys are interested in using, feel free
00:29:38 --> 00:29:42:	to reach out to them and let them know that
00:29:42 --> 00:29:45:	Georgia Tech sent you and they may give you a
00:29:46 --> 00:29:48:	one week free trial, so thank you.
00:29:56 --> 00:30:00:	I'm going to try to, we'll do it perfect.
00:30:01 --> 00:30:04:	Sorry, I'm going to follow KK's lead and not include
00:30:04 --> 00:30:08:	any dance moves in this portion of the presentation, maybe
00:30:08 --> 00:30:09:	during Q&A.
00:30:10 --> 00:30:13:	So I tried to focus this, this is slightly a
00:30:13 --> 00:30:18:	distracting morning to be asked to present your homework from
00:30:18 --> 00:30:21:	over a year ago back to a group of industry
00:30:21 --> 00:30:22:	peers.
00:30:22 --> 00:30:26:	So if I'm tripping over myself, there's probably multiple psychological
00:30:26 --> 00:30:28:	reasons, post traumatic stress being one of them.
00:30:29 --> 00:30:32:	So this is my capstone and my day job is
00:30:32 --> 00:30:36:	now deploying the research that we've done that that we
00:30:36 --> 00:30:39:	drove through that capstone.
00:30:39 --> 00:30:41:	I'm running the off site program for JE Dunn.
00:30:42 --> 00:30:44:	A lot of you flew in.
00:30:44 --> 00:30:47:	We service a large portion of the United States market.
00:30:47 --> 00:30:49:	If you're here local in Atlanta, it's the blue tower
00:30:49 --> 00:30:50:	cranes in Midtown.
00:30:52 --> 00:30:57:	100 year old builder, fascinating risk profile when you're dealing
00:30:57 --> 00:31:01:	with a a company that's celebrated its 100th year birthday.
00:31:02 --> 00:31:05:	Also at rapidly responding to kind of what Egbert talked

00:31:05 --> 00:31:08:	about like, hey, don't forget post COVID, we all have
00:31:08 --> 00:31:11:	changes of taste that we're responding to, let alone debt
00:31:11 --> 00:31:14:	market dynamics, let alone a number of things.
00:31:14 --> 00:31:17:	In my world, labor is everything.
00:31:17 --> 00:31:22:	And pre COVID 2019, ABC said that we had a
00:31:22 --> 00:31:27:	200,000 person labor shortage in US construction.
00:31:27 --> 00:31:30:	Two weeks ago, it was 430,000.
00:31:30 --> 00:31:31:	At the end of the year, it will be half
00:31:31 --> 00:31:32:	a million.
00:31:33 --> 00:31:37:	This capstone, if behind closed doors or with a drink
00:31:37 --> 00:31:41:	in my hand, is really about solving capacity.
00:31:42 --> 00:31:44:	As Rick puts the veneer of efficiencies on it, there's
00:31:44 --> 00:31:45:	that too.
00:31:46 --> 00:31:48:	It should equate to affordability and housing.
00:31:49 --> 00:31:50:	I think there's a crawl, walk, run to it.
00:31:50 --> 00:31:53:	And that's kind of what I really tried to research
00:31:53 --> 00:31:55:	just to kind of put it in context.
00:31:56 --> 00:31:58:	Can we play this video, please, Sir?
00:31:59 --> 00:32:04:	So this video dropped plus minus January one in 2012.
00:32:05 --> 00:32:08:	A lot of you are probably nodding your heads because
00:32:08 --> 00:32:10:	it was it was one of the most viral videos
00:32:11 --> 00:32:13:	in kind of the first half of the last decade.
00:32:15 --> 00:32:21:	Sorry, I OK in short Google this video and then
00:32:21 --> 00:32:26:	please hop on YouTube Hotel in 15 days.
00:32:28 --> 00:32:30:	It's completely finished in 15 days.
00:32:30 --> 00:32:31:	It's in China.
00:32:31 --> 00:32:33:	It's a place called daunting lake.
00:32:33 --> 00:32:34:	It's tower T30.
00:32:34 --> 00:32:37:	It's the thirty floor hotel in 15 days start to
00:32:37 --> 00:32:38:	finish.
00:32:38 --> 00:32:41:	The Wired article that came out in 2012 gives you
00:32:41 --> 00:32:44:	a really good line of sight as to those dynamics.
00:32:45 --> 00:32:47:	And this was kind of the shot across the proverbial
00:32:47 --> 00:32:50:	bow for this country in our industry of look at
00:32:50 --> 00:32:53:	the inefficiencies if this can be technically pulled off.
00:32:53 --> 00:32:56:	And so it kind of created this high bar for
00:32:56 --> 00:32:59:	us to respond to my capstone.
00:32:59 --> 00:33:02:	The capstone structure is a three-part effort, do a bunch
00:33:02 --> 00:33:05:	of research, throw it at some data to analyse and
00:33:05 --> 00:33:07:	come up with a finding.
00:33:07 --> 00:33:11:	And so this begins a kind of 15 year study
00:33:11 --> 00:33:15:	of what is the maturity of off site construction, modular

00:33:16 --> 00:33:17:	prefabrication.
00:33:17 --> 00:33:21:	To me, they're synonymous in this in this context and
00:33:21 --> 00:33:26:	really the first body of work and Mackenzie studied productivity
00:33:26 --> 00:33:31:	in plus minus the 20/15/2016 time time frame and and
00:33:31 --> 00:33:32:	publish this article.
00:33:32 --> 00:33:34:	It's 200 page volume.
00:33:34 --> 00:33:36:	You'd only read it if you were writing a thesis,
00:33:36 --> 00:33:39:	but I could bubble up some of the findings.
00:33:39 --> 00:33:41:	It's like 7 things that we can do from what
00:33:41 --> 00:33:44:	KK is talking about permitting, efficiencies and regulation and, you
00:33:45 --> 00:33:46:	know, construction and education.
00:33:47 --> 00:33:49:	But at the very end of that body of work,
00:33:49 --> 00:33:54:	the team started analyzing industries from country to country and
00:33:54 --> 00:33:59:	talked about different maturities of industrializing the industry, taking manufacturing
00:33:59 --> 00:34:00:	techniques.
00:34:00 --> 00:34:03:	If you look at the top left, the hard graphs
00:34:03 --> 00:34:07:	that we used, we're really benchmarking GDP growth, which is
00:34:07 --> 00:34:08:	the middle line.
00:34:09 --> 00:34:13:	Gains in productivity in the manufacturing industry is the top
00:34:13 --> 00:34:17:	line and gains in construction productivity is the bottom line,
00:34:17 --> 00:34:21:	which equivalently in in a 15 year time horizon, it's
00:34:21 --> 00:34:24:	like 1% gain over 50 year horizon in the United
00:34:24 --> 00:34:26:	States, it's a 2% drop.
00:34:26 --> 00:34:29:	We're getting less efficient in construction as we go on
00:34:29 --> 00:34:33:	the volume of construction per per input labor hour.
00:34:33 --> 00:34:37:	So the, the findings that McKenzie accidentally tripped into was
00:34:37 --> 00:34:40:	kind of an early recommended, hey, you remember that video
00:34:40 --> 00:34:41:	four years ago?
00:34:42 --> 00:34:44:	The industry should start making headway in that direction.
00:34:45 --> 00:34:48:	You know, the second-half of last decade, we saw Uber,
00:34:48 --> 00:34:51:	we saw the rise of all the, you know, the
00:34:51 --> 00:34:56:	Weworks, the the flood of venture capital disrupting and distorting
00:34:56 --> 00:34:57:	a number of markets.
00:34:57 --> 00:34:59:	And we can say this in reverse.
00:34:59 --> 00:35:01:	But man, did it take up a lot of headlines
00:35:01 --> 00:35:04:	and attention in the last part of the decade.

00:35:04 --> 00:35:07:	But what was really interesting as they kind of, you
00:35:07 --> 00:35:10:	know, they started this trilogy now it's like, OK, we've
00:35:10 --> 00:35:12:	we've had that finding in 2015 and 2019.
00:35:12 --> 00:35:13:	They write this report.
00:35:14 --> 00:35:17:	Well, what happens if we really focus on modular construction
00:35:17 --> 00:35:20:	and its impacts to moving from projects to production?
00:35:20 --> 00:35:22:	What, what does that really mean for the industry?
00:35:22 --> 00:35:27:	Post that research, you begin plus minus COVID start seeing
00:35:27 --> 00:35:33:	that first deployment of manufacturing capital or manufacturing real estate
00:35:33 --> 00:35:35:	just start the crater.
00:35:35 --> 00:35:39:	The most notable if if you've been following next the
00:35:39 --> 00:35:43:	the, the work with Katera, a variety of other regional
00:35:43 --> 00:35:47:	players, but Katera definitely is kind of like the poster
00:35:47 --> 00:35:49:	child here of flood the market.
00:35:49 --> 00:35:52:	We're going to disrupt and distort the market and then
00:35:52 --> 00:35:54:	that just kind of failed on impact.
00:35:54 --> 00:35:58:	And so the research that I really started to to
00:35:58 --> 00:36:01:	kind of try to sum up, but then figure out
00:36:01 --> 00:36:05:	what's next is somewhere post COVID 2122, there was kind
00:36:05 --> 00:36:08:	of a post mortem of like the failure modes for
00:36:08 --> 00:36:11:	a lot of the the early wave providers.
00:36:11 --> 00:36:14:	And McKenzie again, kind of hammocked into like these four
00:36:14 --> 00:36:15:	failure modes.
00:36:15 --> 00:36:17:	Like products tend to be over designed because they're trying
00:36:17 --> 00:36:19:	to, they have to solve for worst case scenarios.
00:36:19 --> 00:36:23:	I think structurally and seismic and like, but you know,
00:36:23 --> 00:36:25:	the ground floor is the same unit as the top
00:36:25 --> 00:36:26:	floor.
00:36:26 --> 00:36:30:	I mean, there's just like inherently when you productize something
00:36:30 --> 00:36:33:	you're going to over designed to kind of create the
00:36:33 --> 00:36:37:	repeatability teams that have traditionally stick built in the field.
00:36:38 --> 00:36:41:	They're literally accidentally rigging and fully volumetric modules wrong and
00:36:41 --> 00:36:44:	they're doing backflips on the top of the crane and
00:36:44 --> 00:36:46:	it's just like stuff you don't even want to see.
00:36:46 --> 00:36:48:	So there's still a learning curve in construction.
00:36:49 --> 00:36:54:	It's really this bottom 2 that I thought was endemic
00:36:54 --> 00:36:55:	of builders.

00:36:55 --> 00:36:58:	Unlike you, we're horrible at deploying capital.
00:36:59 --> 00:37:02:	We like to create a team for your Snowflake disband
00:37:02 --> 00:37:05:	team and move on because our margins are horrible and
00:37:05 --> 00:37:08:	you'll disagree with me when we send you a bid.
00:37:09 --> 00:37:13:	But the the other dynamic with that, traditionally the unit
00:37:13 --> 00:37:16:	of measure as a builder is your project and then
00:37:16 --> 00:37:18:	your project and then your project.
00:37:18 --> 00:37:21:	And I would argue that technically that's your unit of
00:37:21 --> 00:37:22:	measure.
00:37:22 --> 00:37:25:	Your pro forma is how you think about your industry
00:37:25 --> 00:37:27:	and your bag of pro formas is your company.
00:37:27 --> 00:37:31:	We're not too terribly different in construction until you have
00:37:31 --> 00:37:34:	a manufacturing line like the I Love Lucy and the
00:37:34 --> 00:37:37:	Chocolates, just like there is nothing in our industry that
00:37:37 --> 00:37:38:	creates real flow.
00:37:39 --> 00:37:42:	And unfortunately modular is in the middle.
00:37:43 --> 00:37:47:	You deploy capital expecting flow, but you're inherently operating in
00:37:47 --> 00:37:51:	a market that peaks and troughs and peaks and troughs
00:37:51 --> 00:37:52:	for a variety of reasons.
00:37:53 --> 00:37:56:	And so this accidental finding in the bottom left for
00:37:56 --> 00:38:00:	Mackenzie was you have to partner Edgar in the earlier
00:38:00 --> 00:38:01:	conversation.
00:38:01 --> 00:38:04:	Some of the opening keynote this morning talked about public
00:38:04 --> 00:38:05:	private partnerships, Great.
00:38:07 --> 00:38:09:	What could happen in kind of the private markets that
00:38:09 --> 00:38:12:	may actually bundle demand so that I can give you
00:38:12 --> 00:38:14:	the economies of scale, your promise When you think about
00:38:14 --> 00:38:17:	modular construction, we just haven't been able to do it
00:38:17 --> 00:38:19:	because of this unsteady pipeline dynamic.
00:38:20 --> 00:38:22:	So apologies for this slide.
00:38:22 --> 00:38:25:	Rick asked for a hypothesis, super wonky.
00:38:25 --> 00:38:29:	What has happened is you've taken and asked a bunch
00:38:29 --> 00:38:34:	of builders that don't deploy capital regularly to deploy capital
00:38:34 --> 00:38:37:	because we've seen the promise out of China.
00:38:37 --> 00:38:39:	We think you're interested.
00:38:40 --> 00:38:42:	So we think there's demand, we think there's supply, but
00:38:43 --> 00:38:45:	we really haven't focused on a go to market strategy
00:38:45 --> 00:38:46:	for those entities.
00:38:47 --> 00:38:50:	What are you doing, how you bringing on capability, how
00:38:50 --> 00:38:53:	you bringing that online and pairing it with demand as

00:38:53 --> 00:38:55:	it can grow and provide that scale?
00:38:55 --> 00:38:58:	And so that's what I started playing around with and
00:38:58 --> 00:39:01:	instead of public private partnerships as a solve, which would
00:39:01 --> 00:39:02:	be fantastic.
00:39:02 --> 00:39:05:	What is in the market now that has a lot
00:39:05 --> 00:39:09:	of demand scale that would justify a a very risk
00:39:09 --> 00:39:11:	averse builder to deploy capital.
00:39:12 --> 00:39:13:	And so that's what we really played along with.
00:39:14 --> 00:39:18:	So the bridge from research to now analysis, I'm at
00:39:18 --> 00:39:22:	100 year old company, we're a national builder.
00:39:22 --> 00:39:24:	We do multi family, but we do a lot of
00:39:24 --> 00:39:25:	other things.
00:39:25 --> 00:39:27:	And so I had to kind of soften the lens
00:39:27 --> 00:39:31:	from clicking hotel rooms together in 15 days or less.
00:39:31 --> 00:39:33:	I just, you know, I'm going to treat kidding a
00:39:33 --> 00:39:35:	room of fixtures as as equally as I am a
00:39:35 --> 00:39:38:	bathroom pod for a hospital or an operating room fully
00:39:39 --> 00:39:41:	finished and clicking that into place.
00:39:41 --> 00:39:44:	So I have a spectrum of products that I can
00:39:44 --> 00:39:49:	partner with a project or even better, a program that's
00:39:49 --> 00:39:52:	kind of just giving you a little teaser.
00:39:52 --> 00:39:55:	The challenge with that is if you think about the
00:39:55 --> 00:39:58:	products boxing up a bunch of light fixtures to to
00:39:58 --> 00:39:59:	fit out this room.
00:40:00 --> 00:40:03:	Versus clicking half of the room in place, fully structured,
00:40:03 --> 00:40:06:	fully finished with carpet and screens, one end of the
00:40:06 --> 00:40:09:	spectrum versus the other end of the spectrum.
00:40:09 --> 00:40:12:	From the purposes of the production, the provider is just
00:40:13 --> 00:40:17:	different levels of capital intensity, obviously different levels of risk.
00:40:18 --> 00:40:22:	Obviously if they're wrong timing, if they're wrong product, they're
00:40:22 --> 00:40:25:	really wrong and they're one of the another body in
00:40:25 --> 00:40:27:	the bag of the failure modes.
00:40:28 --> 00:40:30:	So I was trying to figure out how you take
00:40:30 --> 00:40:33:	somebody bias like a builder like us and crawl, walk,
00:40:33 --> 00:40:36:	run them in a transitional freight, transitional state.
00:40:37 --> 00:40:37:	So what do we have?
00:40:37 --> 00:40:39:	We have our own self perform crews.
00:40:39 --> 00:40:42:	We pour concrete, we do a bunch of things, nothing
00:40:42 --> 00:40:44:	that you care about my means and methods.
00:40:44 --> 00:40:47:	Can I build manufacturing for that scope of work?

00:40:48 --> 00:40:50:	You don't know it and you get my bill for
00:40:50 --> 00:40:51:	concrete, you don't care how I do it.
00:40:52 --> 00:40:55:	So that's the enablement side of the go to market
00:40:55 --> 00:40:55:	strategy.
00:40:56 --> 00:40:58:	The packaging side was kind of interesting.
00:40:58 --> 00:40:59:	And this is sorry.
00:40:59 --> 00:41:03:	So my concrete, you don't care formwork, you don't care
00:41:03 --> 00:41:07:	if I'm carving up temporary windows so the glass doesn't
00:41:07 --> 00:41:08:	break during a storm.
00:41:08 --> 00:41:09:	You don't care how I do it.
00:41:09 --> 00:41:11:	You just want wood on the side of your building
00:41:11 --> 00:41:13:	in a temporary all means and math is general condition.
00:41:13 --> 00:41:16:	Ramps, fencing, you don't care.
00:41:16 --> 00:41:16:	You just don't care.
00:41:17 --> 00:41:20:	So I started creating ways that I can deploy some
00:41:20 --> 00:41:24:	machinery and space and deploy capital, the things that you
00:41:24 --> 00:41:27:	just will never see, but it provides me efficiencies.
00:41:28 --> 00:41:32:	The second part of the go to market strategy was
00:41:32 --> 00:41:37:	like, OK, post COVID rapid raising rents, my my developers
00:41:37 --> 00:41:40:	are all kind of nodding their head.
00:41:40 --> 00:41:42:	And then all of a sudden more and more whites
00:41:42 --> 00:41:44:	of the eyes are showing up year on year.
00:41:44 --> 00:41:47:	I had to start looking at where why is construction
00:41:47 --> 00:41:49:	volume still growing exponentially?
00:41:50 --> 00:41:55:	It's because of these markets, the hyperscaler markets, the semiconductor,
00:41:55 --> 00:41:59:	the chips act, the inflation reduction act, the there's a
00:41:59 --> 00:42:03:	fourth bring manufacturing home and we see kind of the
00:42:03 --> 00:42:06:	battery plants and you name it different type.
00:42:06 --> 00:42:11:	And then healthcare, which is more demographic driven, just being
00:42:11 --> 00:42:16:	kind of secular growth for healthcare, these markets, they stopped
00:42:16 --> 00:42:22:	caring about needing my cost benefit value proposition pretty quickly.
00:42:22 --> 00:42:24:	They just cared about capacity and speed.
00:42:24 --> 00:42:26:	They had a speed to market.
00:42:26 --> 00:42:29:	Literally the hyper, the data centers that are driving all
00:42:30 --> 00:42:32:	the AI boom or mag 7, we literally from a
00:42:32 --> 00:42:35:	real estate perspective, call them hyper scalers.
00:42:35 --> 00:42:38:	I mean, that already tells you what's the question that
00:42:39 --> 00:42:41:	they're asking from me is not budget.
00:42:41 --> 00:42:43:	It is can you go faster and nine times out

00:42:44 --> 00:42:47:	of 10, the other weird driver from a demand standpoint
00:42:47 --> 00:42:51:	is really technical facilities in really rural places.
00:42:52 --> 00:42:55:	Taking my labor shortage and making it worse.
00:42:55 --> 00:43:01:	How do I get 150% of Idaho's electrical electricians capacity
00:43:01 --> 00:43:04:	to one site South of Boise?
00:43:04 --> 00:43:08:	Those are really impossible to solve traditionally stick built.
00:43:08 --> 00:43:10:	So these we create it.
00:43:10 --> 00:43:14:	It created a basket of demand that if done correctly,
00:43:14 --> 00:43:18:	maybe I can throw your one snowflake housing project into
00:43:19 --> 00:43:22:	and you get that economy of scale by proximity.
00:43:23 --> 00:43:27:	And so that's, that's really kind of the, the, the,
00:43:27 --> 00:43:28:	the final outcome.
00:43:29 --> 00:43:32:	The package work was really interesting in those markets.
00:43:33 --> 00:43:36:	The other dynamic that's happening at the CAPL program is
00:43:36 --> 00:43:39:	much like you guys talking about products.
00:43:39 --> 00:43:42:	They go a step further in the top right, impossible
00:43:42 --> 00:43:45:	to read because you weren't supposed to read it.
00:43:46 --> 00:43:49:	But here we are looking at this slide is a
00:43:49 --> 00:43:53:	healthcare program and I it's, it's confidential.
00:43:53 --> 00:43:57:	So I've dotted everything out $20 billion worth of capital
00:43:57 --> 00:44:00:	over 10 projects and you normally don't want to show
00:44:01 --> 00:44:04:	your GC this because you don't want to be captured
00:44:04 --> 00:44:04:	by me.
00:44:05 --> 00:44:10:	However, if you look operating room, exam room weights and
00:44:10 --> 00:44:15:	measures post operation recovery that you know, 10 different spaces
00:44:15 --> 00:44:19:	and they've really instead of creating line by line is
00:44:19 --> 00:44:20:	the snowflake view.
00:44:21 --> 00:44:24:	What if I did operating rooms over 10 years?
00:44:24 --> 00:44:27:	Can I build a production system to that demand?
00:44:28 --> 00:44:31:	I think that's the sentiment around when people talk about
00:44:31 --> 00:44:35:	public private partnerships, but this is a private private partnership.
00:44:36 --> 00:44:40:	And so we're actively engaged in kind of the the
00:44:40 --> 00:44:45:	the pressures of hyperscaling is changing relationships for us to
00:44:45 --> 00:44:48:	create a more strategic supply chain.
00:44:49 --> 00:44:52:	And this is kind of like the long winded way
00:44:52 --> 00:44:54:	of saying if, if I can build this successfully for
00:44:54 --> 00:44:57:	this chapter of where the market is post COVID, it's
00:44:57 --> 00:45:00:	quite possible you and I could be talking about snowflakes
00:45:01 --> 00:45:03:	in the four to five year time horizon.
00:45:03 --> 00:45:06:	And I can get you economies of scale that had

00:45:06 --> 00:45:10:	a weird subsidy to it, hyperscalers, healthcare it you're going
00:45:10 --> 00:45:12:	to ask for the same parts and pieces and the
00:45:13 --> 00:45:17:	equipment basically is running for free because they've absorbed that
00:45:17 --> 00:45:20:	capacity over the last five or ten years.
00:45:20 --> 00:45:23:	So I think this is we're, we're very fortunate.
00:45:23 --> 00:45:27:	So what were the results without kind of opening kimonos
00:45:27 --> 00:45:32:	too much on the investment profile, solid capacity for manufacturing
00:45:32 --> 00:45:34:	3X or 4X that number.
00:45:34 --> 00:45:36:	That's probably the volume of work from a real estate
00:45:36 --> 00:45:37:	perspective.
00:45:38 --> 00:45:42:	The facility is throwing cash, which is something that we
00:45:42 --> 00:45:44:	didn't see in some of those failure modes.
00:45:45 --> 00:45:51:	But most importantly it creates basically that strategy that effectively
00:45:51 --> 00:45:54:	we'll be able to bring to other markets.
00:45:54 --> 00:45:57:	The the the intention will be to expand that go
00:45:57 --> 00:46:02:	to market strategy and traditional development based construction dance moves
00:46:02 --> 00:46:02:	now.
00:46:05 --> 00:46:06:	Thank you guys.
00:46:06 --> 00:46:09:	And not only did he need a hypothesis, he had
00:46:09 --> 00:46:11:	to prove that 45% cash on cash with a pro
00:46:11 --> 00:46:12:	forma.
00:46:12 --> 00:46:14:	So we don't take it with a grain of salt.
00:46:16 --> 00:46:17:	Now is your time.
00:46:17 --> 00:46:20:	As I said, I, I'm, I'm the quarterback here and,
00:46:20 --> 00:46:23:	and you can clearly tell that we've got a lot
00:46:23 --> 00:46:24:	of knowledge here.
00:46:24 --> 00:46:28:	So if they're questions, comments, we have the microphone here
00:46:28 --> 00:46:31:	and we're certainly glad to, to, to entertain some of
00:46:31 --> 00:46:32:	them.
00:46:32 --> 00:46:33:	So please.
00:46:39 --> 00:46:39:	OK.
00:46:58 --> 00:47:01:	So the the list I have on the screen, which
00:47:02 --> 00:47:06:	is about, I can't remember the the number, the active
00:47:06 --> 00:47:09:	cities is when a client is using their website.
00:47:10 --> 00:47:12:	So they're actively updating those.
00:47:12 --> 00:47:16:	So I, I can't tell is I think Austin is
00:47:16 --> 00:47:17:	on there.
00:47:17 --> 00:47:17:	OK.

00:47:18 --> 00:47:22:	So yeah, essentially it's constantly updated because they directly pulls
00:47:23 --> 00:47:25:	it from the municipality website.
00:47:25 --> 00:47:28:	So whenever that gets updated, it's being updated through the
00:47:28 --> 00:47:28:	website.
00:47:29 --> 00:47:29:	Yep.
00:47:32 --> 00:47:34:	Just briefly, you know, one of the things that we
00:47:35 --> 00:47:37:	find with programs like this that is a you do
00:47:37 --> 00:47:40:	need a public partner and it's GIS continues to grow,
00:47:40 --> 00:47:43:	it's making that public partner more valuable to the process
00:47:43 --> 00:47:44:	as well.
00:47:44 --> 00:47:47:	And we've got a wide range of GIS systems that
00:47:47 --> 00:47:50:	programs like this are trying to interface with.
00:47:50 --> 00:47:53:	And there's not one platform out there, but the more
00:47:53 --> 00:47:58:	sophisticated the municipality GIS system, the easier these programs are
00:47:58 --> 00:47:59:	are interfacing with them.
00:47:59 --> 00:48:03:	And especially when we can get to, as KK mentioned
00:48:03 --> 00:48:06:	with the undergraduate capstone, when we can get to the
00:48:07 --> 00:48:12:	development regulation layer of local government with standard drawings, there's
00:48:12 --> 00:48:14:	a lot of potential there.
00:48:14 --> 00:48:18:	But again, many local governments are still doing standard drawings
00:48:18 --> 00:48:20:	with PDFs versus CAD.
00:48:20 --> 00:48:23:	So with we've got this two way St.
00:48:23 --> 00:48:25:	yes, is that still OK?
00:48:25 --> 00:48:34:	What about projected projects meeting?
00:48:34 --> 00:48:36:	Like, OK, great, we know what we can build there,
00:48:36 --> 00:48:38:	but what I want to build there?
00:48:39 --> 00:48:41:	How do we how do we suggest to your software
00:48:41 --> 00:48:44:	or the software that hey I want to build a
00:48:44 --> 00:48:48:	missing middle neighborhood and it consists of cottage courts and
00:48:48 --> 00:48:49:	townhomes duplexes.
00:48:50 --> 00:48:50:	How?
00:49:01 --> 00:49:01:	Do I create that?
00:49:01 --> 00:49:02:	Yeah, potential.
00:49:04 --> 00:49:04:	Rezoning and execution.
00:49:05 --> 00:49:08:	OK, So the software I do not have, I do
00:49:08 --> 00:49:10:	not think has ability to rezone.
00:49:12 --> 00:49:14:	But what I can do is put you in touch

00:49:14 --> 00:49:14:	with Michael.
00:49:14 --> 00:49:19:	He can probably he he did that demo within like
00:49:19 --> 00:49:20:	15 minutes.
00:49:20 --> 00:49:23:	And so he can quickly lay out all these different
00:49:23 --> 00:49:25:	types of units within the same project.
00:49:25 --> 00:49:27:	And I think he he's able to combine all of
00:49:27 --> 00:49:31:	the feasibility study into one report because that's essentially what
00:49:31 --> 00:49:32:	what you're looking for, right.
00:49:35 --> 00:49:35:	Yeah.
00:49:37 --> 00:49:40:	One possibility to meet where they're at is to show
00:49:40 --> 00:49:43:	the delta, because it's so quick to iterate, you can
00:49:43 --> 00:49:47:	show the delta of conforming to the zone zoning requirement
00:49:47 --> 00:49:50:	versus what you have and all the rules that were
00:49:50 --> 00:49:51:	broken to do it.
00:49:52 --> 00:49:55:	And that's better support for the conversation for rezoning.
00:49:55 --> 00:49:59:	So that's just meeting where the tech is right now.
00:50:00 --> 00:50:03:	And that one of the KK spent more time than
00:50:03 --> 00:50:06:	I have, but one of the this particular program where
00:50:06 --> 00:50:10:	it started was a projection of not what is available
00:50:10 --> 00:50:10:	today.
00:50:11 --> 00:50:15:	But if you can iterate quickly enough as Stacy says,
00:50:15 --> 00:50:17:	where is this place going?
00:50:17 --> 00:50:21:	What has been happening and in the attempt to identify
00:50:21 --> 00:50:24:	a place that is going to be suitable for that
00:50:24 --> 00:50:27:	in five years, it is already headed that way.
00:50:27 --> 00:50:30:	It's just not obvious to us as we drive around
00:50:30 --> 00:50:33:	or we look at aerials, it's not obvious this wave
00:50:33 --> 00:50:35:	of zoning and she started this deep blocks to look
00:50:35 --> 00:50:36:	at.
00:50:36 --> 00:50:39:	This is a place inevitably that is going to end
00:50:39 --> 00:50:42:	up like this, and we can show it with these
00:50:42 --> 00:50:45:	to the technology and the iteration so that you're not
00:50:45 --> 00:50:49:	standing there by yourself arguing for something that that you
00:50:49 --> 00:50:53:	think is inevitable, but there is data that shows it's
00:50:53 --> 00:50:56:	inevitable that this is a good use for this place.
00:50:56 --> 00:51:00:	Although today with eyes on it, it's not obvious.
00:51:00 --> 00:51:01:	That makes sense.
00:51:02 --> 00:51:09:	Yes, to change the message.
00:51:17 --> 00:51:19:	Yes, architects can use them too.
00:51:19 --> 00:51:22:	The that's why I love this software is yes, it's
00:51:22 --> 00:51:26:	marketed towards developers, but nowadays a lot of

	architects or
00:51:26 --> 00:51:31:	advisory committees are running these feasibility study for the developers.
00:51:31 --> 00:51:34:	So if it's very easy to use because I tested
00:51:34 --> 00:51:35:	all the software myself.
00:51:36 --> 00:51:39:	So anyone even without a 3D software background, you can
00:51:39 --> 00:51:41:	easily use this website.
00:51:44 --> 00:51:44:	Yes, you can.
00:51:45 --> 00:51:45:	Yep.
00:51:45 --> 00:51:47:	Because I think at one point a video it shows
00:51:48 --> 00:51:50:	you, I think he typed in as a 200 affordable
00:51:50 --> 00:51:50:	units.
00:51:51 --> 00:51:55:	If you're increasing and decreasing these units, the masses change
00:51:55 --> 00:51:58:	on its own, but it doesn't give you fancy shapes
00:51:58 --> 00:52:00:	if that's what you're looking for.
00:52:00 --> 00:52:02:	Oh yeah, no, it doesn't do that.
00:52:16 --> 00:52:20:	Hello, so I, so I do need the microphone.
00:52:20 --> 00:52:22:	I can be quite self spoken, but thank you for
00:52:23 --> 00:52:24:	coming to speak with us.
00:52:24 --> 00:52:25:	My name is Maria.
00:52:25 --> 00:52:29:	I am a graduating senior from Georgia State University studying
00:52:29 --> 00:52:30:	real estate and finance.
00:52:31 --> 00:52:34:	So my question to the panels, I would say specifically
00:52:34 --> 00:52:35:	is for Mr.
00:52:35 --> 00:52:36:	Javier and Mr.
00:52:36 --> 00:52:37:	Stacy.
00:52:38 --> 00:52:41:	I would love to know how is your line of
00:52:41 --> 00:52:47:	work, specifically when it comes to these two projects, impacted
00:52:47 --> 00:52:50:	by what happens on a macroeconomic level?
00:52:54 --> 00:52:54:	I'll, I'll start.
00:52:55 --> 00:52:59:	So if, if you remember, just by the nature of
00:52:59 --> 00:53:01:	our company, it's 100 years.
00:53:01 --> 00:53:06:	So roughly going into COVID, we were ironically 50% of
00:53:06 --> 00:53:09:	the revenues that we are today.
00:53:10 --> 00:53:13:	So that means we doubled revenues since COVID as 100
00:53:13 --> 00:53:14:	year old company.
00:53:14 --> 00:53:18:	So the macro environment is really strange because it is
00:53:18 --> 00:53:22:	strained the majority of people in this room because of
00:53:22 --> 00:53:26:	the relationship and the input of equity in debt financing
00:53:26 --> 00:53:30:	for the primary input to get these projects out of

00:53:30 --> 00:53:30:	it.
00:53:30 --> 00:53:34:	Everything that I showed you which was very provocative in
00:53:35 --> 00:53:38:	real time to my research was because we kept growing
00:53:39 --> 00:53:43:	like mad pricing, inflation's a lot of that, but overwhelmingly
00:53:43 --> 00:53:45:	the step function of demand.
00:53:45 --> 00:53:49:	I, I would say going into COVID, we were probably
00:53:50 --> 00:53:56:	sixty 4040% capital, capital programs like healthcare vertical markets, 60%
00:53:56 --> 00:53:59:	of IT developers across 27 offices.
00:53:59 --> 00:54:04:	Geographically, we have probably inverted that plus plus plus in
00:54:04 --> 00:54:07:	the last four years says that is that's how we've
00:54:07 --> 00:54:09:	experienced the economy.
00:54:10 --> 00:54:14:	The interesting thing for everyone else, and this is my
00:54:14 --> 00:54:18:	last statement, if we were kind of working with developers
00:54:18 --> 00:54:23:	and, you know, flirting with vertical market capital program partner
00:54:23 --> 00:54:27:	clients, we've sloshed left is what we basically call it
00:54:27 --> 00:54:31:	the builders that you've worked with, you know, onesie twosies
00:54:31 --> 00:54:34:	possibly on a housing project somewhere.
00:54:35 --> 00:54:38:	They've sloshed it like do regional healthcare because of the
00:54:38 --> 00:54:40:	vacuum of work that's left.
00:54:41 --> 00:54:44:	And so I just trying to forecast what's going to
00:54:44 --> 00:54:48:	happen if and when the debt markets normalize.
00:54:49 --> 00:54:51:	You can kind of see we went left, they went
00:54:52 --> 00:54:52:	left crazy.
00:54:52 --> 00:54:55:	Infrastructure builders are now our competition.
00:54:56 --> 00:54:57:	So it's it's, it's an interesting time maybe.
00:54:58 --> 00:54:59:	You can talk about research.
00:55:00 --> 00:55:04:	So the technology aspect, that's a little different because it
00:55:04 --> 00:55:06:	depends on adoption in industry.
00:55:06 --> 00:55:09:	So we're teaching students about the tools that could be
00:55:09 --> 00:55:12:	used in the future and they're going to be the
00:55:12 --> 00:55:15:	drivers of adoption in the industry.
00:55:15 --> 00:55:19:	So the financial benefits and, and efficiencies have not been
00:55:19 --> 00:55:22:	realized yet, but that's, that's what we hope is that
00:55:22 --> 00:55:27:	by introducing the technologies and starting the conversation that the
00:55:27 --> 00:55:32:	students will have eventually, eventually with their employers, they'll Dr.
00:55:32 --> 00:55:36:	adoption and then they will help their employers to realize
00:55:36 --> 00:55:40:	the benefits of efficiencies that can be achieved.

00:55:40 --> 00:55:44:	So, so the research is, is still ongoing and, and
00:55:44 --> 00:55:46:	that's what we're working on and.
00:55:48 --> 00:55:50:	I'm sorry, just a second part to that question.
00:55:50 --> 00:55:52:	Try not to fall down here as I try to
00:55:52 --> 00:55:53:	reach the height of this microphone.
00:55:53 --> 00:55:56:	Maybe my WNBA dreams are over now.
00:55:56 --> 00:56:00:	Thank you, Mr.
00:56:00 --> 00:56:05:	In your conversations with these developers or contractors or construction
00:56:05 --> 00:56:09:	firms, have there been any discussions regarding the scalability of
00:56:09 --> 00:56:10:	this technology?
00:56:10 --> 00:56:13:	As cute as I think it would be to have
00:56:13 --> 00:56:14:	many of.
00:56:15 --> 00:56:17:	Walking dogs, big robots, walking dogs.
00:56:17 --> 00:56:17:	So just.
00:56:18 --> 00:56:20:	Curious to know how how those conversations look.
00:56:20 --> 00:56:23:	Like so with the robot dog, it's very slow.
00:56:24 --> 00:56:26:	With drones, that has been much faster.
00:56:27 --> 00:56:32:	So we started looking at drones in 20/10/2011, and now
00:56:32 --> 00:56:33:	they're commonplace.
00:56:34 --> 00:56:38:	They're commonplace for tasks that we imagined back then, which
00:56:38 --> 00:56:42:	had to do with mapping and serving and things like
00:56:42 --> 00:56:42:	that.
00:56:43 --> 00:56:45:	Materials, transport on job sites.
00:56:45 --> 00:56:47:	That's still a work in progress.
00:56:48 --> 00:56:52:	So the conversations are sometimes slow, sometimes fast, but all
00:56:52 --> 00:56:56:	depends on return on investment on a company investing in
00:56:56 --> 00:57:01:	technology and being able to get a return that justifies
00:57:01 --> 00:57:02:	that investment.
00:57:02 --> 00:57:03:	That guy right there.
00:57:03 --> 00:57:06:	It's about the same cost as a Ferrari.
00:57:07 --> 00:57:10:	So not many companies will at this time invest in
00:57:10 --> 00:57:14:	having one of these walking their job sites.
00:57:14 --> 00:57:16:	I hope that that helps it.
00:57:16 --> 00:57:16:	Does.
00:57:16 --> 00:57:18:	Thanks to both of you all.
00:57:18 --> 00:57:19:	Thank you.
00:57:20 --> 00:57:21:	Well, thank you for your time.
00:57:21 --> 00:57:24:	We and, and we're here if you want to, you
00:57:24 --> 00:57:28:	know, by all means let's let's have some conversation.

00:57:29 --> 00:57:32:	Hopefully you've seen some of what we do at Georgia
00:57:32 --> 00:57:33:	Tech.
00:57:33 --> 00:57:35:	You have seen maybe what we look at in the
00:57:36 --> 00:57:39:	future and and part of our goal certainly with our
00:57:39 --> 00:57:42:	real estate development program is that we do have folks
00:57:42 --> 00:57:46:	like Doctor Roseri that can keep the research going when
00:57:46 --> 00:57:48:	it's not quite financially feasible yet.
00:57:48 --> 00:57:51:	So that those of you in this room with a
00:57:51 --> 00:57:55:	passion for affordable housing will continue not to have the
00:57:55 --> 00:57:59:	patience to deal with the inefficiencies that many of us
00:57:59 --> 00:58:03:	do, because that's a big part of what I believe
00:58:03 --> 00:58:06:	is our solution with affordable housing.
00:58:06 --> 00:58:08:	And this is part of what we try to work
00:58:08 --> 00:58:11:	on, not just within the industry, but within academia as
00:58:11 --> 00:58:12:	well these days.
00:58:12 --> 00:58:16:	How do we squeeze that inefficiency out of the development
00:58:17 --> 00:58:19:	process through any of these means?
00:58:19 --> 00:58:22:	Because ultimately, I think that that is a big part
00:58:22 --> 00:58:23:	of the solution.
00:58:23 --> 00:58:25:	So thanks for your time and we'll be here for
00:58:25 --> 00:58:27:	a minute if you want to keep talking, OK?