

# GOVTECH DECODED

## EPISODE 9 DESIGNING FOR DIVERSE NEEDS

Host: Adrianna Chan

Guests: Immanuel Goh, Yurong Zheng, Ng Choon Hwee

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**[Choon Hwee]** So if you visit a webpage, you encounter things like buttons, buttons, buttons. How would you expect a visually impaired person to be able to understand the website itself?

*(Intro music)*

**[Adrianna]** Hi everyone, welcome to GovTech Decoded. In this series, we'll discuss hot tech topics and how the Singapore government leverages technologies to build tech for public good. I'm GovTechie Adriana and your host for this episode. Today, we're diving into inclusive design, a practice that ensures digital products and services are accessible and usable by all. Joining us are Immanuel, Yurong and Choon Hwee.

**[Immanuel]** Hey everyone, I'm Immanuel, a UX Designer and I was a pioneer member of GovTech's first inclusive design team.

**[Yurong]** Hi everyone, I'm Yurong, also a UX Designer and I advocate for accessibility in SingPass.

**[Choon Hwee]** Hi, my name is Choon Hwee. I'm retired and they say that it's good to keep myself occupied. One of the things I'm doing is I'm part of the [Tech Kaki community](#).

**[Adrianna]** Okay, before we get into the main content, we're going to play a little game where we bust some myths. Okay, inclusive design is only for people with disabilities. Is this true or false?

**[Yurong]** False. Actually, inclusive design is not only for designing for people with disabilities. I think one thing I want to share is about designing for senior users. So actually, 1 in 5 Singpass users are above 60 and 1 in 10 are above 70. So something that we have done is we added font accessibility, where if you increase your device font size, then the app's font size also increase. And actually, we learned that about 1 million of our SingPass users use this. Right, so like senior users like my mom, my dad, they all use this feature. So it's not only just for people with disabilities. Myth. Wrong.

*(Guest and Host laugh)*

**[Adrianna]** Easy one. Okay, second myth again. Okay, people with visual impairment don't use social media. Is this true or false, Choon Hwee?

**[Choon Hwee]** Definitely false. I use Facebook, I use Twitter, which is now known as X, and YouTube. And if you want to consider Spotify as a social, I use that too. And some of my other friends even use Instagram. So it's definitely false.

**[Adrianna]** Okay, another myth. Inclusive design does not compromise on product aesthetics. In fact, it makes it better. True or false?

**[Immanuel]** Definitely true. But not just because we believe in it, because user experience is about the overall experience, not just about the looks. So when you think inclusively, you want to make sure that experience is good for everyone. So it ultimately makes your product better. Definitely true.

**[Adrianna]** So that's a tick from us.

*(Sound effect)*

**[Adrianna]** So the first question that I would like us to answer maybe is why inclusive design matters? And for that, I would like to hear from the non-public servant in the room, Choon Hwee.

**[Choon Hwee]** Okay, so I think for a moment, you have to imagine yourself to be visually impaired and so if you come to visit a web page or you run an app, but as you navigate, you encounter things like buttons, buttons, buttons, checkbox, radio buttons, and you have images, images, and there's no description to all these things. So how do you expect a visually impaired person to be able to assess or to understand the website itself and to interact with it?

**[Adrianna]** So you're talking about alt(ernative) text for those of us who may not be. So in the know, what does alt(ernative) text mean?

**[Choon Hwee]** Okay, so that is to actually give a description to the images that you might put on your web page or in the app itself.

**[Adrianna]** And a good description would look something like?

**[Choon Hwee]** *(Sound effect)* Like a photo of someone reading a book, maybe.

**[Adrianna]** Okay, so describing the image.

**[Choon Hwee]** That's right.

**[Adrianna]** Nice.

**[Yurong]** I think for Singpass, it's especially important because we are, I would feel like we are part of everybody's daily lives, right? You want to log into digital services, etc.

So with that, it's important for Singpass to be inclusive. And I think on the point of alt text, right? So recently, we tested face verification, the whole login flow with Choon Hwee and then in that test, we also realised some alt text were unnecessary, it's not meaningful. So we are looking to actually remove these unnecessary alt text.

**[Immanuel]** So that's important because, can you imagine as a screen reader user, you have to throw through all these irrelevant text to get to the button.

*(Guest and host laugh)*

**[Immanuel]** It's like us having to scroll through a very long website, right? Just to get to the submit button.

**[Adrianna]** You talk about screen readers. For those of us who may not know what a screen reader is, as well as common accessibility tools, maybe Choon Hwee, you could talk a little bit more about that.

**[Choon Hwee]** Okay, screen readers actually, if I may say, speaks the information on the screen so that a visually impaired person can actually hear what a sighted person would see on the screen.

**[Adrianna]** Right

**[Choon Hwee]** So there is speech accessibility on both Android and iPhones, and even on PCs and the Mac and that makes it easy, makes it possible for a visually impaired person to use these devices.

**[Adrianna]** So why is it priority for the Singapore government to design inclusively?

**[Yurong]** I think for Singpass is very important because in Singpass actually we serve about 1,800 visually impaired users every year. So that's a very big number and of course, Singpass being such an important part of everyone's daily lives, it's important for us to be accessible.

**[Immanuel]** Yeah, so when I was in the Singpass team, one of the most iconic things that happened to us, was we received a feedback when we pushed the update. So a visually impaired user said, "hey, like the update actually broke accessibility for us." and that was an awakening for us because we didn't know that there were visually impaired users actually using the Singpass app, and that was also the time where we actually started a ground-up effort called the A11y Team. So what people don't know about the A11y Team was it really started as a volunteer effort. It was a bunch of designers and engineers that felt it was very important to really talk about accessibility outside of Singpass. Yeah, because one of the things we tried that was really funny was we got all the engineers on Singpass to do a workshop with us and we got them to use a screen reader with the Singpass app. These are the Singpass engineers and what was really fun looking at their reactions, the frowns, this is very difficult. Yeah, and that was a very important moment for us in shifting the team to think about inclusion in the Singpass app. So the original [Oobee](#) tool that we used today was a pet project from someone who wanted to test government websites automatically for

accessibility issues.

*(Sound effects)*

**[Adriana]** So that brings me to my next question, Choon Hwee, which is how can members of (the) public help (the) Singapore government design better services? I understand that you're a part of the Tech Kaki community. Maybe you could share with us your experience.

**[Choon Hwee]** Okay, so I joined Tech Kaki with the intention to actually provide feedback. So wherever I can, I will just provide feedback on sites that they ask me to test.

**[Adriana]** I think then the second order question is how can we get teams to really think about accessibility and designing that from the start?

**[Immanuel]** Yeah, so actually, I got figures for us. So, if you actually include accessibility after launch, it's actually much more costly. So it's up to 15% of costs compared to 15 to 5% if you actually include accessibility earlier, and if you actually look at inclusive design, the perception value also increases because when you co-create with citizens, if you include it, they feel like this product is ours. Versus, it's something that is pushed to us. And one of the things that I had to do when I was a part of the inclusive design team was to really coach teams on how do you do testing with persons with disabilities or persons of different backgrounds, whether they are the elderly, whether they are of a different socio-economic background. Inclusion really spans that wide. And when we go wide, when we design for the edges, everyone in the middle benefits. So one thing that I remember working with Yurong was simple face verification. It's a thing that often people don't think that visual impact people would use because it requires you to look into something. And we had to design the testing session to be accessible. So, how do we give instructions to the participants? I remember Choon Hwee was one of them. So, we basically showed them a prototype of the scanning tool, but we had to read out the announcements manually. So look left, look right. Okay, that sounded like a song.

*(Guests and host laugh)*

**[Immanuel]** But really gave instructions so that the users know what the screen actually sounds like, and that was quite a great experience. How do you feel when we worked on that together? *(to Yurong)*

**[Yurong]** I think back then I was very new to testing with VI (visually impaired) users and I was telling Manny (Immanuel) that I was so scared that I'll do something wrong. Like what if I say something that will offend our VI users or I haven't met them, something just goes wrong, you know? And I remember him comforting me, assuring me that, you know, if something goes wrong, you can just apologise. And from there, I think I learned, and subsequently, for like the next two or three years, whenever I meet like VI users like Choon Hwee, also the rest in the Tech Kaki group, I feel like actually they are very willing to share their knowledge with you also. So, that helps us to build better products also in Singpass.

**[Adrianna]** Partners, not only with the public, but within your own teams as well. Teamsport, love that.

**[Choon Hwee]** Really, there's nothing to fear there.

*(Guests and host laugh)*

**[Choon Hwee]** I think visually impaired people would want apps and websites to be accessible because we need to use them. If you think about it, a lot of banks and a lot of other websites are now switching to asking visually impaired people to use face verification. So if it's not going to work, then what's going to happen to us?

*(Sound effect)*

**[Adrianna]** Yeah, you talked about doing your own testing before it goes out. Are there other guardrails that also help us within service in designing products? Any guidelines, for example?

**[Yurong]** I think for designers, the one that we always go to is the Web Content Accessibility Guidelines (WCAG). I think more commonly known as WCAG, testing that is one way. Another way is actually using like the automated tool, which is Oobee, which is by GovTech. So okay, not a plug, but yes, using these tools helped me to flag out accessibility issues early before I tested with visually impaired users like Choon Hwee.

**[Adrianna]** So what kind of impact are you seeing when accessible design is introduced into services?

**[Choon Hwee]** Obviously, the app and the websites become accessible to us. We are able to actually understand the site itself or understand the app, and then we are able to interact with it with the app. And of course, a very good example now would be Singpass. Singpass, they have done a very good job and made it accessible for us.

**[Immanuel]** Yeah, and sort of impact, right? One of the things we often think is like accessibility is just for disabled people. That's not true, it's for people around them, but it's also for people who may not necessarily think that accessibility is for them. So like I think of captions and subtitles, like all of us use them, that was originally an accessibility feature.

**[Adrianna]** Of course.

**[Immanuel]** And in government, like a lot of things that we make accessible actually is also more usable.

**[Adrianna]** So what's your experience like being part of a community that helps to test? Is it empowering? Do you feel... What do you feel? *(to Choon Hwee)*

**[Choon Hwee]** Yeah, of course. I think if I can get across my point and it's understood and the people are willing to respond and make websites and web pages or even the apps accessible, I think I'm very happy with that.

**[Immanuel]** The thing you also really want to dispel is when users give feedback, it's not a bad thing. I think sometimes you feel, "oh, feedback, oh, like *kena* check" or like got

something wrong. When people give feedback, that means they're using your stuff.

**[Adrianna]** It's true.

**[Immanuel]** Right? And when they're using your stuff, they care enough to give feedback because they want it to be better.

**[Choon Hwee]** Yeah, one other thing, try to make your feedback... I'm not referring to Singpass, I'm referring to everyone.

*(Guest and hosts laugh)*

**[Choon Hwee]** Don't hide the feedback page in some location that is so difficult to actually find it and provide the feedback that you want to give.

**[Immanuel]** Yes, feedback noted.

*(Sound effect)*

**[Adrianna]** So, any wonderful stories that are coming from our users?

**[Yurong]** One of my most recent encounters was.. I think Choon Hwee was also part of the testing. We were testing face verification. The process got a bit easier, both engineering and design-wise made the experience better. So, after the session, more visually impaired users could pass face verification. Right? So, at that moment, firstly, I was shocked and I was, of course, very surprised. And after the session, actually, one of the users actually messaged me and said like, "oh, you know, thanks for doing this. You all have improved." And when they share feedback, I'm like, oh, so touched save (and) screenshot.

**[Choon Hwee]** Yeah, I must tell you that this guy was really very worried that, you know, if face verification was not improved, he's not going to be able to access a lot of websites.

**[Yurong]** So, fun fact, during the session, he was screaming, you know, like shouting. He was like, "I'm so sorry to shout, but it's my first time passing this!" And I was like, I feel bad, but also happy at the same time. Then he's like, "Sorry, I'm raising my voice!" But I was like... At that moment, I was like, oh, you know, so touched because we fixed a problem that has been around for some time. Face verification itself is a challenging technology. So, we had to like make a few iterations, make some changes to and fro. That took a long while but I feel like when I see the result, I was like, oh, it was worth it, you know?

**[Adrianna]** Yea.

*(Sound effect)*

**[Adrianna]** Immanuel, you've talked a few times about how designing for the margins really helps accessibility for all of us, right? I think most people would think that accessibility doesn't have anything to do with them. They don't have a personal stake in it. I hear you have some stories to share around this.

**[Immanuel]** Yeah, so I am a caregiver myself. So, I've been caregiving for my dad and my daughter. So, my late dad and my daughter, for quite some time. So, my dad had throat cancer. What happened with it was that he couldn't speak because the air bypasses his vocal cords. So, essentially, when he spent almost close to a year in the hospital, I had to be his translator with the medical professionals that were coming in and out. Asking my dad for decisions and all, and I had to be kind of his voice, essentially. Yeah, that really made me think about, wow, something as simple as not being able to speak to your medical professional has such ramifications. So, can you imagine not being able to access one of your senses, whether it's hearing, sight, voice, touch? Those have really big ramifications.

My daughter was born really prematurely, and she has complex medical needs, to put it simply. She's four right now, and one of the things that I feel is most important in the work that I do is that I have skin in the game. Yeah, because I really want to design a future when my daughter grows up and her peers that are with her, have a very inclusive technology environment when she becomes a young adult, and I think that's important. And I think about not just my own child, (or) my own parent, but I think of other people's parents, other people's children. Imagine the amount of good that could happen for them if we started designing inclusively.

*(Sound effect)*

**[Adrianna]** So, just looking ahead, what is the future of accessibility that you'd like to see in Singapore?

**[Yurong]** I think for myself, for where I work, I think I look forward to inclusivity and accessibility being a more important factor, like more baked into the product development process. I feel like in Singpass, it is, but I feel like it can be better. When we are planning a new feature or even right at the start of a project, we can start to think about how will visually-impaired users interact with something, how will senior users interact with something. I think that's my wish and it's still something I advocate for when I talk to developers, product managers. It's like, please think of this group of users also as early as you can.

**[Immanuel]** Like what Yurong shared, that we move from reactive fixes to proactive design. So that accessibility isn't just an extra add-on, that it's actually just good design, like a design that works for everybody, and I really want that, (as) one of the things in the future that we really want to be able to say is that we left no one behind. And Choon Hwee, I think you mentioned something around AI as well.

**[Choon Hwee]** Yeah, okay. I think there are actually two things. Two areas that I can think of, one is robotics. I think robotics can be of help to especially people with visual impairments. So for example, I know of someone who's trying to develop a robotic guide dog to help the visually impaired to move around.

**[Immanuel]** Yeah, so that's back to what I mentioned earlier on about being proactive to design. So one of the things that we recently launched that I'm quite excited about is the [A11y Playground](#). It's a site containing resources for developers and designers to really avail

themselves (with) its helpful guides. There's a really comprehensive but easy to use checklist of what you could do for accessibility, but what I really love about the A11y Playground is that it has case studies and real stories of people that are impacted by accessibility and it's easy to push it down your backlog, but it's much harder to push people back to your backlog and one of the things I really love is that people are placed first in A11y Playground, but most importantly, like in the way we approach inclusion and accessibility as GovTech.

**[Adrianna]** Wonderful, the themes that keep recurring are about how it's a journey. It's a partnership, not just within GovTech, not within our teams, but also with the public. It's people like Choon Hwee who's coming forward and spending their time with us, and I hope that we're all hopeful for our futures as we improve.

**[Adrianna]** We've come to the end of today's episode. If you're keen to find out more about what we've discussed, check out our website at [go.gov.sg/GovTechDecoded](https://go.gov.sg/GovTechDecoded). If you enjoyed this episode, do share it with your family and friends.

You can also connect with our speakers on their LinkedIn pages and follow GovTech on our social media platforms [go.gov.sg/ConnectWithGovTech](https://go.gov.sg/ConnectWithGovTech). We will leave all the links in the description. I'm Adriana, and I'll catch you at the next GovTech Decoded. Bye!

*(Outro music)*