

# Webinar

## Resilient Retrofits

Date: May 13, 2022

00:00:02 --> 00:00:05: Hello welcome welcome. We're going to give everyone a few  
 00:00:05 --> 00:00:08: minutes to join us here today to talk about resilient  
 00:00:08 --> 00:00:12: retrofits in our existing buildings and physical climate risk.  
 00:00:14 --> 00:00:16: My name is Clay Haynes, I am the founder of  
 00:00:16 --> 00:00:21: public square and adaptive reuse real estate development  
 00:00:21 --> 00:00:24: company based  
 00:00:24 --> 00:00:24: in Nashville, TN. It's my honor to be your moderator  
 00:00:26 --> 00:00:29: today.  
 00:00:29 --> 00:00:33: So why are we here? The built environment that we  
 00:00:33 --> 00:00:37: see today will represent 2/3 of the building stock in  
 00:00:37 --> 00:00:41: 2040. Extreme weather events are becoming increasingly  
 00:00:41 --> 00:00:45: common and most  
 00:00:45 --> 00:00:49: buildings are not prepared for the risks that they face  
 00:00:49 --> 00:00:54: here in Nashville. We've had multiple flood events,  
 00:00:54 --> 00:00:56: tornadoes, and  
 00:00:56 --> 00:00:58: each summer we deal with rising extreme heat. A number  
 00:01:00 --> 00:01:04: of challenges exist for retrofitting buildings for climate  
 00:01:04 --> 00:01:08: change, including  
 00:01:08 --> 00:01:12: design complexity cost.  
 00:01:12 --> 00:01:16: Policy and social equity.  
 00:01:16 --> 00:01:21: A resilient retrofits report was published earlier this month to  
 00:01:21 --> 00:01:25: help us begin to address the necessary climate upgrades for  
 00:01:25 --> 00:01:29: existing buildings. This in-depth 55 page report draws upon  
 00:01:30 --> 00:01:33: the  
 00:01:33 --> 00:01:37: work of the UI resilient land use cohort and technical  
 00:01:37 --> 00:01:41: assistance panels in New York, Nashville, and Houston. It  
 00:01:41 --> 00:01:45: communicates  
 00:01:45 --> 00:01:49: the design, financing and policy strategies that we can use  
 00:01:49 --> 00:01:53: to prepare buildings for the physical climate risks we face.  
 00:01:53 --> 00:01:57: So thanks for joining us. I'm honored to introduce our

00:01:33 --> 00:01:34: All Star panel.

00:01:36 --> 00:01:41: Starting with Danielle Horton, founder and CEO of Verdina Partners,

00:01:41 --> 00:01:44: she is an architect, LEED Fellow and has two decades

00:01:45 --> 00:01:47: of experience in corporate sustainability.

00:01:48 --> 00:01:53: Next is Ibi amonti. He's a structural engineer and leads.

00:01:54 --> 00:01:57: The risk and resilience team are which has offices in

00:01:57 --> 00:02:00: more than 30 countries around the world and then finally

00:02:00 --> 00:02:04: Mary Witucki is a regional outreach and program lead for

00:02:04 --> 00:02:08: FEMA where she facilitates mitigation and community engagement planning.

00:02:09 --> 00:02:13: A few housekeeping items before we get started, we've allotted

00:02:13 --> 00:02:16: about 1/2 hour for the panelists presentations and then the

00:02:16 --> 00:02:19: remainder of the program for panel discussion. If you have

00:02:19 --> 00:02:22: any questions for the panelists, please use the chat Q&A

00:02:22 --> 00:02:25: function to send those our way. We'd love to have

00:02:25 --> 00:02:28: those. Also, a link to this report, as well as

00:02:28 --> 00:02:31: a recording of today's presentation will be emailed to everyone

00:02:31 --> 00:02:33: who's registered for today's event.

00:02:34 --> 00:02:38: So with that I will hand it off to Danielle,

00:02:38 --> 00:02:40: our first fantastic speaker.

00:02:41 --> 00:02:42: Thank you, Danielle.

00:02:42 --> 00:02:45: Thank you so much, glaze, an honor to be here

00:02:45 --> 00:02:47: today. So I think as we saw from some of

00:02:47 --> 00:02:50: placemarks you know climate risks and extreme weather events are

00:02:50 --> 00:02:53: here. You know this is not a future thing, this

00:02:53 --> 00:02:56: is something that's affecting us right now. You know a

00:02:56 --> 00:02:59: lot of this information about climate risks are going to

00:02:59 --> 00:03:02: become more and more transparent and it's going to continue.

00:03:02 --> 00:03:05: You know it's going to. It's already having an increasing

00:03:05 --> 00:03:08: pact on building values. It's going to become a competitive

00:03:08 --> 00:03:11: advantage, and so it's really important that as we understand

00:03:11 --> 00:03:13: those risks that we take.

00:03:13 --> 00:03:16: Steps right to mitigate those risks and retrofit our our

00:03:16 --> 00:03:19: properties to be more resilient so at the same time

00:03:19 --> 00:03:22: that we need to focus on, you know, climate change

00:03:22 --> 00:03:25: mitigation in terms of like working on efforts to reduce

00:03:25 --> 00:03:28: emissions that cause climate change, we need to take action

00:03:28 --> 00:03:32: to manage the risks of climate, the climate changing paths

00:03:32 --> 00:03:36: from an adaptation perspective. You know, climate risks are investment

00:03:36 --> 00:03:39: risks and it's really important that we take steps to

00:03:39 --> 00:03:41: to address them. We can go to the next slide.

00:03:43 --> 00:03:46: So when you think about a resiliency program road map,

00:03:46 --> 00:03:50: we verdani partners, we implement residency program for for large

00:03:50 --> 00:03:53: real estate portfolios where working on like over almost 5000

00:03:53 --> 00:03:57: properties nationally and internationally. And when you think about the

00:03:57 --> 00:04:01: steps that have to happen before you actually start implementing

00:04:01 --> 00:04:05: those resiliency strategies, typically on year one, you're looking at

00:04:05 --> 00:04:09: your goals strategies, who is responsible and budgeting to actually

00:04:09 --> 00:04:12: perform those risk assessments. Then year two. You typically will

00:04:12 --> 00:04:13: perform.

00:04:13 --> 00:04:16: Those settlements you understand risks and then then you identify

00:04:17 --> 00:04:19: a high risk properties. Those are the ones where you

00:04:19 --> 00:04:22: might do a deeper level of assessment on site where

00:04:22 --> 00:04:26: you're going to like really identify those risks, and then

00:04:26 --> 00:04:29: you budget like evaluate those things and then you are

00:04:29 --> 00:04:31: going to budget to be able to invest in those

00:04:31 --> 00:04:34: certification strategies, right? So when you look at like by

00:04:35 --> 00:04:37: the you know to even get to the retrofit process

00:04:37 --> 00:04:40: like in my take like three or four years so

00:04:40 --> 00:04:43: not that this can't happen faster, but typically this is

00:04:43 --> 00:04:45: what we're seeing in the real estate sector.

00:04:45 --> 00:04:48: And so after that you know like to actually implement

00:04:48 --> 00:04:52: those strategies and then do public private partnerships. Because it's

00:04:52 --> 00:04:55: not just about protecting your property, you have to look

00:04:55 --> 00:04:58: at the entire region protecting the entire region next.

00:05:00 --> 00:05:03: So when you think about some of the key categories

00:05:03 --> 00:05:06: for, you know addressing resiliency risks you know according to

00:05:06 --> 00:05:10: grasp and the task force for climate related filing financial

00:05:10 --> 00:05:14: disclosures. CFD, there's some of the key categories include physical

00:05:14 --> 00:05:17: social transition risk. So physical risk when you're looking at

00:05:17 --> 00:05:21: reducing disruptions to building operations right from other events. But

00:05:21 --> 00:05:24: then you have to think about not only protecting property,  
 00:05:25 --> 00:05:28: but protecting people. So the social risks you know, like  
 00:05:28 --> 00:05:30: we have to think about protecting buildings.  
 00:05:30 --> 00:05:34: An occupant health and then transition risks. So when you  
 00:05:34 --> 00:05:37: think about like our efforts to decarbonize right to food,  
 00:05:37 --> 00:05:41: transition away from fossil fuels. If your buildings are heavily  
 00:05:41 --> 00:05:44: reliant on natural gas, that's a transition risks. So it's  
 00:05:44 --> 00:05:49: really important to understand the physical, social and  
 transition risks  
 00:05:49 --> 00:05:49: next.  
 00:05:51 --> 00:05:54: And so when we think about a strategic approach to  
 00:05:54 --> 00:05:58: implementing every single program, when you're thinking  
 about assessing risk  
 00:05:58 --> 00:06:01: and vulnerability, you have to do that at the entire  
 00:06:01 --> 00:06:05: lifecycle, including your existing assets. You know from new  
 acquisitions,  
 00:06:05 --> 00:06:08: new developments and lower Asian nation. So the equity and  
 00:06:09 --> 00:06:12: the debt side you know budgeting should perform those  
 assessments.  
 00:06:12 --> 00:06:15: Making a plan so like we implement resiliency plans that  
 00:06:15 --> 00:06:19: has goals and targets. And what are these different mitigation  
 00:06:19 --> 00:06:21: strategies for different types of risks, right?  
 00:06:21 --> 00:06:25: Incorporating those that process into the annual budgets,  
 updating your  
 00:06:25 --> 00:06:29: emergency level plans, checking that you have proper  
 insurance coverage,  
 00:06:29 --> 00:06:33: and then you know implementing those strategies, educating  
 stakeholders and  
 00:06:34 --> 00:06:37: emergency preparedness, reporting on your progress is  
 going to be  
 00:06:37 --> 00:06:41: more and more requirements for transparency. Once you  
 understand those  
 00:06:41 --> 00:06:44: risks that you also like disclosed them, and then you  
 00:06:44 --> 00:06:48: know once you implement those, hopefully negotiating lower  
 insurance rates,  
 00:06:48 --> 00:06:49: it can go next.  
 00:06:50 --> 00:06:53: So when you're looking at that the planning side, you  
 00:06:53 --> 00:06:56: know you'll have to look at, you know, protecting building  
 00:06:56 --> 00:07:00: sites, structure systems, operations, and people like flood  
 proofing your  
 00:07:00 --> 00:07:04: building and enhancing structural elements. I mean, when is  
 actually  
 00:07:04 --> 00:07:07: when we we calculate like OK, where are the most  
 00:07:07 --> 00:07:10: climate risks coming from and when is actually where we

00:07:10 --> 00:07:12: get the most damages. When you think about you, know

00:07:12 --> 00:07:16: your backup systems like before, you're thinking about 24 hours,

00:07:16 --> 00:07:18: but now you have to be thinking about two weeks,

00:07:18 --> 00:07:21: right? If there's a major event that like.

00:07:21 --> 00:07:24: Would be great, goes down and then obviously like enhancing

00:07:24 --> 00:07:28: operational friends, emergency planning and locating your vulnerable populations to

00:07:28 --> 00:07:31: make sure that they are also protected. You can go

00:07:31 --> 00:07:32: to the next.

00:07:34 --> 00:07:37: So there's a lot of like top resiliency level solutions,

00:07:37 --> 00:07:41: right? These are some of the things that you would

00:07:41 --> 00:07:44: when you're looking at doing a resiliency retrofit that you

00:07:44 --> 00:07:48: would do to kind of implement those strategies so from

00:07:48 --> 00:07:52: likewise you mentioned flood proofing your building, like where do

00:07:52 --> 00:07:56: you have temporary flood barriers? Or like by elevating your

00:07:56 --> 00:08:01: equipment to high ground, enhancing your structural elements because the

00:08:01 --> 00:08:04: events are getting more stronger, like integrating.

00:08:04 --> 00:08:07: Hazard resilient landscape design. So there's a lot of different

00:08:07 --> 00:08:08: strategies you can go to the next one.

00:08:10 --> 00:08:14: So when you think about public private partnerships, right? Because

00:08:14 --> 00:08:17: if you even if you protect your building or elevated

00:08:17 --> 00:08:21: mechanical systems, if the entire region gets flooded, you're still.

00:08:21 --> 00:08:24: That's still gonna be a problem. So I think we

00:08:24 --> 00:08:26: need to see a lot more cities that are in

00:08:26 --> 00:08:30: coastal areas doing these initiatives, but it's great to see

00:08:30 --> 00:08:33: places like New York with the Dryline project or Boston

00:08:33 --> 00:08:36: that has Boston ready program Hoboken. You can see, like

00:08:36 --> 00:08:39: you know on the map like before and after they

00:08:39 --> 00:08:41: implement some of the original.

00:08:41 --> 00:08:44: Kind of some of the regional strategies to protect the

00:08:44 --> 00:08:47: whole region, so it's really important that you do, and

00:08:47 --> 00:08:50: you're going to have to work together. Private and public

00:08:50 --> 00:08:53: sector. You can go to the next one, so this

00:08:53 --> 00:08:56: is just an example, right even after you do implement

00:08:56 --> 00:09:00: those strategies like elevating your mechanical systems and protecting, you

00:09:00 --> 00:09:02: know at the property level you also need to work

00:09:03 --> 00:09:06: on public private partnerships to protect the entire region as well.

00:09:06 --> 00:09:06:

00:09:08 --> 00:09:09: You can go to the next one.

00:09:11 --> 00:09:14: So just an example of like seeing this in action

00:09:14 --> 00:09:17: as a case study. So for one of our clients

00:09:17 --> 00:09:20: we have. You know we have done their risk assessments

00:09:20 --> 00:09:24: and we identify that some of their properties, for example

00:09:24 --> 00:09:27: in in Houston, were, you know, a high risk for

00:09:27 --> 00:09:31: flood. So we did install like flood barriers we had

00:09:31 --> 00:09:35: dewatering pumps on site. So when Hurricane Harvey hit, the

00:09:35 --> 00:09:39: region suffered \$125 billion in damages and because we had

00:09:39 --> 00:09:41: staked we had taken steps to be prepared.

00:09:42 --> 00:09:44: To implement those risks, we had zero insurance claims, so

00:09:44 --> 00:09:46: I think you know it makes a lot of sense.

00:09:46 --> 00:09:49: Can you imagine how much money right to deal with

00:09:49 --> 00:09:51: the hassles of like dealing with mold and all the

00:09:51 --> 00:09:54: issues that come with like flood or these risks? So

00:09:54 --> 00:09:57: it's really important to take steps and you should be

00:09:57 --> 00:09:59: able to negotiate lower insurance claims when you save. My

00:09:59 --> 00:10:02: building is high resilience and it's ready. You can go

00:10:02 --> 00:10:03: to the next one.

00:10:05 --> 00:10:07: So another sample. This is like one of our one

00:10:07 --> 00:10:10: of our clients buildings in Boston. As you can see

00:10:10 --> 00:10:13: they had their surrounded by water and three sides, so

00:10:14 --> 00:10:17: they're high risk for flooding, so they obviously identify that

00:10:17 --> 00:10:20: that was a risk. One of the things that they

00:10:20 --> 00:10:23: did that as a mitigation strategy for flood was they

00:10:23 --> 00:10:27: installed as like aquafest a flood wall, and these systems

00:10:27 --> 00:10:30: can be quickly deployed so they train the building staff

00:10:30 --> 00:10:33: to be able like they can deploy the rapid deployment.

00:10:33 --> 00:10:35: They can deploy this and like.

00:10:35 --> 00:10:38: Within 8 hours of a pending flooding event so they

00:10:38 --> 00:10:41: trained the entire staff to do that and it blocks

00:10:41 --> 00:10:44: not only water but the breeze, so they're very effective,

00:10:44 --> 00:10:47: so like you do a emergency training and these can

00:10:47 --> 00:10:49: go up to 9 feet. Or in our case we

00:10:49 --> 00:10:52: just needed a four feet one, but you can see

00:10:52 --> 00:10:55: there's there's solutions that can be easily deployed and we

00:10:55 --> 00:10:57: can go to the next slide.

00:10:59 --> 00:11:02: So you know these are solutions for the commercial sector,

00:11:02 --> 00:11:05: but when you think about like you know, you're ohh

00:11:05 --> 00:11:08: our own homes as well. There are systems like 45

00:11:08 --> 00:11:13: homes, 45 rooms. Is that nationally recognized residency building methods?

00:11:13 --> 00:11:16: So they basically you know it's a different strategies or

00:11:16 --> 00:11:20: certifications to ensure like for home safety. So like they

00:11:20 --> 00:11:24: they basically have there's different things that you can do

00:11:24 --> 00:11:27: to kind of fortify and reinforce their home against wind

00:11:27 --> 00:11:30: damage and tornadoes. And so like, they're.

00:11:30 --> 00:11:33: Their standards range from zero to 3% of a hard

00:11:33 --> 00:11:37: cost, and retrofit generally costs 18 to \$0.24 per square

00:11:37 --> 00:11:41: foot. So for example, like in Mississippi cost like 3

00:11:41 --> 00:11:44: to 5000, more per like you know less than 2000

00:11:45 --> 00:11:48: square feet home to to build to 45 gold and

00:11:48 --> 00:11:51: they and also like The thing is they they see

00:11:51 --> 00:11:54: an increase in resale value and in and they can

00:11:54 --> 00:11:59: actually qualify for lower insurance rates. So hopefully we'll see

00:11:59 --> 00:12:00: those.

00:12:00 --> 00:12:03: Kinds of things happen on the commercial sector as well,

00:12:03 --> 00:12:06: where if you implement those strategies, you should see higher

00:12:06 --> 00:12:09: value and lower insurance premiums as well. You can go

00:12:09 --> 00:12:10: to the next slide.

00:12:11 --> 00:12:14: So like to wrap up, I think I sing as

00:12:14 --> 00:12:17: we saw from those case studies and those examples you

00:12:17 --> 00:12:22: know for every dollar invested in climate resiliency infrastructure, \$6

00:12:22 --> 00:12:24: or saved. This is for the.

00:12:25 --> 00:12:28: And also the estimated cost of meeting the toughest 1.5

00:12:28 --> 00:12:32: degrees climate target is about point \$5 trillion over the

00:12:32 --> 00:12:35: next 30 years. But it will save the world \$30

00:12:35 --> 00:12:38: trillion in damages. So like it makes a lot of

00:12:38 --> 00:12:42: sense that we understand those risks and we take steps

00:12:42 --> 00:12:45: to address them because the cost of inaction is going

00:12:45 --> 00:12:48: to be a lot higher. So it's really important that

00:12:48 --> 00:12:52: we actually take action investing strategies to, you know, to

00:12:53 --> 00:12:54: to prepare and be resilient.

00:12:54 --> 00:12:58: Against those climate risks, I thank you now. I'll pass

00:12:58 --> 00:12:59: it on to Evie.

00:13:00 --> 00:13:03: Thank you Danielle so much and and that's a great

00:13:03 --> 00:13:05: segue to what I'm gonna be talking about in the

00:13:05 --> 00:13:08: next 10 minutes. Just really, the the focus will be

00:13:08 --> 00:13:11: on the business case for resilience and that cost benefit

00:13:11 --> 00:13:15: that Danielle just mentioned. So when organizations

00:13:15 --> 00:13:18: approach us, they're  
 00:13:18 --> 00:13:20: typically asking a number of questions. Here's a select few  
 00:13:20 --> 00:13:23: that we get. Which hazards should I be concerned with  
 00:13:23 --> 00:13:27: and how do we measure their impacts on my assets,  
 00:13:27 --> 00:13:30: people and business? Which physical and operational  
 00:13:30 --> 00:13:30: innovation should my  
 00:13:30 --> 00:13:32: organization and prioritize, and how do I make a business  
 00:13:32 --> 00:13:35: case?  
 00:13:35 --> 00:13:37: We're investing in resilience.  
 00:13:37 --> 00:13:42: So we typically go through a road map to resilience  
 00:13:42 --> 00:13:44: with these organizations, not dissimilar to what Danielle just  
 00:13:44 --> 00:13:48: described.  
 00:13:48 --> 00:13:51: So we start with evaluation of the baseline risk and  
 00:13:51 --> 00:13:54: this could be a qualitative assessment for screening  
 00:13:54 --> 00:13:59: purposes all  
 00:13:59 --> 00:14:02: the way to deep dives and detailed modeling, which I'll  
 00:14:02 --> 00:14:04: describe in a few slides from that. Those insights we  
 00:14:04 --> 00:14:07: can develop resilience strategies. These might be physical  
 00:14:07 --> 00:14:10: interventions or  
 00:14:10 --> 00:14:13: operational measures, and and really, looking at a holistic  
 00:14:13 --> 00:14:16: approach  
 00:14:16 --> 00:14:20: to resilience, including.  
 00:14:20 --> 00:14:23: Organizational resilience actions. The next step on the road  
 00:14:23 --> 00:14:26: map  
 00:14:26 --> 00:14:31: is to develop priorities and areas for investments and this  
 00:14:31 --> 00:14:34: is where the benefit costs analysis comes in that I'll  
 00:14:34 --> 00:14:37: describe in detail in the remaining slides and then finally  
 00:14:37 --> 00:14:40: we can help with implementation, which includes retrofit  
 00:14:40 --> 00:14:43: design, resilience  
 00:14:43 --> 00:14:46: based design for new buildings as well as development of  
 00:14:46 --> 00:14:49: real estate frameworks that guide decision making.  
 00:14:49 --> 00:14:52: So what is risk? I'm just going to drill down  
 00:14:52 --> 00:14:56: a bit more here, so risk is really the likelihood  
 00:14:56 --> 00:15:00: or probability of something bad happening and they can be  
 00:15:00 --> 00:15:03: described in terms of things like downtime and loss  
 00:15:03 --> 00:15:07: revenues.  
 00:15:07 --> 00:15:10: It could be described in terms of damage and repair  
 00:15:10 --> 00:15:13: costs to health and Wellness and well being as well.  
 00:15:13 --> 00:15:16: There are the way to calculate risk is looking at  
 00:15:16 --> 00:15:19: these three different components. An integration of hazard  
 00:15:19 --> 00:15:22: exposure and  
 00:15:22 --> 00:15:25: vulnerability where the hazard is how likely is the hazard  
 00:15:25 --> 00:15:28: event to occur. Could be a hurricane for example. And  
 00:15:28 --> 00:15:31: what is the intensity? So the intensity for a hurricane



00:15:07 --> 00:15:10: would be measured in terms of wind speed, or it  
00:15:10 --> 00:15:13: could be measured in terms of precipitation as well that  
00:15:13 --> 00:15:17: causes flooding. Exposure is what are the quantities, locations and  
00:15:18 --> 00:15:19: values of exposed.  
00:15:19 --> 00:15:23: Assets and people and then finally vulnerability is how damageable  
00:15:23 --> 00:15:26: are those exposed assets and how vulnerable are the people.  
00:15:26 --> 00:15:29: And so integrating all those together gets you to risk.  
00:15:29 --> 00:15:32: And I should say that in some cases some of  
00:15:32 --> 00:15:35: the climate vendors and data providers that are in the  
00:15:35 --> 00:15:38: market right now are really only looking at hazard and  
00:15:38 --> 00:15:42: maybe exposure, but not really blending in the vulnerability piece  
00:15:42 --> 00:15:45: and the vulnerability piece is key if you want to  
00:15:45 --> 00:15:49: understand how to retrofit these buildings to reduce their risks.  
00:15:51 --> 00:15:54: So I'm gonna kind of share with you a way  
00:15:54 --> 00:15:57: that we look at risk assessment. There's different levels as  
00:15:57 --> 00:16:00: I mentioned before, all the way from high level screening  
00:16:00 --> 00:16:03: assessment on the left side, which is what we're calling  
00:16:03 --> 00:16:06: a class one risk assessment. This is something that Arabs  
00:16:07 --> 00:16:10: developed to help our clients understand what they're getting from  
00:16:10 --> 00:16:13: the different levels of risk assessment all the way to  
00:16:13 --> 00:16:16: class 3/4 on the right side, which is fairly sophisticated  
00:16:16 --> 00:16:21: simulations, probabilistic simulations that are virtually simulating how a natural.  
00:16:21 --> 00:16:24: Hazard event may impact not only a building but the  
00:16:24 --> 00:16:28: components within or outside of a building and the the  
00:16:28 --> 00:16:31: class three and four risk assessment are really key in  
00:16:31 --> 00:16:36: understanding and providing insights on what are the specific components  
00:16:36 --> 00:16:39: that might need to be mitigated in a retrofit. So  
00:16:39 --> 00:16:42: when we get into which buildings do you need to  
00:16:42 --> 00:16:45: retrofit and how it's really getting into the detailed modeling  
00:16:46 --> 00:16:48: that unlocks a lot of those insights.  
00:16:49 --> 00:16:50: Next slide.  
00:16:51 --> 00:16:54: So I'm going to describe how we use the insights  
00:16:54 --> 00:16:56: from a A class three and four risk model in  
00:16:56 --> 00:17:00: a cost benefit analysis to help answer that business case.  
00:17:00 --> 00:17:02: And this is really the monetary part of a business  
00:17:02 --> 00:17:06: case. It doesn't bring in things like marketability or reputation

00:17:06 --> 00:17:09: or anything like that, but this is really the dollars

00:17:09 --> 00:17:11: and cents part of it. Next slide. OK, so I'm

00:17:12 --> 00:17:14: going to walk through a framework, so for let's say

00:17:14 --> 00:17:18: you have an existing building and you've decided that you

00:17:18 --> 00:17:20: want to understand if there's a business case to make

00:17:21 --> 00:17:21: a retrofit.

00:17:21 --> 00:17:25: For that particular building, so you're collecting data on the

00:17:25 --> 00:17:29: hazard, the exposure, and the current vulnerability of that

00:17:29 --> 00:17:32: building,

00:17:29 --> 00:17:32: you're building a risk model. You're running some

00:17:33 --> 00:17:37: calculations. Next

00:17:33 --> 00:17:37: slide, and these probabilistic simulations provide insight into

00:17:37 --> 00:17:41: what are

00:17:37 --> 00:17:41: the specific vulnerabilities in a particular building and the

00:17:41 --> 00:17:44: deficiencies,

00:17:41 --> 00:17:44: and then what are the probabilistic losses. So, for example,

00:17:44 --> 00:17:47: what is the likelihood and duration of downtime in this

00:17:47 --> 00:17:51: building? What is the damage looking like in this building

00:17:51 --> 00:17:52: for this particular?

00:17:52 --> 00:17:53: Existing case next slide.

00:17:55 --> 00:17:57: So that's going to inform your retrofit designs so we

00:17:58 --> 00:18:00: can understand from this type of analysis that it's the

00:18:01 --> 00:18:03: facade system that's getting damaged by the wind or it's

00:18:04 --> 00:18:06: components on the roof that are getting damaged by wind

00:18:07 --> 00:18:10: or for flooding. Maybe it's the equipment and the external

00:18:10 --> 00:18:12: yards that are getting damaged so we can use that

00:18:12 --> 00:18:15: to inform various levels of retrofit next slide.

00:18:16 --> 00:18:19: And so you might actually have different options that you're

00:18:20 --> 00:18:23: investigating for those retrofits, something like a light touch,

00:18:23 --> 00:18:26: an

00:18:23 --> 00:18:26: option one all the way through to full renewal of

00:18:26 --> 00:18:28: a building, because it's not just you might not be

00:18:28 --> 00:18:31: just retrofitting a building to address the the risk from

00:18:31 --> 00:18:35: physical hazards. It might be there's deferred maintenance

00:18:35 --> 00:18:37: that's building

00:18:35 --> 00:18:37: up over time, so we're looking at a number of

00:18:37 --> 00:18:41: different options. All of those have different levels of scope,

00:18:41 --> 00:18:44: including increasing amount of investment for each one of

00:18:44 --> 00:18:46: those,

00:18:44 --> 00:18:46: and schedule implications as well.

00:18:47 --> 00:18:50: Next, slide, so each of those retrofit options actually change

00:18:50 --> 00:18:53: the vulnerability I I've mentioned before, the vulnerability is

00:18:53 --> 00:18:57: key

00:18:53 --> 00:18:57: here. It actually improves the vulnerability or decreases the

vulnerability

00:18:57 --> 00:19:01: because we're making retrofits to address the concerns that we

00:19:01 --> 00:19:04: had identified. So now you're bringing that information into the

00:19:04 --> 00:19:07: risk model again. Now you've got a risk model for

00:19:07 --> 00:19:10: the retrofitted building for each of those options, and you're

00:19:10 --> 00:19:13: running through the calculations again, and now you have a

00:19:13 --> 00:19:17: new probabilistic risk assessment, so this should show decrease.

00:19:17 --> 00:19:20: About time, for example, or decreased losses for each of

00:19:20 --> 00:19:21: those options. Next slide.

00:19:23 --> 00:19:26: And so when we reassess those risks, like I said,

00:19:26 --> 00:19:29: we get the reduced risk the retrofit designs themselves also

00:19:29 --> 00:19:31: provide an asset life extension.

00:19:32 --> 00:19:36: Again, the different options might give you different life extensions,

00:19:36 --> 00:19:39: so a full renewal would extend the building life much

00:19:39 --> 00:19:42: longer than maybe a single targeted retrofit, and each of

00:19:42 --> 00:19:45: those also have different impacts as far as phasing and

00:19:45 --> 00:19:48: scheduling. So now we have both the retrofit impacts for

00:19:48 --> 00:19:50: each one of those options we have the retrofit scope,

00:19:51 --> 00:19:53: the dollars and cents, and the scheduling, and we can

00:19:53 --> 00:19:56: put that into a cost benefit engine, which is the

00:19:56 --> 00:19:57: next slide.

00:19:58 --> 00:20:03: And that cost benefit analysis Engine lets us run probabilistic

00:20:03 --> 00:20:08: calculations that provide us benefit cost ratios and payback periods

00:20:08 --> 00:20:12: for each of those options and gives us the residual

00:20:12 --> 00:20:16: risk. So each of those retrofit options result in a

00:20:16 --> 00:20:21: lower risk than the current building has, and then weighing

00:20:21 --> 00:20:25: all that information. We can use that to develop a

00:20:25 --> 00:20:28: prioritization strategy for each building.

00:20:28 --> 00:20:31: Among the options and then across the portfolio, you can

00:20:31 --> 00:20:35: be running this across multiple buildings at once, and typically

00:20:35 --> 00:20:38: we we would start to invest in the ones that

00:20:38 --> 00:20:42: come out with the highest benefit cost ratios and lowest

00:20:42 --> 00:20:43: payback periods.

00:20:44 --> 00:20:44: Next slide.

00:20:46 --> 00:20:50: And so we've developed something called a retrofit or resilience

00:20:50 --> 00:20:54: payback calculator that does these calculations and kind of demonstrates

00:20:54 --> 00:20:57: what these payback periods look like. And when we turn  
00:20:57 --> 00:21:00: the knobs on, the different factors that go into it  
00:21:00 --> 00:21:03: kind of gives organizations an understanding of what.  
00:21:05 --> 00:21:07: You know what they can tweak to help understand the  
00:21:07 --> 00:21:08: benefit cost.  
00:21:09 --> 00:21:11: And if I have time, I'll show you the live  
00:21:11 --> 00:21:14: demo. If not, I can do it. Maybe during the  
00:21:14 --> 00:21:17: Q&A and then finally this is my last slide we've  
00:21:17 --> 00:21:22: developed using the information from cost benefit analysis  
and other  
00:21:22 --> 00:21:26: risk metrics, we've developed decision making guidelines for  
real estate,  
00:21:26 --> 00:21:30: so this is an example from the University of British  
00:21:30 --> 00:21:34: Columbia in Vancouver where we've developed a real estate  
framework  
00:21:34 --> 00:21:38: that guides their decision making on new buildings and  
triggers  
00:21:38 --> 00:21:39: for building.  
00:21:39 --> 00:21:43: Retrofit, which is informed by those cost benefit factors and  
00:21:43 --> 00:21:48: other risk metrics. And then we've also developed resilience  
based  
00:21:48 --> 00:21:53: design guidelines for new construction and retrofits and  
renewals that  
00:21:53 --> 00:21:57: engineers, designers and the owner can implement to  
achieve the  
00:21:57 --> 00:22:02: criteria and the levels of resilience that they're looking for  
00:22:02 --> 00:22:03: in their buildings.  
00:22:05 --> 00:22:10: OK so I'm I think I can do the.  
00:22:11 --> 00:22:16: The live demo real quick let me share screen.  
00:22:19 --> 00:22:21: I'll do this really quickly and hopefully everyone can see  
00:22:21 --> 00:22:22: my screen.  
00:22:25 --> 00:22:28: And so I'm just going to go through this really  
00:22:28 --> 00:22:31: quickly. So basically this is this is an example for  
00:22:31 --> 00:22:35: a building that has earthquake hazard, but we can swap  
00:22:35 --> 00:22:38: in any type of hazard that we're interested in, so  
00:22:38 --> 00:22:43: the hazard changes across different locations. What you're  
seeing here  
00:22:43 --> 00:22:47: on the right is the resilience payback calculation. So this  
00:22:47 --> 00:22:49: is the number of years that the asset is in  
00:22:50 --> 00:22:53: service on the bottom. This is the investment in dollars,  
00:22:53 --> 00:22:54: so the.  
00:22:55 --> 00:22:58: The the Gray line right here is a standard or  
00:22:58 --> 00:23:03: existing building and then the pink line is representative of  
00:23:03 --> 00:23:07: the building that's been retrofitted, so the difference here in

00:23:07 --> 00:23:11: year one, this investment of \$4 million is how much  
 00:23:11 --> 00:23:15: you're investing in the retrofit. OK, and then the the  
 00:23:15 --> 00:23:19: basically the curve of the line is showing the annualized  
 00:23:19 --> 00:23:23: losses over time, and so for the existing building that  
 00:23:23 --> 00:23:24: is more vulnerable.  
 00:23:25 --> 00:23:26: Over time it is.  
 00:23:27 --> 00:23:30: It is basically getting more and more losses and the  
 00:23:30 --> 00:23:33: reason it's bent over and not just adding like an  
 00:23:33 --> 00:23:36: A linear line is that there's basically a net present  
 00:23:36 --> 00:23:38: value of the dollar. So a dollar you know in  
 00:23:38 --> 00:23:41: the future is not worth as much as a dollar  
 00:23:41 --> 00:23:41: today.  
 00:23:42 --> 00:23:45: And the way the reason the pink line is more  
 00:23:45 --> 00:23:49: shallow is because it is avoiding the losses that the  
 00:23:49 --> 00:23:53: standard building is seeing. And when those two lines cross,  
 00:23:53 --> 00:23:56: that is the payback. So in this case it's six  
 00:23:56 --> 00:23:59: years for that investment of \$4 million, and the benefit  
 00:23:59 --> 00:24:03: cost ratio is this value divided by this value at  
 00:24:03 --> 00:24:05: the end of the asset life. And so the way  
 00:24:05 --> 00:24:09: these things change over time is I can change things  
 00:24:09 --> 00:24:12: like what's the cost of downtime. So for my building.  
 00:24:12 --> 00:24:16: If it's really significant, than you know might have a  
 00:24:16 --> 00:24:19: lab building or something like that. Then the payback.  
 Actually  
 00:24:20 --> 00:24:23: goes down to three years. And then here's the asset  
 00:24:23 --> 00:24:25: life. So as I go to higher asset life, so  
 00:24:25 --> 00:24:29: if that retrofit really extends the asset life, you can  
 00:24:29 --> 00:24:32: see the benefit cost ratio goes up quite a bit.  
 00:24:34 --> 00:24:38: Here's the resilience premium. This is the retrofit cost, so  
 00:24:39 --> 00:24:42: if I spend, let's say, too much of my retrofit,  
 00:24:42 --> 00:24:45: and my asset life is only extended by.  
 00:24:46 --> 00:24:49: You know a certain amount and my discount rate. This  
 00:24:49 --> 00:24:51: is a financial measure is.  
 00:24:52 --> 00:24:53: High.  
 00:24:54 --> 00:24:56: So I can get whoops, I can get.  
 00:24:57 --> 00:25:01: More money from investing in something else than the  
 payback.  
 00:25:01 --> 00:25:04: Goes down, and at some point you might not even  
 00:25:04 --> 00:25:07: have a a positive benefit cost ratio. So this is  
 00:25:07 --> 00:25:10: just showing all the knobs you can turn and kind  
 00:25:10 --> 00:25:13: of shows what goes into these types of assessments. So  
 00:25:13 --> 00:25:16: I'll stop sharing my screen and I'm gonna hand it

00:25:16 --> 00:25:17: off to Mary.

00:25:22 --> 00:25:25: Hi thank you Abby. My name is Mary Witucki and

00:25:25 --> 00:25:29: I'm the community education and outreach program lead for the

00:25:29 --> 00:25:34: FEMA Region 9 mitigation Division I helped create Fema's natural

00:25:34 --> 00:25:38: Hazard retrofit program toolkit, which is a guide for local

00:25:38 --> 00:25:43: jurisdictions on designing disaster resilient building retrofit programs in order

00:25:43 --> 00:25:48: to develop the toolkit, we spoke with practitioners from across

00:25:48 --> 00:25:49: the United States to.

00:25:49 --> 00:25:53: Glean best practices and strategies that they have used to

00:25:53 --> 00:25:58: design and implement retrofit programs. Today, we'll cover common challenges

00:25:58 --> 00:26:02: and look at some of the strategies that communities have

00:26:02 --> 00:26:06: used to overcome those challenges and develop successful programs and

00:26:06 --> 00:26:08: policies. Next, slide.

00:26:10 --> 00:26:13: Some of the main challenges we heard about had to

00:26:13 --> 00:26:17: do with funding, especially how to manage funds for programs

00:26:17 --> 00:26:21: versus single projects and how to do this with limited

00:26:21 --> 00:26:26: staff and capacity. Another was understanding community perspectives, understanding what

00:26:27 --> 00:26:30: the community members had the capacity to take on, and

00:26:30 --> 00:26:34: what they were interested in doing to mitigate their risk.

00:26:34 --> 00:26:38: Designing a program simply figuring out where to start and

00:26:38 --> 00:26:40: what aspects to consider.

00:26:40 --> 00:26:45: Communities also struggled with building and maintaining necessary partnerships with

00:26:45 --> 00:26:49: the various stakeholders that are so important to making programs

00:26:49 --> 00:26:51: and policies sustainable.

00:26:51 --> 00:26:55: And we heard about the challenge of communicating and gaining

00:26:55 --> 00:27:00: support, not only politically, but also from community members and

00:27:00 --> 00:27:02: the private sector partners. Next slide.

00:27:05 --> 00:27:08: Managing funds was one of the most common challenges we

00:27:08 --> 00:27:12: heard about from communities and the main piece of advice

00:27:12 --> 00:27:16: we heard was that it gets easier with experience. Experienced

00:27:16 --> 00:27:20: practitioners said that those just starting out should reach out

00:27:21 --> 00:27:24: to those who have done programs for advice and

suggestions.

00:27:24 --> 00:27:28: Talk to other communities and find out how they found

00:27:28 --> 00:27:32: and managed funding. Communities need to consider the cost and

00:27:32 --> 00:27:34: time required to complete projects.

00:27:35 --> 00:27:39: What the funding source requirements are, including environmental reviews or

00:27:39 --> 00:27:43: benefit cost analysis, and how much the team can successfully

00:27:43 --> 00:27:43: manage.

00:27:44 --> 00:27:49: Jurisdictions should build relationships with funding source contacts and communicate

00:27:49 --> 00:27:49: often.

00:27:50 --> 00:27:53: That way they can keep informed and get support when

00:27:53 --> 00:27:54: needed. Next slide.

00:27:58 --> 00:28:03: Experienced practitioners stress the importance of considering the context in

00:28:03 --> 00:28:06: which a program or policy is being implemented and using

00:28:06 --> 00:28:11: that information to inform policy decisions. Program and policymakers should

00:28:11 --> 00:28:16: identify potential barriers communities may face as they seek to

00:28:16 --> 00:28:20: participate in the program, and what constraints have inhibited community

00:28:20 --> 00:28:22: retrofitting in the past.

00:28:23 --> 00:28:28: To help identify potential barriers, policymakers can ask themselves what

00:28:28 --> 00:28:32: do people have the capacity to participate? Will they need

00:28:32 --> 00:28:37: assistance? Are they motivated? What is their degree of desire

00:28:37 --> 00:28:40: for something like this, and do they have the means?

00:28:40 --> 00:28:44: Is this something they can afford? Do they have the

00:28:44 --> 00:28:48: time and on the other side, the East framework applies

00:28:48 --> 00:28:53: for principles of behavior that can encourage action easy, attractive?

00:28:53 --> 00:28:57: Social timely people have a preference for tasks that are

00:28:57 --> 00:29:01: easy to achieve. There should be some benefit or something

00:29:01 --> 00:29:05: that makes the behavior attractive. Showing the behavior of others

00:29:05 --> 00:29:08: influences people to act in a similar way, and the

00:29:09 --> 00:29:13: timing of information can be critical to responsiveness. It's important

00:29:13 --> 00:29:17: to understand the variety of factors and how they overlap

00:29:17 --> 00:29:22: and intersect to affect an individual's position, access and resources.

00:29:22 --> 00:29:23: Next slide.

00:29:25 --> 00:29:29: Not knowing where to start was a challenge that several

00:29:29 --> 00:29:33: communities we interviewed had to overcome. Their advice was to

00:29:33 --> 00:29:38: reach out to other communities that had completed retrofit programs

00:29:38 --> 00:29:42: and talked to those who have been there. Programs with

00:29:42 --> 00:29:46: streamlined focus and singular goals tend to be more successful.

00:29:46 --> 00:29:51: A single goal alleviates complications for both program administrators and

00:29:51 --> 00:29:55: participants. Often programs that want to meet multiple goals.

00:29:55 --> 00:29:59: Require longer timelines or more resources.

00:30:00 --> 00:30:04: Multiple goals should be kept streamlined and simple. It's important

00:30:04 --> 00:30:08: to remember that the design of retrofit programs and policies

00:30:08 --> 00:30:14: have real implications for marginalized groups and communities. Programs centered

00:30:14 --> 00:30:19: on ensuring equity will help avoid unintentionally creating additional barriers

00:30:19 --> 00:30:23: that exclude or marginalized those who already have fewer resources

00:30:23 --> 00:30:26: and assistance available to them. Next slide.

00:30:29 --> 00:30:33: Retrofit programs are often administered by small teams in low

00:30:33 --> 00:30:38: capacity departments. They survive by building strong partnerships with other

00:30:38 --> 00:30:44: city departments, community organizations, and private sector businesses. A successful

00:30:44 --> 00:30:48: retrofit program depends on having a local pool of construction

00:30:49 --> 00:30:53: businesses and material suppliers in the private sector to perform

00:30:53 --> 00:30:57: retrofits. Even the best designed programs will fail if the

00:30:57 --> 00:30:58: private sector.

00:30:58 --> 00:31:02: Does not have an incentive to perform retrofit projects. It's

00:31:02 --> 00:31:07: crucial to establish how contractors and inspectors will be eligible

00:31:07 --> 00:31:11: to participate in the program and to communicate the benefits of participation.

00:31:11 --> 00:31:12:

00:31:14 --> 00:31:17: Some program implementation teams consist of only a few staff.

00:31:18 --> 00:31:21: A small team may partner with a mapping expert in

00:31:21 --> 00:31:25: the planning department to identify vulnerable properties or a building



00:31:25 --> 00:31:30: inspector in the permitting department to verify construction standards. Retrofit

00:31:30 --> 00:31:34: programs are truly a team effort, and the more diversified

00:31:34 --> 00:31:38: the personnel available to contribute, the more successful the program

00:31:38 --> 00:31:40: will be. Next slide.

00:31:42 --> 00:31:47: Practitioners found that successful community engagement was critical to the

00:31:47 --> 00:31:52: success and sustainability of their programs. Starting small allows programs

00:31:52 --> 00:31:55: to go through a round of pilot projects that will

00:31:55 --> 00:32:00: inevitably highlight barriers or program components that need adjustment. It

00:32:00 --> 00:32:03: can also give communities time to get used to the

00:32:03 --> 00:32:08: program and administrators time to adjust to growing pains. Administrators

00:32:08 --> 00:32:11: need to work to gain trust in their communities.

00:32:11 --> 00:32:15: Particularly as they start a new program using trusted sources

00:32:15 --> 00:32:19: can help, such as the City Council and community organizations

00:32:19 --> 00:32:21: like Rotary Club.

00:32:21 --> 00:32:26: Many communities with successful retrofit programs receive public interest in

00:32:26 --> 00:32:31: their program with minimal advertising, sometimes relying only on word

00:32:31 --> 00:32:33: of mouth to recruit participants.

00:32:34 --> 00:32:39: High quality customer service helps bring building owners, general contractors

00:32:39 --> 00:32:43: and the public through the program. The most successful programs

00:32:43 --> 00:32:48: are those that have created user-friendly avenues for accessing program

00:32:48 --> 00:32:50: information and staff.

00:32:51 --> 00:32:51: Next slide.

00:32:54 --> 00:32:58: As some keys to successful policies and programs start with

00:32:58 --> 00:33:03: humanizing the process and meeting people where they are building

00:33:03 --> 00:33:08: relationships and understanding with people from where they're at. Secondly,

00:33:08 --> 00:33:13: programs that set clear expectations not only for themselves and

00:33:13 --> 00:33:17: their staff, but also for the program, the contractors and

00:33:17 --> 00:33:19: the participants are more successful.

00:33:20 --> 00:33:26: And developing partnerships, such as with contractors and

community organizations  
00:33:26 --> 00:33:30: and working with other departments or agencies to gain advice  
00:33:30 --> 00:33:36: and support, leads to more sustainable programs. Clear, consistent communication  
00:33:36 --> 00:33:40: helps build trust among program participants and gain support from  
00:33:40 --> 00:33:45: decision makers. Thank you everyone for your attention and I'll  
00:33:45 --> 00:33:46: hand it back over to Clay.  
00:33:52 --> 00:33:55: Very wonderful, thank you so much. I wanna I really  
00:33:55 --> 00:33:58: like to take a moment to thank Debbie Mary in  
00:33:58 --> 00:34:02: Danielle. I will let all of our participants know around  
00:34:02 --> 00:34:06: the country here and actually a few international that you  
00:34:06 --> 00:34:09: can use the chat function if there are any specific  
00:34:09 --> 00:34:12: questions that you would like to ask and I'll just  
00:34:12 --> 00:34:16: start it off here. IBL is really interested in the  
00:34:16 --> 00:34:19: model that you created in so I'm going to give  
00:34:19 --> 00:34:19: this one.  
00:34:19 --> 00:34:22: To you, you know first the the the kind of  
00:34:22 --> 00:34:26: virtuous cycle that it seems like you've created there. I'm  
00:34:26 --> 00:34:29: curious to know if there are any kind of top  
00:34:29 --> 00:34:33: line results that you could share in that baseline and  
00:34:33 --> 00:34:37: enhance retrofit that you've seen within that model that you  
00:34:37 --> 00:34:41: could share. So let's say a building owner can't afford  
00:34:41 --> 00:34:45: to go through, or just doesn't have the capacity to  
00:34:45 --> 00:34:47: go through an entire building model like.  
00:34:47 --> 00:34:48: That  
00:34:49 --> 00:34:50: here.  
00:34:50 --> 00:34:52: Your perspective on that and any of our other panels  
00:34:52 --> 00:34:52: as well.  
00:34:53 --> 00:34:56: Yeah, I mean I think it's a good good question  
00:34:56 --> 00:34:59: clay. And and there's some things like the cost benefit  
00:34:59 --> 00:35:03: workflow and assessment is not necessarily the right approach for  
00:35:03 --> 00:35:06: every single case. In some cases it's kind of a  
00:35:06 --> 00:35:10: no brainer. You know that there's some targeted retrofits, for  
00:35:10 --> 00:35:13: example, moving equipment up because you know you're in a  
00:35:13 --> 00:35:17: high floodplain that just makes sense. They're cheap, you just  
00:35:17 --> 00:35:20: do it. You don't need to go through this whole  
00:35:20 --> 00:35:24: modeling process, but there's some retrofits that get quite expensive.

00:35:24 --> 00:35:28: Right, you're talking about hundreds of thousands or millions of

00:35:28 --> 00:35:31: dollars where it's not obvious, and in those cases the

00:35:31 --> 00:35:34: cost benefit calculator really helps us understand if it makes

00:35:34 --> 00:35:37: sense or not. And especially when an owner's weighing a

00:35:37 --> 00:35:41: whole different host of options for a particular building, or

00:35:41 --> 00:35:44: if they've got a big portfolio and they only have

00:35:44 --> 00:35:47: the funds obviously to invest in a handful of buildings,

00:35:47 --> 00:35:49: then this really does help that in terms of top

00:35:49 --> 00:35:50: line results.

00:35:51 --> 00:35:55: I've seen the payback calculator show really high payback for

00:35:55 --> 00:35:59: some of the things I just mentioned. For high hazard

00:35:59 --> 00:36:02: areas that are gonna cause a lot of damage and

00:36:02 --> 00:36:06: downtime, and you've got low investment in targeted retrofits,

00:36:06 --> 00:36:10: it's kind of obvious, right? You'll get the high benefit costs

00:36:10 --> 00:36:13: on the very other end for seismic retrofits, which we

00:36:13 --> 00:36:16: do a lot of when you're looking at those a

00:36:16 --> 00:36:19: lot of times it doesn't pay off. Unfortunately, as what

00:36:19 --> 00:36:23: we're finding, unless you're in a very very hazardous zone.

00:36:23 --> 00:36:26: And your risk of collapse is really high, so I've

00:36:26 --> 00:36:29: seen other other ends where the financial perspective, at least

00:36:29 --> 00:36:32: when you're looking at from a purely financial and monetary

00:36:33 --> 00:36:36: perspective. The benefit cost analysis doesn't always make the case,

00:36:36 --> 00:36:39: and that's why I mentioned in my presentation that this

00:36:39 --> 00:36:42: is just looking at the monetary case. There's a number

00:36:42 --> 00:36:45: of other factors that you have to take into account

00:36:45 --> 00:36:48: when you're making a resilient retrofit, which includes things like

00:36:49 --> 00:36:52: marketability, reputation, other clients that we have to look at

00:36:52 --> 00:36:53: other planning factors.

00:36:53 --> 00:36:57: Not typically making a decision on retrofit just because of

00:36:57 --> 00:36:59: climate change risk for example.

00:37:02 --> 00:37:05: Can I just add something? I think at this important

00:37:05 --> 00:37:08: point too, in terms of the cost, because when we're

00:37:08 --> 00:37:11: looking at doing a portfolio, I assessment for resiliency risks.

00:37:11 --> 00:37:14: I mean there are certain assets when we get the

00:37:14 --> 00:37:17: cost of, like you know, because it's going to cost

00:37:17 --> 00:37:20: millions of dollars to retrofit where some of those assets

00:37:20 --> 00:37:23: might be like slated for this position where it might

00:37:23 --> 00:37:26: be too risky assets. But it's also on the other

00:37:26 --> 00:37:30: side. It's really important to incorporate those risk assessments during

00:37:30 --> 00:37:31: the diligence process.

00:37:31 --> 00:37:34: Because, right, you might also not want to acquire an

00:37:34 --> 00:37:37: asset. That's a very high risk, and that's why it's

00:37:38 --> 00:37:41: really important to like. Even like it's gonna as more

00:37:41 --> 00:37:45: information becomes more transparent, it might be even harder to

00:37:45 --> 00:37:48: sell high risk building if they haven't gone through the

00:37:48 --> 00:37:51: process of doing those kind of retrofits.

00:37:54 --> 00:37:58: It's really helpful. I'd like to kind of keep that

00:37:58 --> 00:38:01: thought going, and you know, one of the things that

00:38:01 --> 00:38:04: stood out to me in the presentation is just the

00:38:05 --> 00:38:08: multitude of risks that you know exist and you know

00:38:08 --> 00:38:11: I'd like to hear you know, maybe Mary if you

00:38:11 --> 00:38:14: want to start this off and but from all of

00:38:14 --> 00:38:18: our panelists about how, how, if there are strategies that

00:38:18 --> 00:38:22: building owners can use and adaptive reuse developers.

00:38:22 --> 00:38:27: Been used to address multiple risks right simultaneously and whether

00:38:27 --> 00:38:31: that's wind and fire and seismic, and it's a really

00:38:31 --> 00:38:35: challenging thing to do, but it seems like you know

00:38:35 --> 00:38:39: right now. Most parts of our country and our world

00:38:39 --> 00:38:43: are facing multiple threats and so would love to kind

00:38:43 --> 00:38:47: of talk about that. Those not just in isolation, but.

00:38:50 --> 00:38:53: Yeah, and just as you said it, it is kind

00:38:53 --> 00:38:59: of difficult. There are definitely some retrofitting methods that can

00:38:59 --> 00:39:03: be used together and put together. The kind of what

00:39:03 --> 00:39:07: we were just talking about that then goes into the

00:39:07 --> 00:39:08: cost. It's like.

00:39:10 --> 00:39:15: You know the the challenge is finding an affordable solution

00:39:15 --> 00:39:20: to be able to cover the multiple hazards because there

00:39:20 --> 00:39:25: are very few buildings that exist within a location that

00:39:25 --> 00:39:29: literally is only affected by one hazard, so it is

00:39:29 --> 00:39:35: something that communities look at, and for example there's a

00:39:35 --> 00:39:38: community up in Washington state who.

00:39:39 --> 00:39:44: As they do their flood retrofits, they take into account

00:39:44 --> 00:39:49: their seismic risk as well, and if they're doing a

00:39:49 --> 00:39:55: more structural retrofitting process than they also take that time

00:39:55 --> 00:40:00: to do the seismic retrofit as well, because the safer

00:40:00 --> 00:40:02: you can make.

00:40:03 --> 00:40:04: Building our home the better.

00:40:06 --> 00:40:09: Hey can I add something on that so when we

00:40:09 --> 00:40:12: do like for for a large portfolio when we do

00:40:12 --> 00:40:15: like our initial like desktop risk assessments, at least for

00:40:15 --> 00:40:18: Donnie, we do we look at 50 different types of

00:40:18 --> 00:40:22: risks including regional level risks and building level risks because

00:40:22 --> 00:40:25: we need to understand not only those kind of regional

00:40:25 --> 00:40:29: risk like like fire, heat, stress, flood, right sea level

00:40:29 --> 00:40:32: rise, but also building level risks and storms. Some of

00:40:32 --> 00:40:36: those buildings may already have taken some steps to protect

00:40:36 --> 00:40:36: their assets.

00:40:37 --> 00:40:39: So we look at we look at like that multitude

00:40:39 --> 00:40:42: of risks to then identify the buildings that need to

00:40:42 --> 00:40:46: take an extra step to actually implement. You know, go

00:40:46 --> 00:40:49: through a residency retrofit, but it's really important to look

00:40:49 --> 00:40:52: at all of these, and there's a lot of like

00:40:52 --> 00:40:55: open source tools available for free as well. From FEMA,

00:40:55 --> 00:40:58: there's a lot of a lot of tools that at

00:40:58 --> 00:41:01: least you can start to have a better understanding of

00:41:01 --> 00:41:03: some of these types of risks.

00:41:04 --> 00:41:06: And I'll just add Clay as well that and we'll

00:41:06 --> 00:41:09: give you an example. We're looking at a building a

00:41:09 --> 00:41:13: couple of buildings right now in Tennessee that are subject

00:41:13 --> 00:41:16: to lots of different houses, including tornado and seismic. So

00:41:16 --> 00:41:19: a question is well, should we just mitigate for seismic

00:41:20 --> 00:41:23: alone? Should we just mitigate for tornado alone? The nice

00:41:23 --> 00:41:26: thing is that actually the retrofit some of them overlap,

00:41:26 --> 00:41:29: so we'll get a benefit from trying to address with

00:41:29 --> 00:41:32: the same retrofit. Both of those things. So I showed

00:41:32 --> 00:41:34: the cost benefit calculator.

00:41:34 --> 00:41:37: You could do that for one hazard, but obviously if

00:41:37 --> 00:41:41: the same retrofit addresses multiple hazards and you're reducing the

00:41:41 --> 00:41:44: risk for multiple hazards, then the benefit costs just goes

00:41:44 --> 00:41:47: up. So the more hazards you can address with the

00:41:47 --> 00:41:50: same retrofit, the better. The other piece of this that

00:41:50 --> 00:41:53: I didn't really get into is, and I think someone

00:41:53 --> 00:41:56: in the chat asked this is around retrofits for other

00:41:56 --> 00:42:00: purposes like decarbonization and energy efficiency, so that could definitely

00:42:00 --> 00:42:03: be part of the process as well to identify which  
00:42:03 --> 00:42:04: buildings are at.  
00:42:04 --> 00:42:07: Risk you know for carbon risk, for example, and investment  
00:42:07 --> 00:42:10: in those to get more out of the life cycle  
00:42:10 --> 00:42:13: in in in those types of buildings would increase your  
00:42:13 --> 00:42:14: benefit costs as well.  
00:42:17 --> 00:42:20: It's all really helpful. I'd like to kind of take  
00:42:20 --> 00:42:24: this and bring it to, you know, maybe a specific  
00:42:24 --> 00:42:28: building level and I'm thinking about kind of uptake of  
00:42:28 --> 00:42:33: resilient retrofits within different asset classes, and so just  
love  
00:42:33 --> 00:42:37: to hear our any of our panelists kind of expand  
00:42:37 --> 00:42:41: upon some of the points that have already been made  
00:42:41 --> 00:42:46: about the value proposition specifically. And if you're seeing  
a  
00:42:46 --> 00:42:46: specific  
00:42:47 --> 00:42:52: I said type that is responding more favorably to.  
00:42:53 --> 00:42:54: 2 presenting retrofits.  
00:42:55 --> 00:42:57: So maybe, maybe why don't you? Why don't you start  
00:42:57 --> 00:42:57: a call?  
00:42:57 --> 00:43:01: Yeah, yeah, yeah. So interestingly, the so the approach that  
00:43:01 --> 00:43:04: I showed before, which is again not dissimilar to Danielle's  
00:43:04 --> 00:43:07: approach, which is like starting with maybe a pre screening  
00:43:07 --> 00:43:11: assessment of all the hazards that a portfolio could face  
00:43:11 --> 00:43:14: and then kind of drilling down into asset hazard pairs  
00:43:14 --> 00:43:16: that might need more of a deep dive and then  
00:43:17 --> 00:43:19: moving that into like. Well, what should we do about  
00:43:20 --> 00:43:22: this? And so on and so forth. That is pretty  
00:43:22 --> 00:43:25: standard across any type of organization. I will say that.  
00:43:25 --> 00:43:28: The organizations that we do the most work for are  
00:43:29 --> 00:43:33: kind of mission critical organizations like data center  
operators that  
00:43:33 --> 00:43:36: can't afford any downtime all the way to campuses. So  
00:43:36 --> 00:43:39: like university campuses, is a big one where you can  
00:43:39 --> 00:43:43: imagine one single event could knock out the entire campus  
00:43:43 --> 00:43:46: right? And so basically it's an existential threat to their  
00:43:46 --> 00:43:50: entire mission, and so we've got other corporate  
organizations that  
00:43:50 --> 00:43:54: have similar concerns. They have a downtown campus or an  
00:43:54 --> 00:43:56: urban campus where literally one.  
00:43:56 --> 00:44:00: Event could knock out their headquarters, so we were  
working  
00:44:00 --> 00:44:03: with a number of big clients like that also working

00:44:03 --> 00:44:07: for real estate developers who have scattered assets to try

00:44:07 --> 00:44:10: and help them understand. OK, out of all the assets

00:44:10 --> 00:44:13: I've got in My Portfolio, which ones do I need

00:44:13 --> 00:44:16: to drill down on and really understand how to make

00:44:16 --> 00:44:20: our entire portfolio more resilient so I would say generally

00:44:20 --> 00:44:24: the same approach works for everyone. It's just that some

00:44:24 --> 00:44:26: are more incentivized to.

00:44:26 --> 00:44:28: Go through and be proactive and kind of our leading

00:44:29 --> 00:44:30: on the resilience part.

00:44:33 --> 00:44:36: Yeah, and if I can sort of follow on to

00:44:36 --> 00:44:36: that.

00:44:38 --> 00:44:41: In what we saw in our interviews as we were

00:44:41 --> 00:44:45: conducting our interviews for the toolkit was.

00:44:47 --> 00:44:50: Like the the community members.

00:44:52 --> 00:44:56: More more often than some local officials think, have a

00:44:56 --> 00:45:00: greater desire to do something to mitigate their risk. They

00:45:00 --> 00:45:05: might not be sure exactly what their specific risk is.

00:45:05 --> 00:45:08: They might not be sure about how to do it,

00:45:08 --> 00:45:12: but once the community officials kind of got down to

00:45:12 --> 00:45:17: the community member level and started talking to people,

00:45:17 --> 00:45:22: they

00:45:17 --> 00:45:22: found that people are willing to do something. They're quite

00:45:22 --> 00:45:22: a few.

00:45:22 --> 00:45:28: Projects in California where they were looking at doing

00:45:28 --> 00:45:33: building

00:45:28 --> 00:45:33: retrofits so like apartment buildings. You know multi unit

00:45:33 --> 00:45:38: buildings

00:45:33 --> 00:45:38: and the building owners were not as reticent as officials

00:45:38 --> 00:45:43: thought they would be because you're asking someone to put

00:45:43 --> 00:45:45: money into something and.

00:45:46 --> 00:45:48: So they thought that they would be hesitant to do

00:45:48 --> 00:45:52: that, but there were actually many more homeowners and

00:45:52 --> 00:45:55: building

00:45:52 --> 00:45:55: owners willing to do something for their safety than they

00:45:55 --> 00:45:55: they.

00:46:01 --> 00:46:02: Then the only thing to add there.

00:46:06 --> 00:46:09: I think there's so many factors from like an investor

00:46:09 --> 00:46:12: perspective that would affect the buildings that would be

00:46:12 --> 00:46:14: more

00:46:12 --> 00:46:14: willing to do a retrofit. But like I'd say.

00:46:15 --> 00:46:17: I think for office buildings where.

00:46:19 --> 00:46:21: You know, if there's like, for example, like we have

00:46:22 --> 00:46:25: some office properties that have like 5000 tenants, and like

00:46:25 --> 00:46:27: you know those would be very high risk if they

00:46:27 --> 00:46:28: didn't take action.

00:46:29 --> 00:46:33: Where they might have if, depending on the location, they

00:46:33 --> 00:46:36: might have more casual to be able to invest in

00:46:36 --> 00:46:40: those capital improvement projects, but when you think about like

00:46:40 --> 00:46:44: an industrial asset that's like you know triple net property

00:46:44 --> 00:46:48: with where like full tenant control, there's more like I'd

00:46:48 --> 00:46:48: say.

00:46:49 --> 00:46:49: Umm?

00:46:51 --> 00:46:53: There's it's hard in terms of like who makes a

00:46:53 --> 00:46:57: retrofit who benefits from it. I think would be harder,

00:46:57 --> 00:46:59: like I, I feel like we're probably going to see

00:47:00 --> 00:47:03: some asset types kind of lead. I think we're seeing

00:47:03 --> 00:47:06: more. We're seeing more progress on that. Like you know,

00:47:06 --> 00:47:09: for high rise office spaces then we are maybe like

00:47:09 --> 00:47:13: for like for example in certain industrial facilities. Because of

00:47:13 --> 00:47:16: that I think so. The investment structure, like who is

00:47:16 --> 00:47:19: responsible? I think it will. It will be a factor

00:47:19 --> 00:47:21: in terms of like who do we see leading the

00:47:22 --> 00:47:23: efforts in terms of like.

00:47:23 --> 00:47:25: Making those retrofits a reality.

00:47:27 --> 00:47:30: Fantastic, well we have a lot of questions from our

00:47:30 --> 00:47:33: audience today so I'm gonna try to get through as

00:47:33 --> 00:47:36: many of these as I can. Thank you for everyone

00:47:36 --> 00:47:40: who submitted questions. Please keep those coming one that is

00:47:40 --> 00:47:43: specific for you. Mary that says curious if you spoke

00:47:43 --> 00:47:47: to property owners of historic buildings which must retain historic

00:47:47 --> 00:47:51: elements of the building while adapting their buildings for future

00:47:51 --> 00:47:52: natural disasters.

00:47:53 --> 00:47:57: Yes we did, and that was definitely a challenge that

00:47:57 --> 00:48:02: we heard of, especially since one community in particular was

00:48:02 --> 00:48:07: working with FEMA and FEMA requires an environmental and historic

00:48:07 --> 00:48:12: preservation review. So with historic buildings, you can't change anything

00:48:12 --> 00:48:16: about the look of the outside of the building.

00:48:17 --> 00:48:21: And so these communities that were work that you know

00:48:21 --> 00:48:25: had some historic buildings in their building stock had to

00:48:25 --> 00:48:29: go through a process of, you know, taking pictures of



00:48:29 --> 00:48:33: what a retrofit you know, like a seismic retrofit on

00:48:33 --> 00:48:37: a building would look like, proving that it wouldn't be

00:48:38 --> 00:48:42: seen from the outside of the building. Things like that.

00:48:42 --> 00:48:44: So it's definitely a challenge.

00:48:46 --> 00:48:50: But there there is a a process there. There were

00:48:50 --> 00:48:53: communities who figured out sort of a roundabout way of

00:48:53 --> 00:48:56: doing it. It takes a long time, but they were

00:48:57 --> 00:48:57: able to do it.

00:49:01 --> 00:49:04: Wonderful, I do want to make sure that you know

00:49:04 --> 00:49:07: we we acknowledge the equity in this process and so

00:49:07 --> 00:49:11: I've got a question just relative to that. I mean,

00:49:11 --> 00:49:14: you know, we know the properties that serve people of

00:49:14 --> 00:49:19: color and low income households. They are higher exposure

00:49:19 --> 00:49:23: to

00:49:23 --> 00:49:26: climate risk. That's just a fact. And these communities also

00:49:26 --> 00:49:28: face higher barriers to access in capital. And so how

00:49:29 --> 00:49:31: do we ensure that the equity.

00:49:32 --> 00:49:34: Is baked into this process.

00:49:35 --> 00:49:38: And I'll open it up to you.

00:49:38 --> 00:49:42: Maybe Mary goes first, like I can fall on.

00:49:42 --> 00:49:46: Yeah yeah, I can hop in real quick. Something that

00:49:46 --> 00:49:50: we saw is definitely taking that like even even having

00:49:50 --> 00:49:55: it in your mind as you start these processes from

00:49:55 --> 00:49:58: the very beginning helps because just by being aware you

00:49:58 --> 00:50:03: start to look for how to take all of that

00:50:03 --> 00:50:07: into account. There were communities who before they

00:50:08 --> 00:50:08: jumped into

00:50:08 --> 00:50:13: their retrofit program. I did. You know, assessments on their

00:50:13 --> 00:50:18: community.

00:50:18 --> 00:50:19: To find out exactly what their community demographics were

00:50:20 --> 00:50:21: and

00:50:22 --> 00:50:22: what sort of barriers the community members might have in

00:50:23 --> 00:50:27: retrofitting.

00:50:27 --> 00:50:29: Umm?

00:50:30 --> 00:50:35: And.

00:50:35 --> 00:50:38: So like taking those steps early on helps to include

00:50:38 --> 00:50:39: it throughout the process.

00:50:40 --> 00:50:44: Maybe did you have anything else that you wanted to

00:50:44 --> 00:50:48: add relative to equity in the process?

00:50:48 --> 00:50:52: Yeah, again, going back to the cost benefit, the traditional

00:50:52 --> 00:50:55: cost benefit analysis is looking at value at risk. So

00:50:55 --> 00:50:58: the example that we use and this disproportionately impacts

00:50:58 --> 00:51:00: low

00:50:52 --> 00:50:56: income populations, the example that we use is. Let's say

00:50:56 --> 00:51:00: you've got two communities at risk of like sea level

00:51:00 --> 00:51:04: rise and you're looking to build a seawall to protect

00:51:04 --> 00:51:06: them. The cost benefit.

00:51:06 --> 00:51:09: Analysis would actually favor the richer community because

00:51:09 --> 00:51:12: the value

00:51:09 --> 00:51:12: at risk is higher and so your benefit cost goes

00:51:12 --> 00:51:14: up. That's we can't do it that way, so we're

00:51:14 --> 00:51:18: actually there's a lot of literature about this, and Eric

00:51:18 --> 00:51:20: has been developing some stuff looking at how you can

00:51:20 --> 00:51:24: integrate social equity into the traditional cost benefit analysis

00:51:24 --> 00:51:27: by

00:51:24 --> 00:51:27: looking at things like median incomes in a population that

00:51:27 --> 00:51:30: waits the certain benefit costs, and so that kind of

00:51:30 --> 00:51:33: makes it more on a level playing field and really

00:51:33 --> 00:51:36: kind of gives an apples to apples comparison, so I

00:51:36 --> 00:51:37: think it's really important.

00:51:37 --> 00:51:40: The note that the dollar, let's say, goes a lot

00:51:40 --> 00:51:43: farther in a low income population than a richer population

00:51:43 --> 00:51:46: that needs to be integrated into our traditional workflows.

00:51:52 --> 00:51:56: Danielle, I would love to hear you. There's a lot

00:51:56 --> 00:51:58: of questions in the chat and I would love to

00:51:59 --> 00:52:02: hear you talk about the role of insurance in this

00:52:02 --> 00:52:06: process. And you know, pretend you're pitching one of

00:52:06 --> 00:52:09: pitching

00:52:06 --> 00:52:09: a client that just says, well, gosh, isn't that what

00:52:09 --> 00:52:13: insurance is for and they've already calculated this risk? I'm

00:52:13 --> 00:52:16: sure you've heard that I would like to just hear

00:52:16 --> 00:52:20: how you respond to a skeptic that's profitable. One tells

00:52:20 --> 00:52:22: you, like that's what's insurance.

00:52:23 --> 00:52:26: Yeah, I mean there's a lot of there's a lot

00:52:26 --> 00:52:30: of regions where insurance companies will not touch those

00:52:30 --> 00:52:33: types,

00:52:30 --> 00:52:33: like there's places in high fire risk or high flood

00:52:33 --> 00:52:37: risks. There's no insurance companies. I mean, they'll say

00:52:37 --> 00:52:40: female

00:52:37 --> 00:52:40: will cover me that nobody wants to ensure those properties.

00:52:40 --> 00:52:43: So like and I think for us when we're developing

00:52:43 --> 00:52:47: our risk assessment, we actually met with several major

00:52:47 --> 00:52:51: insurance

00:52:47 --> 00:52:51: companies to understand. OK, if eventually as we implement

00:52:51 --> 00:52:54: those

00:52:51 --> 00:52:54: risks, this property will become like a.

00:52:54 --> 00:52:58: High resilience, would we consider negotiating a lower

insurance rate

00:52:58 --> 00:53:00: so we actually talked to them OK? What kinds of

00:53:00 --> 00:53:04: questions should be incorporating to our risk assessment and some

00:53:04 --> 00:53:07: of the things they said you know, like compliance with

00:53:07 --> 00:53:10: buildings, latest structural codes or like some of the even

00:53:10 --> 00:53:13: fire codes would help. So like we, we did talk

00:53:13 --> 00:53:16: to them about that. I feel like. Also they you

00:53:16 --> 00:53:18: know when I met with them and see what kind

00:53:18 --> 00:53:21: of process do you use. Even evaluate the risks now

00:53:21 --> 00:53:23: to come up with your insurance rates. And I I

00:53:23 --> 00:53:25: think it's gotten better now.

00:53:25 --> 00:53:28: But a lot of insurance companies are not even prepared.

00:53:28 --> 00:53:31: I mean, they're not. They're just using old models, and

00:53:31 --> 00:53:34: they're not really understanding the the latest risks, so I

00:53:34 --> 00:53:37: feel like they have. I mean, there's obviously things that

00:53:37 --> 00:53:41: are happening, but I don't think that the insurance companies

00:53:41 --> 00:53:44: are really, truly prepared to understand these risks and include

00:53:44 --> 00:53:47: that into their models. But I do think that as

00:53:47 --> 00:53:50: we make progress to, you know, if we're making this

00:53:50 --> 00:53:53: major investments, we make the property more resilient that it

00:53:53 --> 00:53:56: should affect your insurance rates. So we need to.

00:53:56 --> 00:53:57: All get more like.

00:53:58 --> 00:54:00: I'd say advanced on that and you know I saw

00:54:00 --> 00:54:03: there was a question about also in terms of like

00:54:03 --> 00:54:07: how the retrofit process when you think about decarbonization all

00:54:07 --> 00:54:10: those together. So one of the things we're doing when

00:54:10 --> 00:54:13: we are even during the due diligence for new acquisitions

00:54:13 --> 00:54:16: process we are, we created something called the Green PCA.

00:54:17 --> 00:54:21: It's a green property condition assessment and we're including resiliency

00:54:21 --> 00:54:25: risk assessment. We're including decarbonization efforts and looking at energy

00:54:25 --> 00:54:27: audits and doing like a really.

00:54:28 --> 00:54:31: More encompassing assessment of that property. So then we can

00:54:31 --> 00:54:35: then incorporate into our underwriting models what it would take

00:54:35 --> 00:54:38: to retrofit that property and do it all at once,

00:54:38 --> 00:54:41: right? If you're retrofitting, maybe you include, you know, fully

00:54:41 --> 00:54:46: electrifying that property by incorporating maybe solar panels, doing the

00:54:46 --> 00:54:49: resiliency retrofit, and and energy efficiency all at once, so

00:54:49 --> 00:54:53: I think it's really important to take that holistic approach

00:54:53 --> 00:54:56: when you're doing retrofits right? Usually the best time is

00:54:56 --> 00:54:58: right after maybe an acquisitions.

00:54:58 --> 00:55:02: Are you doing or some capital improvement projects? So I

00:55:02 --> 00:55:05: just feel like we need to really understand all these

00:55:05 --> 00:55:08: risks and and take that approach to to really make

00:55:08 --> 00:55:13: our buildings right more sustainable, more resilient decarbonized. So I

00:55:13 --> 00:55:16: think that's a really important part of the process.

00:55:17 --> 00:55:20: Like I add on the insurance piece. I agree with

00:55:20 --> 00:55:23: Danielle. I mean I basically you have to realize or

00:55:23 --> 00:55:27: recognize with insurers. They're looking at large portfolios of buildings.

00:55:27 --> 00:55:31: They care about the averages. They don't really care about

00:55:31 --> 00:55:34: individual buildings. So unless you've got like A and I've

00:55:34 --> 00:55:37: seen it cause we've done like a \$500 million asset,

00:55:37 --> 00:55:40: they won't really which we call facultative risk. They don't

00:55:41 --> 00:55:45: really understand the intricacies of individual buildings, and they certainly

00:55:45 --> 00:55:47: won't typically give you a resilience.

00:55:47 --> 00:55:51: Sorry insurance premium reduction because you've made certain measures. That

00:55:51 --> 00:55:55: is the Holy Grail. Connecting resilience with insurance so you

00:55:55 --> 00:55:58: get the payback directly. I don't think we're anywhere near

00:55:58 --> 00:56:02: that, unfortunately. And like Danielle said, they're definitely not looking

00:56:02 --> 00:56:05: at risk at the individual asset level like they should

00:56:05 --> 00:56:08: be. So if you want to protect yourself, you really

00:56:08 --> 00:56:11: need to maybe investing in those resilient retrofits. I would

00:56:11 --> 00:56:14: also say the insurance coverage that you're typically looking at

00:56:14 --> 00:56:17: might cover you for a certain percentage of damage there.

00:56:18 --> 00:56:20: Not gonna really protect you for losses, indirect losses like

00:56:20 --> 00:56:23: downtime and business interruption and those types of things. So

00:56:23 --> 00:56:25: that's something that you need to be aware of.

00:56:27 --> 00:56:28: Ohh, they agree.

00:56:29 --> 00:56:31: If I can follow on that as well.

00:56:32 --> 00:56:37: Some of the programs that we interviewed started because of

00:56:37 --> 00:56:41: this. Just like Danielle said, some areas of the country

00:56:41 --> 00:56:46: insurance companies won't even go there because of how high

00:56:46 --> 00:56:50: their risk is. So like South Carolina and Alabama, the

00:56:50 --> 00:56:55: safe Alabama homes programs were both developed. Because of this

00:56:55 --> 00:57:00: lack of insurance access, so they were retrofitting homes so

00:57:00 --> 00:57:03: that those communities could be safer.

00:57:03 --> 00:57:08: And get some more access to potential insurance.

00:57:12 --> 00:57:15: Alright, I think we have time for maybe one more

00:57:15 --> 00:57:19: quick round of questions here, and so there's a couple

00:57:19 --> 00:57:23: of questions relative to tools that individuals can use that

00:57:23 --> 00:57:27: are maybe online. Whether it's a payback calculator or other

00:57:27 --> 00:57:31: risk assessment calculators. So what's could I'd like to do?

00:57:31 --> 00:57:33: Kind of a quick run through of each of you

00:57:33 --> 00:57:37: if you're looking at a piece of property. There are

00:57:37 --> 00:57:40: a couple of tools that you would just go to

00:57:40 --> 00:57:41: immediately online.

00:57:41 --> 00:57:42: Start to look at risk.

00:57:43 --> 00:57:44: And payback.

00:57:56 --> 00:57:57: There's.

00:57:58 --> 00:58:01: There there's really not. I mean, I think that's the

00:58:01 --> 00:58:03: issue. Well, look if you wanna get into like if

00:58:03 --> 00:58:06: if you wanna look up tools online for resilience, index

00:58:06 --> 00:58:10: indices, for example for particular counties or municipalities or things

00:58:10 --> 00:58:13: like that. Then certainly they're like FEMA has a resilience.

00:58:13 --> 00:58:16: I think I don't know what they call it. Resilience

00:58:16 --> 00:58:19: index, but if you're looking at specific buildings like there's

00:58:19 --> 00:58:22: tools like flood factor now online, that first St Foundation

00:58:22 --> 00:58:24: is put out there so you can go to your

00:58:24 --> 00:58:28: individual property and understand your flood risk. For example, there's

00:58:28 --> 00:58:28: other hazards.

00:58:29 --> 00:58:31: It works, but like when you for other hazards. And

00:58:31 --> 00:58:35: really, if you're trying to get an understanding of specifically

00:58:35 --> 00:58:38: at your property, there's not really much out there, unfortunately.

00:58:40 --> 00:58:41: I don't know if Danielle and Mary.

00:58:42 --> 00:58:44: If if you agree with that or not.

00:58:44 --> 00:58:48: Yeah, just like you said, FEMA has the National Risk

00:58:48 --> 00:58:51: index and you can get to sort of like a

00:58:51 --> 00:58:56: county, maybe community level, but getting like drilling down more

00:58:56 --> 00:59:01: specifically to a specific property then there isn't so much  
00:59:01 --> 00:59:06: sometimes States and counties have their own programs like  
California  
00:59:06 --> 00:59:07: has a my hazards.  
00:59:09 --> 00:59:12: And that's that's kind of like a high level. You  
00:59:12 --> 00:59:17: can search your address basically and see what different  
hazards  
00:59:17 --> 00:59:21: layer on top of your area, like your block and.  
00:59:23 --> 00:59:24: Yeah.  
00:59:25 --> 00:59:29: It's difficult to find very specific local information.  
00:59:32 --> 00:59:35: Well, I want to be respectful of everyone's time and  
00:59:35 --> 00:59:39: I wanna thank first and foremost the resilience land use  
00:59:39 --> 00:59:43: cohort at ULI for all of the amazing work that  
00:59:43 --> 00:59:46: has been done for the report that will be sent  
00:59:46 --> 00:59:50: out. And for assembling this panel and for everyone that  
00:59:50 --> 00:59:53: has joined us today, I know that this is an  
00:59:53 --> 00:59:58: extremely complicated issue that it's very difficult to to wrap  
00:59:58 --> 01:00:01: our hands around and just a one hour presentation.  
01:00:02 --> 01:00:05: And I'm deeply grateful that everyone is committed an hour  
01:00:05 --> 01:00:08: of their day to addressing this. So thank you on  
01:00:08 --> 01:00:09: behalf of you a lot.

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