IxDA Sydney Podcast

S02 E07 - Kent Eisenhuth
Audio Transcript

Kent: [00:00:00] Data viz is difficult and accessibility is also difficult. And when you put the two together, I really think it's a, a tangled mess of a, of a design challenge.

Hello, and welcome to the IXDA Sydney podcast, a show where we can't guarantee answers, just better questions. I'm Venita Asani, and in this episode, Sam and Jess are chatting with Kent Eisenhuth, who was a fellow of the Royal Society of Arts, an author of drawing product ideas. Kent has developed visual languages that improve collaboration, comprehension, and decision making across a wide array of Google products, including Fitbit, Google Cloud, and Alphabet's vm.

Kent leads Google's data accessibility program and previously led Google Cloud's data visualization program. This episode dives deep into the data. We're talking about accessibility, visualization, and all things in between. [00:01:00] We invited Kent to have a chat with us after coming across his awesome expertise in the ADP list Slack channel.

Sam: Let's get started. Hey Ken, really happy to have you on the show. I'm probably gonna be fanboying a little bit here, so I would love just to hear a bit about yourself and, and just tell us a bit about your story. Yeah. Awesome. Thank you. First of all, it's just an honor to be here. Thank you for inviting me to be a guest on the show.

Kent: Always loved talking about UX and design. I've been practicing design for about 17 years now, and honestly, I just can't believe it's, it's been that. And I was trained as a visual designer, and shortly into my career I realized I just really loved ux. In fact, before I went to college, when I was in grade school, I wanted to be an architect.

And shortly after the.com bubble when I was. Getting out into the field of visual design. I found my way into some UX projects by [00:02:00] accident, and I realized a lot of the thinking that I was applying to those projects reminded me so much of what I loved about architecture when I was in grade school. So I realized, okay, this is something I want to take a turn into, explore a bit more.

I switched jobs, worked at an agency in Philadelphia that was more of, let's say a design consult. And that's really where I found my ux, sea legs, and we did a lot of work in enterprise software. I would say We spent a lot of time making rich people richer, so to speak. We did a lot of work for businesses and stuff, and I'm really grateful for that time and experience I had there.

I had some great mentorship, but at one point I wanted to become a bit more mission driven in my career and apply my skills to something that might benefit. A much larger audience or have a really positive impact, perhaps on an underserved audience. So I, after a few attempts, I made it into Google, landed an UX job there.[00:03:00]

And then that's really where I would say I built my career. And a lot of the experience I had there is what enabled me to get to where I am today. And through that time, I tried some different things out. I worked in some different subject matter. I worked with Google X and Loo focusing on design for their aerospace program.

I worked with Google Area one 20 for a stint actually as a 20% project using AI to help, uh, K through five students practice their reading. Which was something that was really important to me as a designer, and then shortly after, I started working on Google Cloud and focusing a lot on data viz, and I realized over the course of time, even before Google Data viz was just something I absolutely loved.

And later in my career, I pivoted more to focusing on data accessibility. So accessibility for charts, graphs, and visualizations. And again, thinking about that mission driven approach I was trying to take in my career, thinking [00:04:00] about. Accessibility was something that really kind of helped me achieve that mission and supported it, and something that gets me excited to get out of bed in the morning and go into work.

I'm currently working with teams in Fitbit and I help out with a lot of database challenges there. In fact, it's a health monitoring tool. So a lot of great charting going on. And again, thinking about that mission, right, of doing something positive for people, helping people become healthier through technology, I think is also a noble mission and something that I've been really excited to work on and definitely feel lucky to have worked on a lot of these different things.

So that's a little bit of a summary of how I got to where I am today.

Sam: Awesome. So a couple of things I'd like to dig into slightly, and that's around the data visualization aspect. So without, without knowing you for the last four, four or five years, my design director at the time was holding up this data visualization guideline from Google MA till [00:05:00] design and saying, okay, this is, this is the Bible, go follow. And funnily enough, you seem to be the person that wrote that Bible. So yeah, would love to, to hear a bit about the story and the path that came to, came to Google material design and the data visualization guidelines.

Kent: Yeah, absolutely. That was a super fun project and definitely, uh, career highlight for me.

So, I joined a team in Cloud in 2017, and the cool thing about working at a company like Google is you have a lot of extremely talented and accomplished people to work with, and I, again, feel very humbled. I spent a lot of time and I still feel this way. I, I have that sense of imposter syndrome at times.

And when I joined the cloud team, I definitely experienced that. So I saw just an internal email. There was an opening. Posted by this guy Manuel Lima, and he's very well known in the date of his community. And certainly if you've read books like The Book of Trees, the book of [00:06:00] circles, if you're anticipating his new book coming out, you might be familiar with him or you may have seen his TED Talks.

And I thought to myself, what better mentor to have in data visualization than, than someone like that? So we met for coffee, hit it off, right? And they realized like we had a lot in common, Manuel really understood the value of visual design, uh, had such a deep technical knowledge of data visualization and the value it could add to different products.

And what I loved about how he was approaching the team at the time was he was thinking, Farther beyond or much beyond the products that we were working on and thinking about how we could take the knowledge, the things we were learning with the cloud products that we were designing, and apply that more broadly or maybe publish some of our research externally.

And really, that was the genesis of the guidelines. And at the time we felt material two was out. I believe it was all the rage, and we felt like we could contribute to that. And. Something cool that happened is we just met the right people and with the expertise in the team that [00:07:00] Manuel was putting together at the time, we were able to do just that and we could pull from everything we learned to doing all the work we did for cloud and abstract that out and apply it to, to those guidelines.

Something interesting that happened, I would say about halfway through that process is we didn't want to create that in a vacuum. We wanted to work with other teams across Google. So we actually had several design sprints where we were trying to answer this question, what does data visualization mean for Google?

And on the surface, that can seem like a pretty straightforward question, but it's actually really hard to answer. So we spent a lot of time with. Folks in Google Analytics, in search, YouTube, cloud, all the main key product areas at the time, answering that question. And really that is how the, uh, design guidelines got started.

So we sprinkled in some best practices. We run an office hours program, and we were thinking about some of the questions, the popular ones teams were asking us a no sessions around chart usage. How can I tell a story with data based on just using classic range of charts? And then [00:08:00] how can. Put charts together to tell a story, whether it's through a dashboard, how can we think of things like accessibility?

And as we started to rough out that story arc, that's how we came up with the guidelines. So, One of my colleagues show Young, and I actually wrote those guidelines. We had a lot of help from the teams that we sprinted with. So even though there were a lot of, maybe two of us actually wrote the content, there was a whole team of people that really provided the research and the knowledge and collaborated with us in, in really providing a crisp message on that material site.

So fun trip down memory lane here. That was definitely a great thing to, to reflect back on and just was really, I consider myself lucky to have worked with some amazing people on that effort.

Sam: Okay, great. You, you mentioned the concept of data accessibility, which really sounds like a similar concept to data literacy. Could you maybe elaborate on, on that and how you took people [00:09:00] along the journey?

Yeah,

Kent: absolutely. Data accessibility. The term we've been coining to accessible charts, graphs, and visualizations. Now, I think it definitely transcends that. Right now we've been focused on what's, what's the next evolution of the work that we've done.

And for several years, we really felt strongly about focusing on accessibility. So if you think about like just a basic chart, graph, or visualization, it was really meant to work for someone who is fully cited. The idea behind a lot of visualizations, and you'd see this if you followed some vision scientists or a vision research, is that.

Visualizations are meant to tap into our vision system, our core pre-attentive processing capabilities that we possess as human beings. So a lot of visualizations. If they're done well, you should be able to glance at 'em and glean some sort of insight from it, and that's by design, but that also assumes that you [00:10:00] can see.

And I feel like visualizations are a big part of the world today. If you think back to the pandemic, at least in America, there was a lot of talk early on in 2020 around flattening the curve. The way we describe that was using all visuals. We're talking about curves and shapes, and these are all the encodings, the ingredients that you would find in a visualization.

If you think of an election, a lot of times, like the New York Times or the Washington Post will heavily rely on visualizations to show. The party that's going to win the election or show the way in which votes are shaping up or being tallied and helping to tell that story. And I feel like more and more as time goes on, we're seeing a lot of visualizations in journalism.

We're also seeing them in business intelligence systems. We're also seeing them pretty much everywhere. I feel like it's ubiquitous at this point. Again, all these things designed to tap into the human visual system. But what about for those folks who can't see, or maybe [00:11:00] those folks who have color deficient vision or contrast sensitive vision.

Now we're, we're assuming everyone can see, and a lot of, a lot of these folks are missing out on all those insights that glanceable data, that the visualization is providing someone who can. So this started bringing up some interesting challenges to us. I always love a good design challenge and thinking about ways in which we could represent data with alternate methods, whether it's through sonification or really crisp screen reader experience.

How can we pair text and other non-visual elements with the data to provide those insights? And if you really start to unpack that a bit, I think it's a really difficult challenge. I truly believe data is, is, is a difficult thing to do. I mean, sure you can just slap a chart onto an interface and call it a day.

But if, if you really want to tell a story, if you're really being thoughtful about how you're answering the questions people are asking of that data, there's a little more to it than that. And I think it can be difficult. On the [00:12:00] other side of the coin, if you think about accessibility, doing that well is also difficult.

So if you think of a. And using like WCAG standards, for example, and just bringing it into compliance. Sure, you can do that. Probably wouldn't take a long time to do so, but really good accessibility transcends compliance. So how do we really think about a thoughtful screen reader experience that really explains the data in a glanceable way?

And these are the types of challenges that I get excited about in the morning. The people I work with get excited about and that's what we're trying to set out to solve so that we've pivoted into that. Cuz we found a lot of opportunity there. We also felt. You know, as Google accessibility was always a very high priority for us.

It's, it's part of the company's core mission, so it's something we've always been doing. But what we've been striving to do is to think about how can we take it a step further and really create an accessible data experience that meets people where they are. So we've been at this for a few years. We've done some, some research.

We started publishing some of our work. If you head [00:13:00] out to the material blog, for example, We assembled what we're calling the data accessibility working group or dog, if you will. It's been fun acronym internally, but we recently published our guiding principles out of the material design blog, and that's really meant for anybody to start thinking about this challenge from the casual maybe.

Salesperson who's just creating a PowerPoint slide deck for an executive and wants to show maybe product performance or sales by product and just manually drawing a chart to someone who's actually in charge of a scalable component library that's being leveraged by several products at a large tech company.

And that was kind of the start of publishing some of our thinking. And certainly we've been trying to expand on that ever.

Jessica: For organizations who are kind of starting out to think about it, like what are some ways you think is, is a good way to start to develop that maturity in, in providing data accessibility?

Kent: Yeah. [00:14:00] I think awareness is, is. Kind of the first thing that we always need to think about. So if you're making, let's say, a simple website for like a marketing website or even maybe you're working for a startup who's creating the next best mobile app or wearable tech product, it's always important to think of from the business perspective.

We'll start with that, right? There's the business perspective where there's a bit of a liability. So if you think about, like in America, we have section 5 0 8, we strive to be compliant. We strive to make sure that we follow web content accessibility guidelines or WCAG guidelines when we do this. And I think it's easy to make, it's easier to make the business case when you talk a little bit about the liability.

But if you also start thinking about the magnitude of people who this work would benefit, I know when I first got into it, it was actually much larger than I had. So the last round of statistics that I had seen, and these, these might be updated since, but [00:15:00] as of last

year, according to stack exchange.com, we know that 4 million people in America rely on assistive technology to consume web content.

So, okay, that's, we're in the order of millions, in my opinion. Those are pretty substantial numbers, and if you start looking at books like Annie Jean Baptist Book, build for Everyone, there's a lot of great statistics in there around the billions of dollars of addressable market. When you. Thinking about inclusive design in people with disabilities in your work.

So I think as you start to factor in some of these statistics, in addition to the legal obligation, it becomes a bit easier to make a business case to, to work on it. Now if I think about Google, right, and folks who work at large tech companies, or maybe someone who's working on the next Best Tech product, right?

That's, that's going to take off. We should always look at ourselves. Citizens of the web, and if we wanna be good citizens of the web, we should make information accessible, especially if we're really leveraging charts, graphs, and [00:16:00] visualizations. We need to think of alternative methods. So I think you can make a case there, and if you start making those cases and generating awareness on the topic and the importance of the topic, that's kind of a good way to.

Some things that we found useful is helping our colleagues just build empathy for people in with different abilities in different situations. So for example, showing like a screen reader demo of a chart that's not accessible and trying to ask somebody to navigate it and glean some insights from it.

It's nearly impossible. And then, okay, show something that's actually working. Show. Well crafted, accessible experience. Uh, you know, it really helps people understand the benefits of, of this type of design. We always got a lot of questions cuz like I said before, database is difficult and accessibility is also difficult.

And when you put the two together, I really think it's a, a tangled mess of a, of a design challenge. And couple examples of that, even if we're talking [00:17:00] about like chart visual design for following WCAG guidelines. All colors need to have a minimum contrast ratio of three to one with a neighboring color, so you have the background color that the chart is sitting on, and we need to achieve that ratio with.

Then let's say you're dealing with a stacked area chart or a stacked bar chart or even a donut or pie chart where you have, you have fields of color. Kind of neighboring other fields of color. So you could have, let's say, five categories in this, this stacked area chart or this donut chart. Each color has to also achieve that ratio with the neighboring color.

So the more contrast you introduce into this visualization, the more now the higher likelihood you have of having these colors, all equally competing for your attention. But maybe there's one category in that pie chart or that stacked area chart that deserves a bit more attention. Maybe it's something that's like an anomaly or maybe it's some kind of warning category that [00:18:00] you need to focus on.

When you have all these colors that are equally competing for your attention, it's hard to draw focus. So thinking about some of the workarounds and things you can do to, to really craft that accessible experience. Is difficult and it's, it's easy to think of accessibility and make a pretty terrible looking chart, but to do it right, i, I think it's difficult.

So it's, I this is a long-winded way of basically saying it's important to think about some of these challenges upfront and generate that awareness as soon as possible. And also, Maybe enable your colleagues to have a little bit of ownership over the challenge too. So instead of putting a chart in front of somebody that might not look the greatest, helping them understand what led you down the path of making the decisions, you did the design decisions, and inviting them into just improve it and make it better and do a bit more research.

So a lot of times through this process we [00:19:00] had. We run into people who will ask us, are we really focusing too much on accessibility? Because I think it's degrading the visual design in this example. And again, if you just go that extra mile, we've been finding, and if we think about accessibility upfront, we're actually creating newish data experiences that.

Actually better put us in a better place than we would've been if we didn't think about accessibility. So as you start inviting people into the process and getting some folks on board with it, I think those efforts also gain some traction internally too. Another thing too is because data is at least accessible, data is, I would say, is.

It's been around, but you don't see, up until recently, you haven't seen a lot of research on the topic. We haven't seen a lot of best practices published. One of the things I think that's also helpful is. There's a lot of opportunity be to have a perspective or to become a voice. Like I think [00:20:00] sometimes people don't necessarily understand the value right away, but I think another way to look at it is we're we're creating new formats of consumption.

Jessica: Exactly. Right, exactly. Yeah. And I have to ask, I am so curious when, when you mentioned sonic graphs, I'm just trying to like, imagine how I would consume data in, in a like, audio format. And given that this is a podcast episode, it's super appropriate to kind of imagine that for us. And, but I am wondering like, how would you communicate or know, maybe like a line graph or something. I'm just imagining if there's like a Yeah, it's gonna be like a whoop.

Kent: So this is, this is a really great topic and Sonification is something that exists. There's out there. And you may or may not actually realize this, but you've already listened to data in ways that you may not have realized. So for example, a lot of elevators, when the door opens at your floor, if you're going up, you might hear a ding sound.

Sometimes you might hear two dings. There's actually meaning to that where, and I might have this backwards cuz it's late at night, so [00:21:00] I, I apologize to the community listening, maybe do some fact checking here. But typically one ding means you're going up or in one direction and two dings mean you're going down or, or in the opposite direction.

And that's some really, I think that's a really cool. Ambient experience that if, if you're tuned into it, it's great cuz now the direction of the elevator, without even looking at the touchscreen

control or maybe the, the display that sits above the elevator doors. And if you, if you don't know what the number of dings or sounds means it's okay, you're still aware that the elevator is there.

So there. Patterns out there that exist in everyday life that are examples of data sonification. Now, if you think about that line graph example, we actually offer that in our charts in a lot of our cloud products for people who are using assistive technology. And you can actually think of ways to.

Enable sound and represents different [00:22:00] quantities of data. So we can actually play audio tones that are reminiscent of a trend that you might find in a line graph. So it could go like doo, do, do, do, do, do, do. And if you play it all the way through, let's say your users are looking at this data or.

Interpreting the data because they want to find an unexpected dip or an unexpected spike in the trend. Well, sonification does that nice because you can really hear then that sudden spike or that that sudden dip in the audio. Some other ways that you could think about using Sonification too is tying it to a keyboard experience.

So as I'm navigating, let's say I'm looking at a line chart, maybe it's a stock chart that shows the performance of. A particular stock over time as I'm navigating to the different ticks or timestamps on the X axis, it would als. You can also play those audio tones so then you can play those tones on demand and locate those unexpected dips [00:23:00] or spikes yourself.

Right? So that's something that's really interesting and definitely worth. Looking into, one of the examples that I like to think about is the, something like the Nest Hub display or an Alexa device. Something that can provide an audio response. And if you think about how we craft data experiences, On those surfaces.

There's a lot of opportunity there. And if you think about the core capabilities those devices ship with can provide a narrated response to your query, a lot of 'em have a really nice high resolution display and they can play other audio tones too. So if we think about that stock quote example, imagine that we ask the Nest hub about a particular stock quote.

We could use the screen. To share a really compelling visual that is readable to people with different vision disabilities. But then you can also think about the way in which the reader responds or announces the answer to your question and how that ties in with the visual. And then you [00:24:00] could think about using some of those other audio capabilities to.

Represent the data, right, the trend line. So you can listen to the data, you can hear the summary of it, and then you can also see it in a compelling way. And I think what's really cool about that is if you think about the, that particular device, somebody who might be. Cooking dinner and just happened to think of, oh, I wonder how this stock did today and just asked it, but has like a buzzer going off in the background or has to pull a tray out of the oven and isn't looking at the device, can still get a compelling response from that.

And then you could think about the parent who might have a toddler who's really rallying for that person's attention, right? And screaming in the background and now this person can't

hear the response, but actually can see a really nice visual representation of the data. And thinking about how to tie all those things together holistically, I think is an example of how designing for accessibility can lead us down the path of making an ultimately better experience.

Sam: Awesome. [00:25:00] From my understanding, from a data accessibility perspective, the data maturity point of view needs to be quite high. Is that right? Can you, can you tell me more about the data maturity?

Kent: What do you mean by, I'm sorry.

Sam: Say from like, uh, From a organization having like good data available to

Kent: Oh yeah, absolutely.

Yeah. I mean, I think that holds true for any data experience, whether it's just a plain chart or maybe something that's a bit more accessible. The integrity of the data, the maturity of the data. It's really important to make sure that's there before we think about ways to represent it, whether it's in an accessibility use case or even just a basic chart that I might be drawing in slides or PowerPoint or in like a sales presentation. Absolutely.

Okay,

Sam: so if we kind of draw it back a little bit [00:26:00] from, say, if I'm a consultant working with an organization that want to visualize some reports and they see you as a UX designer and you're like, oh, just make it look pretty. How do I start to build up that capability and work with those stakeholders to ensure that we're taking them along the journey and building a certain outcome, which possible not from a, not just from a best practice perspective, but also from an engineering point of view too.

Kent: Yeah, absolutely. So I'm gonna start with the UX answer here. And this is a great question, by the way. So, Okay, so we have a, an engineer or a stakeholder that says, Hey, we have some data here.

Let's visualize it. I think first and foremost, it's just I important to understand who's using the data and how are they going to use it. So if you think of a lot of data, viz use cases, there's a couple of different buckets. First, you have an analyst who might be on a bit more of an [00:27:00] exploratory journey with the data, where these visualizations aren't necessarily going.

Directly answer questions for this person, but they're going to help this person identify maybe the next follow up questions to ask in an investigation. So in this case, it's important to think about how do we provide methods for data exploration and enable this person to draw their own conclusions. So that's kind of one.

Now, at some point in time this. Might want to share some findings from the exploration. And this brings up the next use case, which is creating visualizations for some type of type of

presentation purposes. And a lot of times these are the visualizations you might find in journalism. You might find in an executive presentation.

These are the visualizations that have. We know the questions people are asking of the data or the points that those visualizations are going to support, and we might design those in a different way. A lot of times the takeaways are highlighted front and center. We see some annotations overlaid [00:28:00] on them, and we want those to be very glanceable because they're more than likely going to be used to support points that are made in an article.

Points made elsewhere in that executive presentation. So we have like the analyst journey and then we have kind of like this, this presentation journey. So that's, I think that's one thing that's really important to think about here. And those are just, just two examples. The next piece of it then is, okay.

If we're thinking more in terms of like what questions people are asking of the data, there's a lot of best practices out there. There's some great thought starters. If you just Google, like choosing a chart, a thought starter, there's this classic diagram that comes up that just starts with what do you want to visualize?

What questions are you going to answer? And then it kind of routes you to types of charts. So do you wanna show something changing over time or do you wanna show like a distribution of a variable? Or do you want to compare two variables together? And then you can start to think about some of the visualization techniques that, that are best for those [00:29:00] different, those different areas.

And there's a, there's a lot. I, I feel like a lot of designers who maybe aren't familiar. State of his best practices might just make up some cool looking experience, but there's a lot of science, there's a lot of, a lot of these classic charts have been around for hundreds of years and there's a reason why they've worked.

So I think it's really important to just have an understanding of what's already out there, what has been tried, tested, and true, and maybe start there and then you could kind of innovate on on top of that. Okay, so that kind of gets into the visual presentation of the inform. Now data sets and data integrity, I think that's really important too.

So we have to ask ourselves always like, where's the data coming from? How fresh is the data? How reliable is it? And I think there's a whole litany of questions that need to be answered before you think of maybe which data set to use. And even when the chart is live or. Or available to people. It's always responsible to just dec site that source and [00:30:00] maybe provide access to the underlying dataset so someone can get in there and, and play around with it and maybe try out their own insights and conclusions from just messing around with the data.

When we think about the accessibility side, there's some benefits there too in that we learned, so we, we co-designed visualizations with people who use assistive technology and one thing we learned in that process is, Providing access to the underlying data set is actually really important, and a lot of times, at least the people we worked with who rely on

assistive technology, were really proficient in navigating tabular data and extracting some basic insights from that too.

So there's an accessibility component to that as well. And then in terms of making it look pretty, I think it's important to think about, there's like so much to think about. I'm just going through like the material guidelines in, in my minds here a bit, but colors are always a bit of a controversial topic, so how do we use colors to represent different metrics or maybe categories of information in the visualization?

Are we going to use a color ramp on a heat map or maybe a [00:31:00] discrete palette to show different categories of information? So there's, there's different ways you can do that. Again, it all kind of goes back to those questions. People are asking of the data and how we're helping them find answers to those questions.

So if they're trying to find an anomaly, maybe that category of information gets a really dark red color or like a fill, right? And maybe if there's something that's a bit more informational or FYI in the visualization that gets a lighter fill color, maybe we just use outlines so that your eye is directed to the filled regions of the visualization.

So there's all. Interesting visual design decisions that we can make along the way that can help us tell a story with that, with that data. And then of course, classic UX process, right? Like usability testing is really important. Many different ways in which you can visualize the same data set and represent that particular data, tell that story.

So just getting it out there and testing it with folks and seeing what resonates with people and. How they're perceiving the data and understanding that is also really important. So those are kind of like a few examples of the thought process maybe for someone [00:32:00] who's getting started goes back to how do we help people find answers to the questions they're asking of the data chart usage, thinking about the integrity of the data, and then getting it out there and maybe testing some different methods.

Sam: Okay, fantastic. And we'd recommend maybe workshopping and using your kind of classic UX. Kind of collaboration sessions with stakeholders to absolutely uncover those.

Yeah, and that's something

Kent: that I've always done in, in practicing visualizations. Even when I worked on a data system, which is like a, a design system dedicated to charting, we still worked pretty closely with those teams who were worked closely with customers or end users to just get a better understanding of how they're perceiving the data.

Okay, awesome.

Sam: So your experience for data visualization and within Google essentially helped you create a book. Is that correct?

Kent: [00:33:00] Yes, it is. And the two topics like the topic covered in the book and data visualization are seemingly unrelated, but it's actually not the case because drawing has been, which is what the book is about, has been a core part of my process.

And as we think about different, Problems that we're solving with visualizations at Google, whether it's something like Project Loon, which was something I had worked on back in in 2019. I worked on the control layer of loon, and if you're not familiar with loon, essentially it, it's now defunct, but it was a fleet of balloons that would fly in the stratosphere, and you could think of those balloons as floating antennas that could provide.

LTE broadband high speed connectivity to areas that might be recovering from a disaster like Puerto Rico after the hurricane a few years back, or even an area that doesn't have the best coverage from [00:34:00] terrestrial networks. So the interesting thing about that work was we were helping site reliability engineers, satellite operators, understand the decision.

That the network was making in terms of how it was routing data from a data center in the ground through a, a gateway to a satellite and then down to balloons in a particular region. And there was like a lot of things that we needed to explain. So visualizations were the way to do that. Now, that particular product I was, it was.

It was a Google X moonshot, so we were still prototyping payloads and vehicles at the time in which we were deploying them, and we needed to have a lot of, the work was very cutting edge. It, it was something that we were kind of making up as we, as we went along in, in many ways because it was just newer technology at the time, and drawing was the way in which we were all.

Gaining a shared understanding of the problems that we were trying to solve, and I noticed a lot of the engineers were [00:35:00] using it to just describe how the system was working. And it was giving me a peek into the mental model of how people were thinking about the challenges. And it really just, there, there were so many benefits to a lot of the whiteboarding sessions that I had at that point.

So I, that's like one example of. Cross-functional collaborators were using drawing to gain a shared understanding of a problem. And then we were using it again to think about ways to enhance the product, upgrade it. Think about ways in which we can apply visualizations to the control layer. Cuz you can imagine something that complex, there's a lot of different metric types of information that people are going to be interested in when understanding how healthy is the network or how easy is it to move data from point A to point B and some, some very abstract concepts.

And seeing how drawing was kind of like the main communication mechanism I thought was really special. And that was like one problem when we started thinking about accessibility and how you would use a keyboard, for example, or assistive technology to navigate a complex flow diagram. [00:36:00] There again, we spent a lot of time at a whiteboard.

We were making a lot of decisions. Um, With an engineering team as to how that might work. And I noticed a lot of people were asking me, how do you draw? And drawing's been

something that I've been doing for 30 plus years. It's been a core part of my life. It was a big part of my childhood and I really didn't think much of it.

And what I started to realize was over time I had created my own design system. So I had just ways of representing these different concepts and these different design challenges and these different products I was working on with these different. That was just based on a system of basic shapes, and it seemed to really resonate with people.

So over time I also ran into a lot of folks who weren't, weren't very comfortable with drawing, and had asked me for tips. So I put this book together as a way of making drawing more approachable for people, especially those people who might not come from a fine arts background at visual design background or even like a, a design background in general.

So, They could read this [00:37:00] book and hopefully feel more compelled to be more engaged in the design process. So it's, it's really meant for a lot of our cross-functional collaborators. But the book also gives tips that I've used as a designer for getting people on board with participating in design workshops and sprints and stuff like that.

Cuz drawing at the end of the day always seems to be one of the central tools that we, we use in those forum. Awesome. So similar to like a lean UX type style, do you kind of talk to the different points of when you validate and go through that type of process? Yeah, absolutely. So there's, in the beginning of the book, it just covers the value of drawing and where it could fit into your design process.

And then the middle of the book, Is actually more of a glorified how to draw book. So it covers the visual language of ux. Talk about some of the classic diagrams from sequential diagrams for documenting maybe a, a user journey through a product to even something a little more [00:38:00] time-based. If you're drawing a Gantt chart just to model out a roadmap, creating like hierarchical diagrams that represent maybe a, a website's information architecture to actual.

Basic interface elements, and then a lot of those are just drawn from basic shapes. There's a section on things that you build from rectangles and things that you build from circles and other primitive shapes. And then the idea is, uh, if you have the right tools, which could just be a ruler, a triangle, a straight edge, or maybe a circle template, those basic shapes become that much easier to draw.

And then I kind of layer in some other techniques about how you. Piece these elements together to, to tell a story about your idea. And when you think about later on in the design process, there's, there's time where maybe upfront you're just. Ideating and casting the net wide, and you're just getting some ideas down on paper.

And I know my drawings look terrible when I do that. It's just a lot of scribbles. But then at some point I want to take that to a colleague, whether it's a researcher, another designer I'm working with, maybe a [00:39:00] product manager, an engineer, and I have to make it look like something that's understandable.

So then the book kind of talks about. Levels of refinement so you can get your colleagues on board with your idea. And then there's some techniques sprinkled in there on how to use that to tell a compelling story. So the last third of the book, I would say is more on, okay, we have these drawings now we learned how to draw.

Now how do you connect it to a realistic narrative? How can you speak to tech constraints or maybe things that are missing from the drawing and stuff like that. So it's getting people on. Talking about how to draw, and it really takes a design system approach. You develop your own kind of personal design system with basic primitive shapes.

And then, okay, now let's put this together in, in some sort of story format. And that's, that's basically the structure of the book.

Jessica: Super keen to check out the book, and I do hope our listeners will get on it, and I'm gonna stop you there because I don't want you to give any more away from the books that people will read.

Kent: No worries. I'll say this, there's, there's a lot of drawing books out there. Something that I found interesting [00:40:00] is I feel like a lot of 'em either speak to the benefits of drawing in your creative process and really lean into that, but. Let's talk about how to get started. So someone who might not feel comfortable with it, still might not have enough information to dive in.

And then other books go the complete opposite way and really focus on creating like a detailed rendering of something or a product a. Like a hardware product drawing or a physical product drawing for someone who might be in industrial design. And I felt like there was a middle ground that needed to be addressed.

Drawing's a means to an end, just like any other design tool. And this book just really focuses on just that it's, we're not trying to win an art contest here, it's just being able to draw well enough to communicate an. And then, and then move on. And that's what it's all about. Yeah, that's it. I always have to, when I run brainstorming workshops, I always have to justify with my team as why I'm like, this is not representative of my design quality, so let's just keep [00:41:00] everything lo-fi.

Jessica: But yeah, it's really great to hear. I am curious to know, making that effort and putting the time to write a book has obviously opened up a lot of opportunities for you personally, and I'm just curious to hear more about, ever since writing that book, what are some things that have come up for you, whether it's workshops,

Kent: Yeah, so maybe I'll start with a little bit about the why piece of it.

I never really considered myself much of a writer and I, I dabbled with publishing some white papers and articles and that's where I started to gain some, some confidence. And in doing that I realized two things. A lot of times the work we do, the products we work so hard on creating and, and end months, years of time on, it's, it's very ephemeral work.

It's very disposable. It. Sometimes it gets thrown out a year after in favor of the next iteration of that product, right? Or maybe that product has a very short life cycle. And I wanted to work on something that I could hold in my hands. It was going to be around for a while. And as I started writing some of those other articles, [00:42:00] I realized a lot of the times my writing outlives my design work.

So I wanted to have something that would kind of stand, maybe the test of time, be a bit more timeless, that I could hold in my hands page through and hopefully other designers, other people in tech, really find some enjoyment and value out of. So that was, that was the reason for, for doing it. The other thing that helped me the Forward is actually written by Manuel Lima, who I, I worked with on the data visualization program, and he's somebody I always looked up to.

He kinda lit the fire to write the book. So one day he came up to me, we were in a design workshop, and he said, A lot of people are asking about your drawings. You should really consider writing a book about this. And a book was always on my radar, but I, I didn't really think much about what I would possibly write.

And that kind of planted the seed for the idea. So it's interesting, the book itself is about as old as my, my son, who's four years old while the book was actually published last November. I've been working on it for that time. And when I was on paternity leave, shortly [00:43:00] after he was born, Manuel reached out to me with a few examples of drawing books and said, Hey, there's clearly a market for this.

You should really think about it. And then at the time when I went back to work, I was, I. Based on the West Coast to some degree, I was, I was doing a fellowship with Project Bloom, so I flew from Philly to the West coast one week every month. And on those flights I started working on my pitch to, to publishers.

And you're asking me about the opportunities that came out of the book. The first opportunity happened while I was writing the book, and it was, The people I was able to meet just to interview for my research, it was just amazing. I got to connect with some old colleagues that I really respected from Philadelphia, some people who spoke at different conferences and events that I had gone to that I really respected.

And the book was a really great way of saying, Hey, I'm doing research for this thing. I would love to learn more about your particular work. And it was a great conversation starter and I was able to build just some amazing [00:44:00] relationships through that. So with. Some other authors, some with we, professionals and designers that I really respected.

So for me, I got a lot of joy outta the writing process, just through the people that I got to meet. So there's some great opportunities that came with that once the book was out. I would say that also kind of gives you a level of, of credibility to some degree. So I, I never really expected the book to be a best seller.

But again, I was hoping, thinking about it as a conversation starter, it might be helpful in my career if I wanted to maybe work with various startups in the future or maybe think about starting my own business down the road. A book is a great thing to point to that kind of gives

you that street credit as a designer that some business leaders might take a bit more seriously.

So I've, I've been seeing some opportunities that came out of that, especially working with a few startup. And then I would say since the book has been out, definitely some of the conference engagements and stuff that come with that is, is really [00:45:00] fun. And I've, I've done some public speaking in the, in the past, but the book kind of seems to supercharge that agenda a bit more.

I'm gonna be doing a talk at South by Southwest. Uh, Early next month in Austin, Texas, talking about accessibility, but then also doing a book signing there, which I'm really excited about. And then I'm going to be speaking at UX DX in America and New York City in May again, same thing. And, and talking a bit about the book.

And what really excites me again, is, is the people that I'm able to connect with and, and from and meet with that experience. So I would say that's the best opportunity that has come out of it to date for.

Jessica: Thank you so much for sharing that, Kent. I do want to wrap up the session and ask if there's anything else that you recommend for designers who want to expand their knowledge in this space.

Kent: Yeah, absolutely. So as far as drawing books go, cuz we're talking about the book, one of the people I was able to connect with is Dan Rome, who wrote Back of the Napkin Andrada Win like classic drawing books. So there. Not to [00:46:00] name drop, but that was like an opportunity that meant a lot to me. And his books were always just a guiding light in terms of drawing and ways of communicating ideas.

So as far as drawing goes, I would definitely start there in terms of data visualization. Edward Tufty books, in my opinion, are all classics, especially his early books, because for people who just wanna learn a little more or get started, he has a very opinionated point of view, but it's also a very practical point of view.

And he, he provides some really interesting anecdotes in his books around historical visualizations and even modern ones that answer big questions, solved important problems and so forth. And I think his point of view on representing data accurately, also showing causality. Multivariate analysis as you're thinking about how to put together a story using data and visualizations is really compelling.

And then he also talks in some of his later books about presentation and stuff like that as well, which I think is is super valuable. So for data viz, those are always my [00:47:00] go-to. Maybe some folks would disagree with me, but they're, they have been my favorite. And then of course, I'm gonna mention another classic here, just Don Norman's, the Design of Everyday Things.

While it focuses a bit more on industrial design, a lot of the concepts have stuck with me over the years, and I just think it's, it's an outstanding read. And then there's a whole other

bunch of books in between. But as far as data viz goes, I think those are really important reads.

Jessica: Amazing. Well, thank you so much for your time, Ken. Really enjoyed this chat and hope hopefully.

Kent: Awesome

Jessica: same way as well.

Kent: Oh yeah, it was super fun.

Vinita: And that concludes our latest episode of the I X D A sydnee podcast. You can find the audio transcript for this episode as well as any resources mentioned at ixda sydney dot. I'm Kent Eisen, and you've been listening to the I X D A Sydney Podcast.[00:48:00]