- Good morning, all. It seems strange to say "morning" as normally we offer these webinars in the afternoon. Also, I'm aware that people are joining us from right across the country and even internationally. Today, I would like to acknowledge that I am on Lutruwita, Tasmanian Aboriginal land, and acknowledge with deep respect the traditional owners of the land, the Palawa people. I want to pay my respect to Elders past, present and emerging and to the Aboriginal community that continues to care for Country. I stand for a future that profoundly respects and acknowledges Aboriginal perspectives, culture, language and history and a continued effort to fight for Aboriginal justice and rights paving the way for a strong future.

Thank you for joining us today. For those who don't know, my name is Darlene McLennan and I'm the manager of the Australian Disability Clearinghouse in Education, ADCET for short. ADCET is delighted to have Cassidy Fein from Echo360, who is one of the directors of product for teaching and learning tools back with us to present another webinar. Cassidy presented to us just probably under a year ago and we're really looking forward to hearing the updates on the technology used within Echo360.

Look forward to this webinar. It's great to see technology evolving over time. So, I'll throw over to you now Cassidy. Thank you. Being in America, it's nearly 9 o'clock there your time at night, so I really appreciate you joining us today. So, thank you.

- No, of course, I'm excited to be here and speaking with all of you. Excited to be back, certainly, a great presentation. It seems like a year... it was just a month ago. Apologies for any shadows or lack of light in the scenery, it is 9pm here local.

Well, great, I am really excited to speak with all of you today about what we're doing at Echo360 to make tools available to our users around making video as accessible as possible for students and other users of our platform. For those of you not familiar with Echo360 I'm going to go into a brief overview our platform, how we do things, why we are the way that we are and I'll dive into accessibility best practices, our standards and then our tools that can help make content fully accessible, including our transcript displays and transcript editor that we most recently launched. Here at Echo360, our goal is to really support a learning platform that works the way you do as an instructor. So, not sort of piecemeal tools you can open to string together, not focusing on the output, but really focusing on the outcomes, so ensuring student outcomes are improved based on the use of our platform. And in doing that, we kind of look at each of the different areas of that process holistically. Everything from how and where you're creating a video, or creating media more generally, how you then can manage that and successfully enhance it in order to be in a potentially more engaging, track more data from it and just continue to really utilise the power of multimedia content in the best way possible. Then, how is that shared and presented? How is that best utilised? Ideally again and again, especially if it is deemed to be successful as a learning tool. And then finally, engaging, so how you use it to engage with the audience, help collect data around performance and around outcomes and then, of course, analyse that data to see where there is success and where potentially things can be modified. Really, this is the framework we look at, we live by, we live and breathe, that's kind of hung up on my wall in my home office. It's something we're always thinking about when we're thinking through how we can improve our feature sets and when we're thinking through brand new features or feature sets for our users.

So, just a slightly deeper dive into our existing tool sets. One of our biggest areas is that we help you turn passive videos into active learning. We provide various tool sets within our platform to encourage engagement and again, kind of collect all of this information and support students as much as possible. We have robust notes, Q&A, responses and discussions that can all occur within class. Students can bookmark material, either at a particular time stamp in the video or a particular slide of content that they can either write notes against or go back to review after class if they need to. They can flag things as confusing. If they find a particular piece of content that doesn't make sense, they can flag that and the instructor will be notified so the instructor can go back and see "I'm seeing a lot of students flagging this particular site", I need to make sure I modify it so students find it to be less confusing. Then, of course, finally transcript displays, which I will be getting into more of our transcription functionality and our partnership with Amazon web services transcribe services later in the presentation.

We also go beyond just basic video views, open rates, more casual VMS or CMS analytics that you may have seen or may have experienced. We try to track as much as possible to ensure positive student outcomes and improving student outcomes as much as possible. A lot of those rich learning tools that I went over in the last slide, including especially Q&A and the confusion flag, help encourage behaviours we don't typically see in standard in-person courses and we have quite a few white papers and other testing methods we ran with our instructors that partner with us and work with us on the platform, but we want to make sure that we're capturing all the relevant data that we can so instructors can have the best 360 view, no pun intended, of their students learning experiences and learning styles. So, we really try to present as much as data as possible to help instructors see what content may be successful, what content students find confusing and helping students that are struggling before it's too late.

Finally, we also support video media management or content media management. We found a lot of existing platforms in this space were either incredibly dense to the point of confusion and far too large and too long overhead and learning the basics of the platform, or there just wasn't enough control and enough tools specific to kind of learning and how learning content needs to be handled in relation to embedding LMS or other areas that tools were lacking. We built our own. We obviously think it's the best of all worlds. We automatically organise video and audio media and presentations for easy browsing. There's sorting and filtering capabilities - all of that. You can search easily to find what you need off of tags and titles. You can share with anyone from an individual in the course to a group, to broader classes or the public at large and, of course, all these are tracking all of those relevant and helpful analytics that I was going over from the previous slide.

Enough about our platform, let's get into accessibility. I'm sure all of you are already familiar with these tenets, but I like to start with them as a broader review. We do follow by WCAG’s 2.1 standards, specifically AA or greater. WCAG lays out four areas of remediation. There are things that are perceivable, operable, understandable and must be robust. They seem sort of vague when looked at in a nonspecific way, but if we drill down, we can see these are easily applicable to your tool or tool sets and how they need to perform in a way that is successful for everyone. So, the first being perceivable, information that's presented in your platform and relevant user interface components. Things like buttons, dropdown areas where you would enter text. Those must be presentable to users in a way that they can perceive regardless of how they are interacting with the interface. So, for example, if a user is utilising a screen reader such as NDBA, they need to be able to utilise that user interface tools and read or, in other ways, be able to absorb that information even if they're still using that screen reader. So, that screen reader needs to be able to gain access to the same parts of the page that maybe a sighted user would be able to. The platform and content must be operable. User components within the platform and navigation must actually be able to be used, so of course, a scroll up and scroll down on a page is no good if you can't actually use it. Third, and I think 3 and 4 are the most relevant to making content relevant more specifically, information and the operation of a user interface must be understandable. It is perceived, okay, it is operable, but does it make sense? Do I understand what is happening when I'm interacting with this element, or when I am interacting with this information, right? Finally, robustness. So, content must be robust enough that it can be interpreted by a wide range of user agents, including assistive technologies. So, this just means that the content must be able to be understood regardless of the platform being used. That is, those being used to ingest it or view it or to understand it. A screen reader, Zoom text or a tool that modifies the contrast - all of those should not modify the meaning of the information or otherwise, how the user can interact with the information.

Cool, so I want to get a little bit into what we're doing today to help support those standards. We do have a fully automated testing suite. I love our QA folks, they're awesome. We have manual and automated QA. QA stands for quality assurance. It just means we are fully testing all of our releases before they get pushed into our production environment, which is, if you are a user of ours, what you would be interacting with. So, we have our automated QA team using something that is called the Axe Accessibility engine, or Axe related tools. Axe is a language created by a company called Deque. They're fairly popular in the States, I'm not sure how popular they are here, but they have created the Axe language to help automated tests around specific requirements around accessibility. And Axe is great, because it integrates other open source testing suites. We utilise Cucumber and Ruby based frameworks, so that works well for us. We also support and utilise a UI, or user interface, component library. What that means is that you can be given it almost as a box of Legos. Instead of our developers — every time we create a new part of the application where there would be something a user would need to interact with, let's say, going back to your text field or okay or cancel button, let's say they're entering their name, for example, that name field and that button would already be created. So, they could basically take that Lego and just plug it in and be done and we know for a fact that both of those components are already tested and pass accountability standards. So, it makes development faster. It also makes our standards pass across the board. It makes everyone happy, it's great.

Finally, all new features that we're creating and feature sets are tested for that WCAG 2.1 compliance. Again, we're utilising that new UI component library that helps make things easy, and in the case where we are creating new components or new areas of the UI that don't yet exist, we are ensuring those are tested and then, where relevant, adding those to our component library so we can continue to reuse that in the future.

Great, we also partner with a company in the States called Level Access. Just a brief about them, because they're really interesting. They're founded in '97 by engineers with disabilities themselves pre-WCAG. They've been around longer than any other US based vendor. They primarily dealt with physical accessibility in spaces, buildings and that sort of work and moved more into software. They support both today. They continue to support mediation and accessibility standards across the board. They do focus now more on software, but they work with over 1,000 different companies. So, everything from education technology to other services to direct to consumer companies - really everything across the board. All of our testing and remediation suggestions are performed by employees with disabilities who they specifically hire, which is great. The leaders include Tim Springer who's the CEO and cofounder and Jonathan Avila who is the chief accessibility officer and sitting on the board of WCAG as well. That definitely helps get ahead of any future iterations that WCAG is working on.

We're working with them to create a global audit. We already have incorporated a lot of their feedback into a lot of their tools that are available in production already. So, those are available in our universal capture application, our groups, video editor and transcript editor, which I will get into in a little bit. If you aren't familiar with those tools, that's okay. Finally, we have changes under way for our classroom playback and our section views. Just showing you a brief glimpse of what we're working on when incorporating those kind of design changes and suggestions by their team.

Alright, great. You're probably thinking, all that sounds great, but what tools can I use right now to help make my content accessible for my students? Great question! You know, I always like to start, folks like to get right into tools, like all that tool talk, but I always like to remind folks that Lecture Capture in and of itself if you are performing it, is a way to make your content more accessible, right. So, these are some notes that we've received from students recently. I like to use these, because they're a great reminder of the importance of Lecture Capture in and of itself as an accessibility tool. Again, we always like to jump to, does it have closed captioning and audio description and these bells and whistles and those are important, but Lecture Capture is a great first step. Just to read one of these, "I suffer from autoimmune inflammatory arthritis and had a serious flare and missed some lectures. In the past, I've suffered from anxiety over missed lectures or forced myself to walk to lectures, making my condition worse. Having Lecture Capture meant I could stay at home and recover properly without missing out on information and it's been a major relief." And the other two: "I have dyslexia and chronic fatigue, if it wasn't for Lecture Capture, I would have had to drop out of university." And the final, "As a student with learning difficulties, I found the Lecture Capture videos more useful than simply using a Dictaphone because they had the visual aspect, as well..." The head has blocked out the quote, but you get the idea. Lecture Capture in and of itself is a great first step.

Now, there's the ability to transcribe and the ability to associate closed captions. I always like to take a step back at first and ensure people understand the difference between the two. Transcription is still a significant improvement in the accessibility of a video. Keeping in mind that not all accessibility is about sensory impairment and it does provide learners other modes of viewing content and ingesting that content and reviewing that content if they need to. But transcription does not equal closed captioning. So, closed captioning does need to be 99 per cent accurate or greater and include key descriptions, whereas transcripts do not include that and that is because typically, transcription is machine-generated whereas closed captioning is human-generated. This is where it gets tricky, because for closed captioning, a compliant in-house captioning initiative really needs to have accountability, because closed captions are human-generated and not machine-generated, so they will need that human touch and that human validation.

Keeping that in mind, and we do partner with the best of the best closed captioning partners and we're working with integrating with some other partners, as well. We support 3 Play Media, AST, automatic sync technologies, AI Media and Cielo24. We don't create our own closed captions. That's not what we're good at. We'd rather work with folks that do it best. We partner with all four of these companies to help provide you with closed captions, where needed. I would encourage you to work with them directly to ensure that your videos have appropriate captioning.

Now, what we do is we partner with Amazon's transcribe service. I'll go back to the slide in a bit. Our partnership with Transcribe, we had selected multiple vendors to sort of test proof of concept to see how it would work. We did look at the broader competitors in the space, such as Google or IBM, but we just found that Amazon was the best fit for us in terms of our requirements around data storage and transfer. They can support appropriate language packs for regions and they also store data in region which is really important for us. And they also have growing support and testing for multiple languages which is something we're hoping to work with them on in Beta very soon. We've found we can have a close partnership with Amazon. We already work with them for how we store and transfer our data and a lot of other things today, so it really seems like a natural extension of our partnership.

So, with that, we worked with them and helped build our transcript playback view. This is a view of the classroom. I'll be showing this on my demo in a little bit. Just to quickly review, you'll see in the classroom our transcript playback experience is separate from our caption playback experience. This is really important, because the difference between transcripts and captions, as we mentioned earlier, is different. So, you want those playback experiences to be separate. So, your students or other folks are aware of what is a transcript versus what is captions and, of course, they can be used for different purposes accordingly.

We did support and still do support offline editing of transcript files. A lot of folks find this useful if they need to edit files when they're offline, when they may be on the go or maybe they prefer using a snazzy text editor. This is a screenshot from Adam which is a git lab product. I'm excited to demo our live app transcript editor. We've just launched the ability to allow users to edit those machine-generated transcripts directly within our platform. So, I'm going to go ahead and do a new share. I'm going to go ahead and demo our editor. You can see... here we go, you can see I'm in a particular course. I'm going to go ahead and view the transcript as it is today just so you can see it and I'll play back for a little bit so you can see and hear how they sync together. I'll pause talking for a second, so you can hear the audio, as well.

- The word Punic refers to the Carthaginians, it comes from the Latin … likely derived from … meaning … in reference to … colonists. Carthage itself is a city situated in the north of Africa.

- You can see during playback, we highlight where the user is, we can click around and it will automatically navigate to that particular moment in the video and I can, of course, pause and go back and forth and search for relevant terms. Now, let's say, as a user, I realise I need to make some edits or most importantly, one of our primarily use cases that we wanted to work through in creating this is allowing a path for cost-effective closed captioning through the use of the editor. So, let's say you have a lot of students or instructors that are able and willing to make edits to a transcript and ensure that they are accurate enough to be pushed down the closed captioning track, this is a great way to be able to do this in a very cost effective way. We've heard from a lot of our customers that they don't necessarily have the budget to purchase human-generated closed captioning, which can be incredibly expensive, typically around $1 per minute, whereas machine-generated transcription is far less expensive, because it is machine-generated, but of course you get that variation in accuracy because it is machine-generated.

Alright, so I am here in the Echo360 transcript editor. You can see, I have the title of my media; I can see when it was created and by whom. I have my video playback for reference with audio. I can show or hide closed captioning if there is any, hide or show the video source, if I find the video to be too distracting while I'm transcribing and I can change the playback speed. It's funny, because I find we see during playback in the classroom, students always want to see stuff at 2X, but when they're transcribing, they want it at 0.5X. It's funny how those needs change over time. I can search for terms if need be to see at a glance where things are popping up and navigate through those pretty quickly. I can also, before I'm ready to edit, I can upload a new version if I need to. Let's say I have one of those edited versions that I was working on offline, I'm ready to upload it and commit it as a version. I can do that now. I can also export my current version, so that would include existing format Web VTT. If you are familiar with YouTube's captions or transcripts, this is the same format. It's a pretty common format. We also support a .txt format. That includes the speaker's names in the text. This was a request by folks, especially students looking for simplified versions of the text that utilises machine-generated notes. So, you don't get the same sort of rich kind of scoring details and other details you would get from the Web VTT, but it's because it's used for other reasons, typically. Whenever you're comfortable, you can apply those changes to the closed captioning track, which I will do at the end of this presentation.

Let's go ahead to the original, just for the purposes of this demo and I'm going to go ahead and edit the transcript and as soon as I entered the edit view, you'll see that a lot of words within the transcript just became underlined with this double red underline and also bolded, as well. What you can see here is this is displaying any words that fall below this word confidence threshold of 94%. Now, what does that mean? So, in our partnership with the transcribe service, we receive back a confidence score for every single word in every single transcript that we receive back. Keep in mind that confidence does not equal accuracy. Simply, unfortunately, machines don't know how to be 100% accurate yet, but they can tell us how confident they are in the outcome that they have generated. Basically, what that means is that the machine is less than 94% confident about these particular words that we've highlighted. We roll up all the scores of all the words within a single transcript to an overall word confidence score, so you can see overall the machine is fairly confident in the output of this transcript and I can always, of course, move that up, or move that down accordingly. Again, word confidence does not equal accuracy, so we expect users to utilise this as a tool to really do a first initial check and potentially see what words may be marred or incorrect the most and then, of course, go back and manually approve things or not approve based on what is needed for closed captioning, if you are to push through for closed captioning. If you are not utilising the transcript in a way you'd want to transform it into closed captioning, maybe 94% is good enough. It all depends on what you're hoping to utilise the transcript for.

I'm going to go ahead. This is roughly a lecture around the classics, which I took a few classes on, so let's see. I know they talk about Hamilcar and unfortunately, don't spell it right. I'm going to go ahead and make those changes. You can see, I had one hit on Hamilcar with one ‘m’ and I have one hit on Hamilcar with two ‘m’s. I’m going to make those changes. So, I can always replace things in bulk which makes it really easy. Typically, if the system doesn't get a word right, it will not get it right the same way throughout the transcript. So, I know that it's actually Hamilcar. So, I'm going to go ahead and replace all of those instances. All of those changes are now done and that is reflected in the search results accordingly. I'm going to go ahead and change my other pesky error. I'll replace that. You can see that is all done all within the transcript.

So, once I have done my edits and I'm happy with my new version, I can go ahead and save this as a new version, but let's say - and I'm just going to change my share to "show this" - my colleague happens to be editing at the same time, the same transcript. Let's say they go ahead and they want to make some of the same changes, but they think that they have the right spelling of "Hamilcar" being "Hamilton". I'm going to make these changes and save it as a new version. My colleague has sneakily committed their changes before I was able to commit my changes, so I'm going to go back to my other transcript view, I'm going to try to save to the same version, which you'll see we just did. So, the system will say, "Oops, I'm not able to merge your changes automatically." Let me show you the changes you made and you can compare them to the changes your colleague made. From there, you'll be able to choose the correct words or the correct changes. You can see here my colleague for some reason really things that Hamilcar is Hamilton. I know my changes are correct. I'm going to select them accordingly. In the instance where maybe one of their changes were correct and mine wasn't, you can actually select theirs accordingly and any sort of collection of them or bulk select others or bulk select your changes. In this case, I know my changes are right, I like them, I'm going to go ahead and merge them.

And there we are, we have a new version and a new transcript. So, let's say, I am really happy with all my edits, I feel confident that they reflect the spoken word of the video as much as possible. I'm going to go ahead and apply that as closed captioning. Once that is applied, you'll be able to see that in the closed captioning track accordingly. You can see it and preview it within the playback experience and you can also see it within our classroom, as well, which I'm going to go back and show you briefly.

We're within the Echo360 classroom. You can see, I've just pulled up the transcript view on the righthand side. We still have our same highlighting to show where exactly I am in the presentation and you can also see I have this option to display closed captioning. I'm going to go ahead and turn that on. I know I want a larger size, so I'm going to make these 40 pixels. I like the contrast, location and alignment so I'm going to keep that all as is, but I can adjust these at any time if I need to. Alright, great, and let's watch a little bit of our video now with closed captioning.

(Video plays)

You can see the value in having the closed captioning field different from the transcript field and the different values that they provide accordingly. All help in a multimodal learning experience and help provide accessibility in different ways. But certainly, the more you can have and the more you can support, the better. Alright, great. I'm going to go ahead and go back to the presentation.

Just again, a brief overview of the functionality we offer in our editor. You can edit transcripts generated directly from Amazon's Transcribe service. Those are round-tripped and all done within our system automatically. As long as you turn it on, you don't have to worry about setting up your own partnership with Transcribe or setting up any APIs or anything like that on your own. Transcripts are given an overall confidence score and low confidence words are automatically flagged so it's a good sort of cheat sheet or first way to go through and update a transcript accordingly. You can version control or revert to other versions as needed. Again, if my colleague really wanted to commit his changes to have everything go to "Hamilton" I can always revert that version if needed and all versions are always saved, so you can go back and forth at any time.

You can find and replace to edit similar errors. We also offer conflict management that I walked through to handle competing edits from multiple users to ensure things aren't accidentally overwritten or lost in the editing process. It can be complex depending on the length of the video or transcript. Once you're confident with your edits for transcripts, if you want to create closed captioning out of them, you can push the transcript to the caption track and access is controlled by user role. We only allow access to the transcript editor through administrator users, instructor users and teaching assistants. We have appropriate toggles for access to other users. If you want to utilise students, let's say, for work study and have them transform a certain amount of hours of transcripts into closed captioning, you would be able to set them up and have them do that accordingly.

Alright, and we're also, of course, always looking to improve. As soon as you solve one problem, you want to solve every other problem, too. It's kind of how I think, I'm always excited by the next problem to solve. We're looking at rolling out lots of improvements, including student access at the section and owned or shared media levels to transcript editing. The team is actually working on that currently right now. We'll offer an admin toggle to transcribe all media all at once. We'll also offer one-off transcription requests if you don't want to publish everything available to users. We'll be adding more finesse around clicking cues to navigate to moments in media while editing and highlight and tracking during playback. Finally, just some cleanup and housekeeping. The team does a lot of manual testing and lives in the platform for a while. It's always nice to see the requests and back and forth that they come up with and things we can polish before it even gets out the door and, of course, we love to hear users' feedback and your feedback. Any of you that have been able to get your hands on it or if you get your hands on it in the future, don't be shy. I love speaking with customers, it's always the most exciting part of my job and hearing that feedback directly is great.

And great, just to say, I really appreciate everyone's time today. I hope this was helpful and insightful. This is really one of my favourite areas of the product and something I'm really passionate about, so I’m excited to be speaking with all of you today. I think I'll take some questions.

- Thanks Cassidy, that was fantastic. We've had a couple of questions. Just a reminder if people do have any questions for Cassidy and we've got the rest of the team here... probably a bigger team than that. We've got Joe from Perth and Leah from Tasmania. So, a question is, it would be helpful to be able to get videos captioned in a transcription form for videos we have humanly captioned - is this possible? It was a useful feature that was available before.

- Got it. I think, if I understand correctly, the question is being able to generate a transcript off of closed captioning, instead of pushing a transcript to the closed caption track, taking captions and pushing it to the transcript view. Yes, it's a request we've had and we understand it. It's something that we'll absolutely want to support in the short-term. If I didn't get your question right, we'll follow up in the Q&A and we can get to it.

- Does the transcript need to be time stamped for closed captioning?

- So, if you're transforming a transcript into closed captioning, it needs those time stamps, because the system needs to be able to understand when to display the appropriate text. So, without those time stamps you're not — the system isn't able to understand when to display the appropriate text. So, at that point they just aren't able to be shown at the appropriate time in the video playback, if that makes sense.

- There's another one. Do transcripts and closed caption involve extra cost, which I suppose editing it will be.

- Yes, they do. Our transcription, transcription is generally, of course, a fraction of the cost of human-generated closed captioning, but both are additional costs and we're happy to answer questions around that or any particular questions you have with the rest of the team.

- Okay. More of a comment, converting from captions to a transcript may be a job for regular expression search, I'm not familiar with "expression search", do you understand that one?

- No, I'm not either, unfortunately.

- So, thank you for that. The other question I suppose was is there any — on your website, any really brief how-to videos and so forth? Just knowing that lecturers and tutors are so time poor probably like everybody else, but just in time information that the disability practitioners could direct them to if they're getting into this?

- Absolutely. We have a lot of resources at our help centre. We've created some videos and we have very specific walkthroughs of the functionality and kind of what you can do and how to do it. Leah and Jo, I don't know if there's any other documents you'd like folks to look at or look through from the Echo site? But if so, we'll absolutely share them with you, Darlene, after the fact.

- I believe Leah's just pasted in a link to some of those help pages into the chat window.

- Brilliant.

- Thanks, Jo. And also, just another question - is there capacity to have a word file i.e. technical language, to then export into it to actually make that easier? It's a bit like Dragon, for the medical version, you can actually put the medical terms into that so it guesses the right thing - is there capacity to actually put technical words into the automatic system so they pick up those words prior to it?

- I see what they're saying. We're looking at how to best support custom dictionaries based on Amazon's recommendations. We had done some brief exploration around custom dictionaries and found we were getting limited results and sort of funky results. Folks were plugging in 200, 300 words based on the density of certain lectures and we were getting worse results than if we hadn't added in anything at all. We're still finessing what works best with the system. We're testing other methods that Amazon has in Beta that we've found to be more promising so far that may require less effort on the users and to manually add those at a transcription by transcription level. That is in testing and helping improve the outcomes of those transcripts that do utilise a lot of very particularly technical language.

- Okay. The person asked a question in regard to the expression searching has added a little bit saying regular expression searching is a very sophisticated search and replace tool, so we'll have to look that up to get more information about it. Learning something today!

- Yes, excellent.

- So, I think the presentation covered that too, but do the correct transcripts add back into the system?

- In that, do they improve the… yes, and no. We keep data in region so we don't obviously share that out, but in terms of sort of specific to — content specific to the institution, the system tries to improve itself where it can, yes.

- Alright, well that's fantastic. Thank you so much for your time and for staying up later, or taking yourself away from Netflix. Whichever, these days!

- It's great, appreciate it.

- It's fantastic that Echo360 continue to develop and improve in this area. It's amazing watching the technology change over a number of years, so thank you to you and the team for your time. We will put more information on the recording that will sit on ADCET. Have a great day.

- Thank you, everyone. Appreciate the time.