Event Session

The Future of Technology and Affordability in Real Estate Development

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?
