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"How to Predict and Prevent Member Churn" as originally aired Sept. 17, 2020

Thomas Altman: Hi, everyone, and welcome to our workshop on how to protect and prevent member churn. We think this is a really important topic and an extremely critical time for associations. Right now, associations are getting hit from a lot of different angles. So on the one hand, associations are being stretched incredibly thin with their resources, people are trying to address urgent needs related to COVID-19, and associations could really benefit from a framework on how best to apply those resources to get the most benefit back to their members. On the other hand, members themselves are facing a series of very tough choices. And unfortunately, too many times members are choosing to cancel memberships with their associations in response to COVID-19. The real tragedy in that is a lot of times that didn't need to be the case. If associations did have the framework to be able to target and communicate effectively back to those members. A lot of times they would not have left in the first place. I can give a specific example of that from my own life. So I went to a dentist about a month ago, as I was talking to the dentist, he mentioned that he was a member of an association. And he was considering a lot of cost cutting measures. And at the top of that list at the time, was canceling his membership to his association. And then on the eve of him canceling that membership, he actually received a packet in the mail with a list of everything he needed to do to navigate the COVID-19 crisis, and it was the most useful packet he had received in his entire life. He had a realization that not only should he not cancel his membership, now was the time that he was going to get the most benefit out of it out of any time he had been a member with the organization at all. And what we want to do in this workshop is give you the tools that you need to be able to target your members with an effective strategy to keep them and help them navigate this crisis. To that end what we're going to give you is a very simple framework – five a framework – that will rely only on your own intuition about your own membership and your knowledge about how your organization works, data that you already have – you don't have to go out to other data sources and get anything new, you can use things that you already have available to you – and a couple of really simple hacks with Microsoft Excel to change that data into something predictive and useful going forward. So that's the goal for this. By the end of this, you'll be able to do all those things and have some hints at some cooler things you can do beyond that. So before we get started, just a couple of housekeeping notes. First, this is a recorded workshop, but we are available live in the chat. So if you're going along and you have any questions or want to touch base with us about something that maybe you need

a little more explanation on, please type it in the chat. We'll be happy to respond. Also, we are going to open up and show you some techniques in Excel itself. We're going to make that Excel workbook available for you on the Sidecar website. So feel free to download that and play with it as you go along. Okay, so to get started, little motivating quotes. This is a really fun quote I think about a lot. I don't necessarily agree with 100%. But I think it does something really important. So the idea that I get from this is that you don't need an advanced set of statistical methods to really have an actionable strategy. Meaning the data that you have and your own intuition and understanding of how your members work, is many times 999 out of 1000 good enough to get something done. But I feel like a lot of times people are hesitant to take that action because it's not, you know, fully a statistically developed model, but you don't need it, you actually just need your own intuition to be able to act on your own data. And what we want to give you is a way to do that where you feel confident executing on it and it's easier for you to do. So who are we? My name is Thomas Altman, I've got a graduate degree in applied data modeling, specifically as it applies to businesses and decision making. I use that degree to move into the association space and really think through a lot of these techniques as they apply to associations. So I'm really happy to share with you some of those learnings here in this workshop.

Dray McFarlane: And I'm Dray MacFarlane. My background is a little bit more technology focused but like Thomas, I've designed technology business solutions for associations, primarily focused on enterprise level software. Between the two of us we've been working with associations for around 20 years at this point. So we want to apply what we know about data science to your industry and make sure that you're getting the benefits that other industries around the world are also receiving. So what are we going to be doing today, just a quick look at the agenda here. So we're going to go through a quick introduction about what we're covering. Thomas is going to walk us through some of the actual techniques that he's been talking about and hinting towards here, that's going to be bouncing between slides and excel a little bit. And then we'll come back, do a quick interlude, away from Excel, away from these statistics and data, just to kind of recap what we've been doing, why we're doing it and what that means. And we'll dive right back into Excel and do another recap. And then we may get into a little bit more advanced methods here beyond what we plan on showing in Excel and really detailing out for you. And then we'll have our conclusion to tie it all together. So let's get started. Very first question. We're talking about prediction today. Why are we talking about prediction, really, everyone's already doing prediction to one degree or another, you really need to have a good idea of what's coming even for the most basic planning or budgeting for your organization. Today, we're going to go into techniques that really allow you to focus your current efforts more effectively on those individuals where it will have the most impact. So

rather than just a high level prediction of what you can expect at an organizational level, we really want to give you some information that comes down to the individual level so you can tailor your strategies, and really focus your efforts on the individuals where it will have the most impact and the most benefit for your members. Why are we starting with the churn problem? So Thomas mentioned we're focusing a little bit about membership churn and renewal rates today, churn is really the idea of how many members are you going to lose this year. At a high level, the value of reducing churn is because maintaining your members tends to be significantly more valuable than constantly trying to acquire new members. If you're rolling over all of your members every single year, you're going to spend a lot of money, time and effort rebuilding your membership each year. And really, that's going to take away from the goals of the association. It's really hard to move your purpose forward without having some people around who have been around for a while and continuing to work with you over time. We think this is an extremely big opportunity because the average in the association industry based on some recent business surveys, is that renewal rates are around 80%. That means you're losing roughly 20% of your members on average. Right now, due to the rather extreme circumstances around COVID-19, it's probably much worse. Most organizations are seeing that number get much worse, a lot more turnover in their membership. You probably already have some strategies that are helping to address this, you're already doing things to maintain your membership. I've never worked with an association that wasn't already trying to retain their members by providing value in various different ways. But the methods we're going to show you today are really aimed at improving those numbers by focusing those existing strategies. So when you do something, we want to make sure you're doing it for the group that it's going to be most valued. So when you do something that improves the engagement of a particular person, you're making sure that person is someone who wants it to be engaged in that way. So from here, I'll let Thomas take it back over and talk us through some of the strategies and techniques.

Thomas Altman: Yep, excellent. So one of the things that I think is really important, especially when you're coming to predictive analytics for the first time, is the idea that simple is oftentimes much better than something complex. So there are a lot of studies that show simple frameworks actually have a stronger effect on business outcomes than more complex but more accurate predictive models. And that's what we want to do here. And the reason we want to do that is simple becomes actionable. Once you have a very complex set of rules and models to navigate, it makes it less likely that any individual person will actually follow that train and actually act on the output of that. When it's simple, and it's easy to understand, you can use your own intuition and your own impulses to create a strategy that works much more easily and it's much more effective, even though the output is less accurate. The action and the result of those actions are

actually more effective. And that's what we want to do here. So we've given you five simple, easy to follow steps to get to a predictive analytic model that you can act on. The first one is really coming up with those metrics. It's going to be the less technical step but the most important, then I'm going to give you a couple quick ways to first gather the data, get it out of your system in a format that you can use in Excel. And then once it's an Excel, visualize that data in a way that is intuitive and easy to understand whether your metric is predictive or not. Once you've got your data visualized, you've determined which metrics are present, predictive, and you keep those and which metrics are not and you can discard those that will actually use each individual metric to segment your members within that data to understand who is more likely to leave and target them specifically. And that's going to flow into the fifth step, which is to act on the data. So you'll learn how to apply those metrics on new data on new membership. metrics that you're pulling out. And we're gonna give you a quick metric on how to understand what the maximum discount you could offer to a member is while still funding your organization and providing benefits back to those members. So let's get started with step one, which is to brainstorm the metrics, and this is critical. What we're relying on here is you and your knowledge and intuition of how your organization works, and the way that your members interact with your organization. So the goal of this step is to come up with say, five to 10 specific metrics that you believe will predict whether or not a person is going to leave. So those metrics should be some version of a summary over the time before when that person is going to leave. So an example of that could be a count of total logins to a website or the total amount spent on non dues purchases, or the average number of comments in a forum, per month. Another way to think about this is through something called RFM, which is recency, frequency and monetary. So if you can think of your metrics in those terms, so days since last login, total number of logins over three months, or the amount spent in the store, those tend to have very strong predictive characteristics on to on to the outcome. Last thing you want to do is don't do this on your own. You might want to get people from different parts of your organization, get them in a room and have a, you know, one hour 30 minute brainstorming session, where the goal is to think "hey, what do I believe, predicts in advance that somebody is going to leave the organization?" Come up with five to 10 of those that you can then pull into a spreadsheet, and then evaluate and test for some techniques to measure the second. So that's a lot to do, we do have a predictive metric starter pack. Don't worry about writing all these down, we'll provide this to you and some materials outside of this presentation. But as an example, some things you might want to understand are tenure. So this is the years or months of continuous membership. And you'll usually find basically a U shaped pattern there where the younger the member is, at first, when you're first year, you've got a high likelihood of turnover, you go down towards the middle of your average tenure, five, six years, and it's a very low likelihood of turnover. But then as you go kind of further on closer to 10 years

15-20 the likelihood of churning actually increases over time. So that's something you might want to look out for. Another way to think about this is days since something. So days since the last interaction touchpoint with the member is usually a pretty effective metric that you can use. So if it's been a long time, that could be very predictive about how that person's gonna behave in the near future. Another way to think about this as ratios of usage to the membership price, so any of these metrics that you see on your screen, if you basically divide that by the cost of membership, that that person pays, those tend to be interesting scales that allow you to see a lot more effective the patterns between your metrics and, and churn. Again, this will be available on the website. So don't feel like you need to write this down as I change the slides. So once we have that, you're going to go to step two, which is actually getting the data. The main goal of getting the data step is to have data in the format that you see on the screen right now, where you have one row for every unique member in the data. And then you have one column. First for whether or not they left, and then another additional column for every metric that you came up with the previous step. So this all relies on you starting with data where the outcome is known. So you want to find a timeframe that is representative of kind of your current data set. So that would be a very recent timeframe. I would start from say, June 1 through the end of May, if you have relevant data now, through July, you may want to start there, you want to get as close to now as possible, and you want to know the outcome in advance. So the way you would do this is you would get that year's worth of data, you'd start on say, June 1 and example, identify everybody who was a member on June 1st. Then what you would do in the next column, is calculate whether or not over the course of the year that person renewed or not. If they renewed, that's going to be zero. And if they left The organizations that cancel the membership, that would be a one. And then you're going to have for each row for each person, the actual number metric that you have in there. So depending on your system that you use on your AMS, or whatever data sources you have, you may be able to create this spreadsheet on your own. Or you may need to work with your vendor or your IT department to get that data for you. But once you do it as a fairly trivial way to get this data out, so if you present them with what you see on the screen here, you should be able to get the data out pretty quickly. Once we've got the data, the next step is to visualize it. So what I would recommend to use is something called a boxplot. So that's what you see on the right side of your screen here. And the way a box plot works is we filter out everybody who stayed and then we calculate sort of all the distribution of the metrics for the people that stayed in the retain bucket. And then we do that again for people who left. So the way to think about this, if you look at the left box plot here under retain, 100% of all observations for the retain group fall between that top 100 line and the bottom, it's around 38 there. So 100% of all observations fall in there. The middle 50% are in the green and purple boxes, they're in the middle point, the average is where those two boxes touch. And what you're trying to

do here is you want to look at the retain box, and the churn box and if they look different, like you see here, you can be pretty confident that the metric that you've chosen is predictive. You can see there's a difference in the way that these people are distributed between retain and churn. If you see that the boxes look the Same, there's no really discernible difference between those two boxes, then you can be pretty confident that that metric does not predict whether or not somebody is going to stay. I'll show an example of both of those once we get into Excel. But that's the basic kind of concept here. So you've got sort of this distribution plotted over for retain and for churn. With that, I think it's time we take a dive into Excel and look at how we could actually do this with our actual data. Okay, so what I have here is a simulated data set. So this is not data from any actual membership organization. It's simulated to be similar to what you might see though, and what you can see here is that we've got kind of data in that format that I was talking about before. Where for each row is a unique member we have because this is data where the outcome is known, we can say where this person cancelled the membership, I've gotten four different metrics that are representative, I've got sort of logins over the past six months. So this person logged in 37 times in the last six months, this person only logged in six times. Comments in the forum. So very active in the forum here. Total number of CEUs over that same time frame. And then here, we've got a number of emails that this organization sent to the members. So this organization sent 49 emails to member one, and only one email to member four. So once I've got data in this format, what I've done is along the bottom here in each of these four tabs, I created one tab, per metric. And what that allows me to do, right click in here, allows me to create these box plots. So this box plot is really just a stacked bar chart for each of these different levels here. So what I've done is I've gone for zero meaning somebody retained, one that they stayed based off the data here. And I plotted out the middle 25% of all, or the bottom 25% of all data for people to stay is between zero logins and 17. Whereas the bottom 25% of people who left is between zero and six, the middle 25 is between 17 and 19 logins in the last six months for people who stayed versus six and 14 for the people who left. And what I did is I stacked those bar charts on here. So I created this stacked column chart and kind of hid some of the boxes and added a little error line here. So if I come into this, you'll actually be able to see you can create these little error bars here. I just added that on top and bottom here. And that allows me to see the bar chart for people who retained, who actually renewed their membership and the people who churned, people who did not cancel their membership. And just visually, right off the bat, I can see that these two boxes look pretty different. They're not the same at all. There's a little bit of overlap between these two. But it's very different between those, I feel confident saying, logins are predictive in the scenario of whether or not the member left or stayed. If you don't want to learn how to make these box plots, you can actually use this specific spreadsheet. And if you paste in your data into these columns here, it'll

actually automatically update. You can just kind of rip off what I've already done. So you don't have to worry about learning how to do this. Um, let's do another example here for comments. So here, I've got my two box plots, and they look a little different but not as different as login. Here I would say just kind of gut feeling visually, it still probably is predictive, but it's much less. So I think there would be less value in using this as a predictive metric, as opposed to logins. Whereas if I come in to CEUs even though these are kind of smaller total areas, it looks like these two boxes are quite different from each other, and it doesn't really even look like there's much overlap in the middle 50% at all, I would feel very comfortable using this as a predictive metric probably more so even than than the logins one. I just visually they look quite substantially different from each other. And now if I come to emails, this doesn't look different at all. So there I don't seem to be getting any benefits from segmenting out people based on the number of emails that they had. These two boxes look pretty much identical to me. I would not feel confidence using this as a predictive metric. And in fact, if this were my data set, and I was trying to do this analysis, I would probably throw away this metric, I would delete this tab and delete it from my data set to make it easier to use. So that's steps 1, 2, and 3. So you start with, you know, identifying, brainstorming your metrics, you then get the data in the format that I presented here. And then if you plot them in box charts, you'll be able to see the difference and get a good intuition about whether or not that metric actually was predictive or not.

Dray McFarlane: All right, thanks, Thomas. So let's take a step back out of Excel and out of the specific data analytics here. And let's just ask, what did we just do? So Thomas just walked you through how to massage your data a little bit into a useful format for analysis. So basically, getting it into that format, where it's structured in a way that we can use it to produce those visual simple illustrations that allow you to understand and interpret, basically what is impacting the chances of your members renewing. Those should be pretty intuitive to be able to look at. So those boxplots are pretty easy to take a glance at. You don't have to over analyze it. If they're pretty different at a glance, awesome, you found something that is probably useful in targeting for impacting people's chance of renewing. If they look pretty similar, then they're not having that much of that. You can expand on this by playing with a lot of different metrics, a lot of variations within those guidelines. Thomas gave you quite a few suggestions. But there's a lot of opportunity here. Things like tenure or length of membership might be a common one that you use. But maybe you want to actually separate that into just a one or zero of is this person in their first year of membership versus not in their first year of membership. that statistic I threw out at the beginning of 80% renewal rates. That's typical for the lifetime of a member but if you go to just the first year, most organizations are seeing more like 65 to 70%. So you'd see some interesting results if you start changing up how you're using

these. Picking metrics can be intimidating, but I highly recommend just trying things. Once you have this structure in place, you can really play with your data to see if other variations give you interesting and actionable results. And you really can do that with minimal effort once you have that structure set up and ready. So now that we have this, what do we do next? We've talked a lot about this being actionable and how we can work with our existing strategies. But really, we need to know what we're going to do to help with that. So far, that information may actually already help validate some existing strategies. If you have a campaign going on that is trying to focus on something that you've identified as a metric that really is not predictive. Maybe that campaign isn't something you should continue pursuing. But if you have something that you're considering that you just validated, does, in fact, target an area that seems to go with membership renewals. Awesome, keep investing in that that's something you can keep pursuing. In this example, maybe getting people onto your website active on the forums, earning CEUs, those things generally tend to go with membership renewal. Just sending them more and more emails, if they're not actually achieving those results, emails alone didn't seem to do much for us. So we're going to take these models based on that historical data, the known outcomes, and we're going to start using it to predict future actions. We're going to do this by segmenting our members so we can identify who we should actually be targeting with those strategies. So going beyond "Is this a valid strategy" to "now that this is a valid strategy, how should we apply it?" And make sure that what we're doing is relevant to individuals. We're going to see how focusing in this way really allows you to reach those people where it's going to have the most impact with the least effort. And with that, back over to Thomas.

Thomas Altman: Excellent, thank you. So now we've kind of gone through, we've seen what's predictive and what's not. What we'd really want to do is kind of zoom in on those predictive metrics and use them to understand our members a little bit better and target those members that we think, based on the metric, are likely to not renew. So how do we do that? So what we're gonna do is we're gonna create cohorts or segments based on those specific metrics. So for example, what we would do is we would take first, for each metric that we found to be predictive, say our CEUs in the last 12 months, we're going to sort them low to high. So the person who has the fewest CEUs will be at the top of our Excel spreadsheet, and the person with the most CEUs will be at the bottom after having searched it. Then what we're going to do is try and create 10 equal buckets. So we'll kind of if there are 10,000 members in our database, we'll take the first 1,000 that have the lowest number of CEUs, that becomes cohort number one. Second, 1001 to 2000. That becomes cohort number two, all the way down to 9001 to our 10,000 members. Once we have that, what we want to do to understand how useful our metrics are, is to calculate a couple of different things. So for each cohort, each segment, what we're going to do is

calculate out of the thousand members in that, how many of them actually churn? How many left and canceled their membership? And that's going to be what we call our churn rate for each decile. And if you plot that, what you're going to see hopefully, is something like on the graph to the right here, where in the lower decile, you'll see this kind of has a high churn rate, we noticed that our CEUs were very predictive. And the people with the fewer CEUs you can actually see it's around 65% churn rate very, very high. Whereas once we shift to the right, we get down to our decile or 10th bucket that has people with the most CEUs over the last 12 months. It's a very, very low churn rate and you want to see the sort of slope to your data here to help you kind of target which groups and how to address them when they do. So here we've got a downward sloping line that'll help you see that the lower CEUs corresponds to higher churn rate. You may also see an upward sloping line. So if there are things where a higher number of days since last login would be an example of this, the kind of as you go further to the right, you get closer and closer to that higher churn rate. You may also see a U shaped line. A good example of that is going to be for member tenure usually, so the longer you've been a member early on in your first year of membership, you're at high risk, but then it kind of sloped down to about the middle and then it curves back up as people get older and stay with the organization a longer time. The important thing to see there is you would probably target both sides of that U shaped curve a little bit different than you probably target your new members even if they have a high churn rate, maybe even similar to your very long tenured members. You probably want to have a different communication strategy to both sides of that curve. So it's important to graph this and understand where those buckets are. And one of the things I'm going to show you how to do is calculate the lift. So another calculation you can do is within each decile, what percentage of the total people who left live in that decile? And you can kind of add those up over time to see at what point are you targeting most of them with the fewest number of total people. I'll show you what that means in Excel a little bit later, but it's gonna be a very, very useful metric going forward. So once you have your data segmented into your different cohorts, now you're kind of at step five. This is the step that gets you that lower churn rate or higher retention. So everything up until this point, we've been acting on data where the outcome was known. So if you remember in step two, we had you look, grab every member, everybody who is a member on June 1 2019, and see if they stayed a member for the following year. And that's how we decided because we knew the outcome already, which metrics were predictive and which weren't. Now what we want to do is grab the same metrics for our current set of members. So everybody who is a member today, you want to bring them in with the metrics and that same format that we had before. But we don't know the outcome at this point. So what we're going to do is use our segments and our metrics that we defined as predictive in the previous steps, and apply that learning to the current data. So once we've done that, we can actually find our most effective cohorts and segments within our predictive metrics,

and target them with specific messaging based on where they are, what the metric is and where they fall in. So as an example of that, if somebody has a very low amount of CEUs, we could target messaging for them around, hey, these are your CEU options, maybe even target that messaging to be COVID specific in this timeframe. Another thing you'll be able to do with the data that you already have is calculate member lifetime value. And that's important because it gives you a framework for understanding what's the maximum amount of discount you could offer to somebody across your different products and still fund the organization going forward. So you can give discounts. What's the maximum discount an individual can receive and still be able to use the money that they give you to fund future efforts of your organization? And the way we do that is taking kind of three things. We understand how long an average member stays with the organization, we find what that is. We find how much a member will spend per year. So, I've got a calculation in the spreadsheet that'll help you call us calculate that, then we also want to understand the cost. So how much does it cost to serve that member? And once we understand those three items, we can actually calculate a breakeven point where you can get discounts up to this point, and still expect some return on the membership. I do want to highlight something called social return on investment as well. So not everything an association does needs to be revenue or profit based in fact that most likely everybody on this call wants a social return on what they're doing. There are ways that you can justify going above this breakeven point, if you can find that it furthers the mission of your organization in various strategic ways. So just because you calculate a breakeven point doesn't mean you shouldn't go over it in all cases, you might want to think through what are some non revenue reasons. But it still makes sense to give discounts. So with that, let's go into Excel. I know that was quite a bit, I think a lot of what I'm going to say is really going to resonate with you to see how easy it is to calculate some of these things in Excel. So let me switch over to our Excel spreadsheet and show you exactly how to do it. Okay, so, what we're gonna do here is we're going to calculate our segments and assign people to cohorts based off of where they are. So what I've got here on this cohort one tab is our logins metric. What I've done is I've created a percentile for each member based off of the number of logins they have. So, in the bottom logins here, the bottom group, we've got between zero and five total logins over the last six months. We can see that there are about 900 or so members that had that few logins over the last six months. And of those 900, 460 actually canceled their membership. That's about a 50% churn rate for that decile. If we kind of go to the other extreme here in the highest bucket, so these people have between 45 and 50 logins in the last six months, there's about a little bit more than 1000 people in that bucket, and only 54 of them cancelled their memberships. It's about 5%, right here. And what we're looking for is a sort of downward sloping or some sort of pattern that makes sense here when we graph that sort of churn rate to decile. And we kind of see that nicely in this graph here. So when you see this, you can understand that

this would be an effective way to segment your members and be able to target them. But what's the benefit of that segmentation and doing that targeting? We have another way of calculating our churn here, which is our cumulative churn. So in this column E what I did was take, okay, there's 907 people that had five or fewer logins. Of those 907, 460 churned. What we're actually doing with this cumulative churn rate, as we're saying, of the 460 people that in this decile that churn, what percentage of the total number of churn is that? And it's about 19%. Likewise, for this number of people, there's 907 people in this bucket, but we have 10,000 members, so about 9% of our total members are in this bucket. And what that gets us is if we target only 10%, based off of this decile, we can capture 20% of our total churn. So 20% of all people who left are in only 10% of the members and we actually sorted by logins. And we can see the effectiveness of this here and by the time we get to about 50%, we're capturing 75% of our total churn. It gets less and less effective as you go all the way down. So you want to find a cut off, where you're kind of calculating the, you're getting more bang for your buck 50% capture 75 is probably around there. But if you targeted only here, you're targeting only 900 people out of your full 10,000 you'd still capture 20% of your total churn rate. So let's see what that looks like for a few other of our cohorts. If I come over here, this is coming to the last six months. So if we remember back to when I was looking at creating the boxplot we saw that it was kind of predictive, but not super. And you see this here, it's not a nice line, it's kind of squiggly, it still has that downward trend, but it's not very effective. There's kind of flat points along here. That would make me think there's something that's not very useful about this. We can actually see that when we come to our cumulative churn calculation. So if you remember on our previous tab, we got to 75% by reaching 50% of our total members, here, it takes us to get up to 60% to reach that same 75. So we're actually getting less bang for our buck, if we segmented our members by comments on the forum. So you might not want to throw this away, but you might want to target these people, after you do the logins segmented this way. Second, let's look at CEUs. This seems to be much more effective. So here we've got our cumulative total number of members around 38% to get us that same 75. So, before with logins, it took us 50% here we're under 40 to get to that. So I would say this would be a much more effective way to segment your members in a way that you can target how to contact them, and you know how to contact them because the metric is CEUs. So here you grab, say, the bottom quarter decile here. So you take everybody in the bottom quarter decile and your new data. And you could contact them and say, "Hey, you know, add some new CEUs, take some courses, webinars", whatever you offer that maybe even offer them a discount to be able to do so to kind of drive that metric and target them in that way. Speaking of discounts, we will show you a quick way to calculate the value of a member. So this is a revenues based value of your member. Here is kind of a simple framework. It's kind of naive in that it makes a lot of assumptions. And it's likely not 100% correct, but it's still close enough to correct to be an effective

approach. Having said that, you will likely want to talk to your accounting or finance team to make sure you're using your metrics in the best way possible. But in order to calculate member lifetime value, you only need a few steps. First steps: you need to know the total number of members that you have. So in our example here, our kind of simulated data, we've got 10,000 total members. You also want to know the average member tenure. The way I would approach this is I would take sort of a representative recent set of every member who has left, say every member who left last year, and then from those members who actually did churn, calculate how long they were members before they churned. So here, it's been about seven years. And that's kind of an expected number anybody's remember now, how long can you expect them to be a member, then what you want to do is take both dues and non dues revenue. So this would be your total dues revenue over that same year, and this would be all your non dues revenue over the same year. And then finally, you want to know your total cost to serve a member. This is going to be different depending on the organization and the way you service your membership. But at a minimum, it's likely going to include the salary and the cost of your membership departments, any sort of publication or benefits that a member gets that you send out to them, you want to include that in this calculation here. Same thing for any recruitment, retention, engagement marketing materials, you probably want to include that in a bucket as well. So once we have these calculations, what you really want to do is find out on average, how much of these are per member. So that's a simple calculation of dividing the number you had here by the number of total members that you have. You can do that for each of these same calculations there. Once you have that, what you can do is calculate your expected revenue per member over their lifetime. That's a calculation of dues plus non dues revenue per year, add those together and then multiply it times the average member tenure. That's sort of your expected value of the member per lifetime that they stay with the organization. You can do the same thing for cost, and once you subtracted this number, the value minus the cost. That's your total breakeven. So this is the highest amount of a discount in whatever form that you could give to a member and still expect to make some sort of funding from that member over the lifetime that they're with your organization. There are probably more advanced techniques you would want to talk to with your finance and accounting team to make sure that that number is very accurate. But it is a good way to start thinking about strategies to contact your members and make sure you're prioritizing more effective strategies over less effective ones. And with that, I will hand it back over to Dray to kind of paint a picture, tell the story of what we've just talked about, and lean on some insights that you can glean from this.

Dray McFarlane: Thanks, Thomas. And once again, we're going to step back from Excel. And just do a quick recap of what we just saw. We talked a bit about focus and identifying segments in previous discussions here in previous slides. What we just did there was we

saw the ability to take a strategy and apply it to a subset of your membership rather than having to apply to everyone. So if you have a campaign right now, that is promoting continuing education, maybe it's applying to every single one of your members right now. But as you get near renewals, you do have the ability to focus that down on the subset to really push it with that smaller group, in this case, really focusing on 40% of your membership and still reaching 75% of those people who are likely to not renew. That allows you to really leverage your limited resources in a more effective way, especially as your focus is on maintaining your membership members. Now, we also got that, as I've called it here, naive cost benefit calculation to determine, really, the value of a member over their lifetime and dollars here. Naive is not intended to diminish the value of this, though, we've made a lot of assumptions here, there's a lot of data that you're probably going to deal with at a summary level, they're not going to be exactly right, the goal isn't necessarily perfection. But by going through this process, you're going to get a result that gives you a number that you can work with. That number is able to inform whether existing strategies are beneficial. Sometimes strategies that are working, may be too expensive based on the value that they're actually returning to the organization, into your membership. And some strategies that might have been ignored are worth reconsidering, either because you actually are getting more value out of them. Or maybe because the related metrics suggests they're even more important to your membership than you realized. So this type of calculation combined with the segmentation, combined with using your data to figure out what is important to your members, and what keeps them around, will help you know which path has the most impact. So this can help you determine new strategies and evaluate your existing ones. Now, these techniques really can be used at any time, you can run these models yearly, monthly, weekly, more often. And you should be testing them constantly to make sure they're still effective. You can go through applying different methods to different groups of your membership to go through that. But I'm sure what's on the front of everyone's mind here: How well do these models actually work in a crisis? There is a big difference between say March and July this year compared to February, January and earlier. Really, they're probably significant disruptions throughout the world. Most of the time, there's something going on somewhere but probably not at the same scale that we're dealing with right now. So how well do these models work when there are these kinds of disruptions that you can't predict? And how well do they adapt? Do we need to do something to the models to actually account for them? Does there need to be a metric that basically says, these data points were taken while we were dealing with COVID while they were in a hot spot, while people were in quarantine, and so on? Turns out not so much. Actually, during this type of crisis, these models become more predictive than they would have been otherwise. If you have a person who's posting comments on your website in the past three months, they're probably way, way more engaged and value your organization way more than the person

who was posting comments back in January and February. They're continuing to interact with you despite everything else that's going on in the world. That probably makes that particular metric even more predictive than it would have been otherwise. And that does reinforce what Thomas said about making sure you get data that is close to now as possible. So as he mentioned, if you can get data through the end of June If you can get it through the end of July even better. So the closer you get to now, especially in the middle of a crisis like this, the more information you're able to get about how people are acting during that crisis, you don't necessarily have to add more information, the existing things that people are doing, the existing behaviors that you're measuring with your data will actually give you those results. Now, up to this point, we've been very focused on keeping things simple and keeping them actionable. But for those of you in the room who have more of a statistics background, you're probably wondering, how far can you actually take this? What can we do with these models as we get more complicated? Complexity is absolutely an option. It's something that you can go down that path. So let's dive into a little bit of that. And I'll hand this off to Thomas to talk a bit about some more advanced modeling techniques.

Thomas Altman: Thank you. So yeah, just want to highlight this is gonna be a section on advanced predictive analytics, but that doesn't mean that everything we've done so far is less than what I'm about to show you. This is sort of an incremental benefit to what you've already done. There's an interesting approach here that coming up with these techniques probably did take a lot of effort, but applying them really doesn't. So that's really what I'm going to focus on here is I'm going to show you I've got a couple tabs in our spreadsheet that may look intimidating at first. But really what I want to focus on is how do you apply the information that's on that tab and give you a little background on why that can be effective. So don't worry if it is a little bit too technical, I'm going to try and focus on the applications of some of these technical things. So I think a big buzzword that a lot of people have heard recently is machine learning. That's something that sounds intimidating, but it's really not with only a few simple Excel hacks, you can do that with the data that we've already kind of pulled out in your spreadsheet for you and I'll show you how to do that. If you are interested in learning a little bit more about this, some techniques you want to be familiar with are the regression techniques. And I'll show you an example of that, and the benefit of doing that in a little bit. But knowing that something called linear and logistic regression exist out there and they're implementable in Excel would probably be a good thing if you're inclined to learn how to do that. Um, so for linear regression, the type of problem you'd want to solve with that are things where you want to forecast some number in the future. So either total dollars spent by an individual number of logins in the next six month, number of service calls to expect your membership departments, things like that. And that would be a technique where you'd

want to learn to use linear regression. Logistic regression would be the type of technique you'd want to use on the problem we're trying to solve on this call which is sort of an either or event. So either a member renews or they don't in this case. In this type of model, what we're predicting is actually probability that they don't renew. And I'll show you exactly how that works. And then there's some advanced clustering techniques. So previously, we were segmenting people on a single metric, what you can actually do is look at shared behaviors across all your metrics, and segment your users and your members based off of, you know, how they behave across multiple different metrics, not just the one. So as an example of that, let's dive into Excel. And I'll show you some cool additional techniques that you'll be able to apply. Okay, so as I said, it might look a little bit more intimidating than it actually needs to be. You don't need to know a lot of information that goes beyond here. Basically, the main idea, this is the same data set that we had before. And what we're trying to do is take these numbers up here, and multiply them against each one of these numbers here. To create a prediction, you don't need to worry about what's going in there. But basically, what we can do is compare a prediction against what we know actually did happen, and create some sort of error. And what we want to do is tinker with these numbers up here to minimize the total error that we get from calculating here. And in order to do that, we're going to use something called solver. So in everybody's Excel, this is free, it's included in all excels, you have a pack called solver. So what solver can do is run different sorts of what's called optimization techniques in here, and what we can do is target a specific cell, say, tinker with some other cells, these guys here, just randomly change what's in these cells here. Over time to make this either as big as possible or as small as possible, or give a specific value. I'm not going to run it, but if you want to run the specific solver in the Excel spreadsheet with your own data in here, it will actually calculate these to be relevant to your own data set. So don't worry too much about what you see there. The way you run it is by clicking solver and pressing go once you've imported your own data into the spreadsheet. What's the benefit of doing that though? This is the cool part. So what I've done here is I've sort of ranked my members by the predicted likelihood of them leaving. So the way the schema is this is I predict that this person has a 1% chance of leaving, they did not hurt, they have a 1% chance of leaving, they didn't leave pretty accurate. This person I said had a 48% chance of leaving and they were kind of middle of the road. If I group everybody in the same way that I did a lot of the metrics based off of my estimation around their likelihood Leaving. This is what I see. So of the thousand people that, you know, we're in my top bucket, but most likely, at least by my estimation, 879 of them are about 88%. Actually did leave. So I've got a very high targeted rate. And what we can see that does if we think back to previously, our most effective metric was CEUs over the last 12 months. And that got at 38% of the total members, I got to 75% of my coverage of all people that churned. Here, once I apply some of these more advanced modeling techniques, I can actually get as high

as 80% on this one of people that's dead leaves by covering only 30% of my total membership. So you have a really effective way of kind of identifying who's likely to leave and targeting your resources at just those people. So it's a very effective technique to understand who's likely to leave and being able to target them. So I encourage you, if you have the desire, learning about just regression is very effective. If you just want to use it, you can take a spreadsheet that I have here and input your own data, find solver, click go, and it'll do it for you. One other thing here is something called k means this is a clustering technique that groups people together, just scroll up. Don't be too scared about this, you don't need to know about this. Same thing with solver. If you put in your data, and you click go, this will run together. Really what we're doing here though, is finding people across all of our metrics and seeing how similar their behavior is instead of just on the one finding across everything. So you can see I've got three different types of clusters here. So I've got cluster one referencing these people behave similarly across all of our metrics. And you kind of see that here. These are all, kind of, higher numbers for one. And for metrics 1, 2, and 3. These are all higher. Seems like metrics four is not considered. Whereas for metric two, I've got kind of a low metric one, and higher metrics two and three. And then my cluster three is high across all of them. And we kind of see that here, we can kind of group people based on their behavior across multiple metrics at the same time, which can be a really effective way of breaking out your data, and it's targeting them with very specific communication strategies or whatever you need to do based off of this. Again, this is called K means if you want to learn a little bit more about that I highly recommend that you do. If you don't want to learn more about that, you just want to use it. That's what the spreadsheets for. Plopping your data on that first tab, come up here, click go, it'll cluster everybody for you. And with that, that's some of our intro to advanced analytics. I will hand it back over to Dray to kind of talk you through some of our conclusions and ways to go forward from here.

Dray McFarlane: Again for a quick wrap up here. Really today's thing of data analytics and all the methodology that we used was really just about improving and narrowing your focus. So you can act where it's going to be the most effective, whether that's identifying existing strategies and making sure that you're applying them to the people who care the most rather than your entire membership, or potentially identifying new strategies. And all of this can be implemented using techniques that we showed with tools that you probably already have access to, and information you definitely have in your association management system, or CRM, or whatever else you gather information about your members in. The way that we predicted action showed correlation and applied segmentation today, all of those are very useful methods. But as Thomas started to show you there, really it's just the beginning. You can kind of consider this that base level of those buzzwords, artificial intelligence and machine learning. Those can go way way

farther, complexity increases, and it's definitely not something I would recommend trying to implement in Excel. The predictive capabilities can also be more crease, it can be a little harder to explain what it's doing and why we're getting certain results. But if you care more about whether it's right or wrong, then we can also go through some of those machine learning methods to go a bit beyond what we've seen here today. With what you've seen here today, definitely recommend trying it yourself, get creative with your metrics, maybe even consider additional data sources, or even some third party data sources that you might have access to that you can pull in, whether that's your internal association social networking tools, it could be external, something like census data, or even credit data to be able to get income levels for different areas of the country or world. Again, highly recommend you download the spreadsheet, try it yourself, pull data into it. And of course, we're very enthusiastic about this. So if you'd like to talk about it more, please feel free to reach out to us.

Thomas Altman: Again, thank you so much for your time. Yeah, please email Dray or myself. We are happy to talk to you and all of our materials are going to be available on the site. Thanks again.