



Streamline Your Public University's Internal Audit Data Strategy

Public universities are experiencing an increased focus on technology and efficiency as the world has become progressively virtual. This on-demand webinar discusses data and internal audit pains affecting public universities and learn how CLA can help your institution modernize and streamline your internal audit data strategy.

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Here is a transcription of this session:

Troy Hollings:

Hey everyone. This is Troy Hollings and thank you for joining our webinar today. I will say we've got a treat. We're talking about streamlining your public university's internal audit data strategy. And so we're going to kind of introduce who we are, share some projects and some ways and concepts that we've been able to use data into the internal audit process. And today I'm going to be serving as our facilitator and host, but I'm joined by two other fine folks, Ryan Merryman and Chris Suda. I'll let them introduce themselves as well.

But first a little bit about me, Troy Hollings, I'm a director in our digital group. When we say digital at CLA there's really kind of three buckets. One is business intelligence so we've got smart folks who build dashboards, think of maybe a school that has a lot of reporting in Excel. We can come in, automate some of that, build dashboards. Second is more of data engineering, custom application development. So connecting system A to system B, and then we've got a data science group. And much to their chagrin, Ryan and Chris agreed for a fun fact. And so fun fact about me, I live in Indiana. I married a farm girl and I live on 25 acres and I just learned yesterday that we are up to 30 goats. So with that, I will kick it over to Ryan Merryman.

Ryan Merryman:

Fantastic, Troy. Like Troy, I'm excited to give this presentation to you all today. Hopefully we can open a discussion through the Q&A enabled in our go-to webinar, but this is an exciting topic to us as a group and we want to share some of our enthusiasm and some of the ideas that we have on the topic.

A little bit about me. I have a background in accounting, I'm a CPA. I spent the majority of my career doing fraud and forensic work and fraud risk management work. And that's where I learned data and analytics was finding it necessary to be able to analyze transactional data to understand fraud and fraud risk, and figure out where to identify investigative evidence and over time learned how to do that in a proactive way, and really enjoy doing that in the context of internal audit. So this is in a topic that is near and dear to me.

I guess a fun fact about me. I grew up in Southern California and was a big surfer and skateboarder. I live in Sacramento now and so I don't have access to surfing, but I still skateboard. And I do that with my two sons. So I'm usually the oldest guy doing that in this area, but I still enjoy it quite a



bit. All right. So yeah, excited, any questions that you guys come up with during or after, please don't hesitate to reach out to any one of us. And so I'll pass it over to Chris.

Chris Suda:

Yeah. Thanks Ryan. So my name is Chris Suda so really the purpose of me joining this webinar today is I'm really going to provide a lot of that knowledge and experience, background in public universities and specifically working with internal audit. I provide assurance services to public universities. For the past 15 years, I've been working in the higher education space providing audit, compliance examinations to public universities, as well as some community colleges. And just to give you a little bit of perspective I work with institutions that have budgets from the 1 billion to almost the 8 billion range. And I'm going to go ahead and name drop a few of those, because I know some of you are out there in the audience today.

I work with a University of Louisville. They have a great internal audit team there. I work with the University of Alaska so I travel as far as Alaska. Again, great group of people to work with. And in the past I've worked with the University of Illinois they have a very strong, robust internal audit group I'll say working with them. I've learned a lot of from these people. I'd like to say I've seen it all, I have not. I always get schooled a little bit from every now and then that I really don't know it all. However, I have learned a lot over the years and hopefully I can share some of that and what my experiences have been with internal audit.

And I'm going to jump into some of that here really soon, but I guess first I'll go ahead and share that fun fact. So I guess my fun fact would be, this is going to date me quite a bit, but I ran hurdles with Trent Green. Some of you might remember Trent, he was an NFL quarterback for the Rams, Chiefs. He started his career at Indiana, but I did run on the same high school hurdle team with him. I'm not going to say I kept up with Troy, but, well, I followed in his footsteps, we'll just put it that way.

So with that being said, if we could advance to the next slide, just to kind of go into what I perceive as some of the issues working with internal audit and I'm really just kind of setting the stage here. Again, based on my years of industry knowledge, I mean, I've been a CPA for 24 years, but working specifically in higher ed for the past 15. And as all of you on this call know, I mean, as part of that external audit process, I specifically meet with internal audit to go over their ongoing projects, their completed projects, the findings, results, what hasn't been resolved, what their planned projects are.

And as we're going through all that, there's always this conversation, they're asking me kind of what we're doing as the external auditor around data analytics and kind of back, I'm asking them, "Well, what are you doing?" And I can tell you, it runs the whole gamut of what these institutions are doing. A lot of it's just budgetary. I mean, clearly you only have so much budget for FTEs and your internal audit departments. So, I mean, you're limited by that.

And so most of these departments, even if you're the most robust with the biggest budget, I mean, they're still looking to do more with less and there's always this conversation about, "Gosh, we bought IDEA. We purchased..." Well, you don't really purchase Power BI you pay for it on an ongoing basis. But you purchase a lot of these tools to perform data analytics. And they're they're like, "Gosh, it's sitting back there on the shelf collecting dust," even though I know software doesn't really sit around anymore collecting dust, but it's sitting around doing nothing. And they'll say, "Gosh, we hired Susie nine months ago and she had all the qualifications and backgrounds to do this work. And man, she was really getting us up and running and lo and behold, Susie just turned in her resignation and she's out the door in two weeks so all is lost," because none of that knowledge has been transferred.

So like I said, the internal audit departments, it runs the gamut as to kind of where they're at in this process. But I mean, basically we're looking to do more with less people, we're looking to move



from that sampling manual methods to more of a continuous audit process. And I think just based on my conversations with the clients that I serve, it's that continuous audit piece that they're really looking for in lacking. And that's kind of some of what we want to cover here today and just kind of go over some solutions. So I think with that being said I'm going to turn it back over here to Troy for a poll.

Troy Hollings:

Yeah, thanks Chris. Maybe before that Ryan, anything you want to add and then I will happily turn it to a polling question, little bit of audience participation, love to test out if some of what we just laid out aligns or where we're off base, but anything you want to add before that, Ryan?

Ryan Merryman:

I would add a point that we're going to supplement in future slides, but really when we see data and analytics being used to its highest value, it becomes integrated. So often we might find an organization or university that has done some really fantastic work, they've wrangled the data, they've combined the appropriate queries, done some nice calculations, maybe brought it into a visual form and it's very useful, but how do they integrate that into what they do? Maybe it just gets a look once a month or less. And so how do you sort of take that to action or decision making? And we want to address a little bit about that as well. So you kind of build the tool or get access to it somehow and then actually integrate it into what you do in your internal audit function. So we'll be talking a little bit about that.

Troy Hollings:

Perfect. Thank you, Ryan. Before that we would love some audience participation. There should be some concept of a box popping up with these choices. So this is very similar to what we just laid out in the previous slide, but love to hear from your all's perspective, what's the biggest gap? Is it that short staffed or is it you can find people, but then they leave or training or any of those others? So we'll give it, I don't know, maybe 20, 30 seconds, and then I'd love Ryan and Chris to comment. We're getting some good participation, thank you all. Okay, results are still coming in, but it looks like short staffed is number one at 51% and then cannot hire or retain is number 2, 24. And then the rest are five and eight. That's interesting. Any thoughts or reactions, Ryan and Chris?

Chris Suda:

Yeah, Troy. I mean, honestly, that is right on target with what I expected based on conversations with internal audit groups. It's basically just what I said.

Troy Hollings:

Maybe you do know it all. Appreciate it.

Chris Suda:

Well, yeah, like I said, I don't know it all.

Troy Hollings:

You were going to say something, Ryan?

Ryan Merryman:



Yeah, with data and analytics, the reality is that the investment and time and effort, it comes at the beginning. It's sort of front and loaded, right? You obtain these skills and learn how to use these methodologies and there is a little bit of an investment upfront and you have to get past that hurdle before you sort of reap the benefits. And making that happen, allowing for that is tough when you're in a scenario that these survey results depict, right? How do you free up to onboard that training and implement this methodology? So that's a tough one to address.

Troy Hollings:

Interesting. So it sounds like not surprising. If we move to a little bit more theoretical of maybe how we would think about some of this, there's kind of that lever of hire more people, grow through adding numbers versus maybe augment with technology. Maybe some of that technology leverage can almost take the place of a person or two people. So Ryan, if you want to kind of talk through maybe high level some of this approach and let me know, I can click through slides, but maybe just start with how we conceptually think about some of this, of how to roll in data analytics.

Ryan Merryman:

Yeah. So let's talk about this methodology first in a sort of industry agnostic way, right? This is just, how do we implement data analytics in the internal audit department, generally speaking? Well, up here we've outlined in the circular chart the five phases that need to occur in some form or fashion. And what I would like to highlight before I get into them is that every internal audit group that I've come in touch with thus far is well suited to partake in four of these five phases almost immediately. And it's really the technical analysis phase where there's some upskilling and then sort of knowledge of the process. So as we sit here, we're internal auditors, perhaps we're CPAs, we've got knowledge of our institution, but we're just not getting the most out of our data and analytics. I don't think that getting there is not insurmountable, it's something that is possible.

So let's start with the methodology. So first is the planning and risk assessment. So this is brainstorming about what do we want to get out of the analytics? Often we'll have a client call us and say, "Hey, we'd like some help, we'd like to run our data through IDEA, or we'd like to use ACL to come up with some analytics or we want to throw a software solution at our data." And really that's not the right way of thinking about it. It's more, "Hey, I have this financial aid data and I think there's some risk and misappropriation," or, "Hey, we've got this," let's just continue with financial aid, "We've got this financial aid data and we know that there's maybe weak internal controls in this area. How do we test for it?" So if we take some direction or we sort of spotlight something that we want to do, then we can kick off the methodology. Okay, what is it that we want to accomplish? And so that's what we're-

Troy Hollings:

It sounds like you're saying it's not just go out and purchase a software, it's more like start with what actually do you want to accomplish and then work backwards to that? Is that a fair summary?

Ryan Merryman:

Yeah, yeah. And do some brainstorming about, hey, what would the end look like? If I was able to identify, "Hey, let's look at students that received more than \$6,000 this year and didn't complete any units," or, "Hey, what about seldom used types of aid?" Or maybe they didn't have the appropriate timeline from when the student was added to when they actually got the funds, they're added to the system and boom, it just happens way too quick. Things like that we can look for and how would we identify those things? So often there's a group of things that you're looking for and that's even better.



"Hey, what are the handful of risks that we're looking to accomplish?" And when you do that, you sort of kick off the methodology and in the direction, it becomes much more defined.

So the second step is the information gathering. And this is where internal audit has a big leg up because you know the data and systems that your institution uses and often those aren't changing every day. So investment that you engage in to learn about the systems is scalable on a go forward. So you go and you figure out the best way to obtain that data once and then in a repeatable form. So now you have the data that you need, maybe you have the transaction data for the last couple years, and you have the dimensional table that helps you interpret that transaction data.

Now you're into that third phase, and this is where you utilize the tool you utilize, maybe it's Power BI, maybe it's IDEA, ACL, Alteryx, et cetera. There's the number of tools in the marketplace that are effective depending on what your goals are. And this is the part often where the group, the internal audit function needs a little help. "Hey, how do we actually execute? How do we wrangle the data, run the queries, do the calculations necessary to build up the reporting and visualizations that we need?" And this is where the roadblock exists typically.

So once you've done that, the queries, calculations, visualization, then you're in the collaborative interpretation of the results phase. And this is where you look at the results, you sort of measure the results against your expectations and your knowledge of your institution, and you identify anomalies. So what this typically is not is looking at an exception report. So sometimes you might purchase a solution that generates a bunch of exceptions for you, but that's usually not the best way to get the results. Usually it's the same people who are participating in the planning and risk assessment are there to interpret the results that come out of the analysis.

And then in the fifth phase, you're following up on those risk-based transactions or selections. So with this methodology you're spotlighting a risk, you're going out, looking at the data to see if there's evidence that risk had occurred. You're distinctly looking for it in step four and in step five, then you go and identify whether those transactions were in fact interesting or exceptions. And those are where you do your traditional procedures, where you maybe looking at supporting documentation, doing interviews, and just basically identifying whether those items are risks or not. And then that might lead you into some more specific follow up into the data. So that's why it's circular.

Troy Hollings:

I think that's great, Ryan, I think one thing maybe, and that's, we'll call it, 20,000 foot view. I think we want to move a little bit more tactical in a second, but it's interesting, it sounds like this is an iterative process where the first time you do it, you're going to learn some lessons, but then you're going to iterate and then you're going to fix it and then ultimately kind of iterate your way to test exactly what you want and really deeply understanding the data.

Ryan Merryman:

Yeah. And another thing that I'll highlight, to make this circular methodology role, to sort of continue the metaphor, there are different skill sets that need to come together. So there's the internal audit knowledge, the knowledge of the institution or university and then there's the technical skill set with the tool, and then you got to follow up on it, that professional skepticism. So in order for those things to collaborate, you got to plan how it's going to be part of the whole internal audit plan. It's not something separate, so you're not going to just hire a data analytics person and say, "Have at it," and they're just operating over on the side, generating reports that no one looks at meanwhile the rest of the internal audit group is doing the same thing they've been doing for the last several years and not integrating

those results into the process. So you have to think of it as, "Hey, this is a new way forward." And we'll talk a little bit about how you make that happen.

Troy Hollings:

Great. And speaking of technical I think if we get a little bit more technical on what types of analysis and then audience I'll give a teaser, if you can stick it out to the end, we've got a demo where we kind of show some of this in de-identified data, but what something like this might look like. But Ryan, maybe you want to add any comments on this slide?

Ryan Merryman:

Yeah, yeah. Do you mind jumping back for a quick second there, Troy, to that last? So on the right here, we bulleted procurement cards, financial aid, the GL accounts payable. These are areas of focus synonymous with a data set. So within a data set, you'll be able to look for particular risk. Certain risks are well suited to that data set. So within a data set, we're going to be identifying what test can we do in that technical analysis phase? What types of things could we look for and how would we look for them? With that lens, you're going to go to... Let's go to that next slide there, Troy.

So in that technical analysis phase, what types of analytics can you do? Well, there's an infinite number of analytics that are possible, but when we design a program and when we instruct our own folks here at CLA, when they get their hands on a data set, we often group the tests in these buckets. So it's just a conceptual framework, but I want to talk about each and then I think this will often be a good way forward for groups that are already doing some analytics and thinking about helping them to discover new and useful ways to use data, to look at the data, look at the results. So population analytics are tests that you do when you look over an entire data set and they give you insights that you would not be able to find from sampling. So for example, population analytics, you can tell number of transactions, beginning and ending start date, max, minimum, median, average, number of accounts posted to, number of users posted, number of unique descriptions.

So these are just trademarks sort of metadata about a data set that helps you begin to contextualize what's contained. So you sort of start with those to say, "Hey, do I have a complete data set? What's small in this data set? What's large?" When you look at a GL data set, you might have a single line item that's a million or 2 million or \$5 million. When you look at a payroll data set or a procurement card data set, large might be 5000 or 2000. So when you do these population analytics, it helps you get a context of the actual entire data set. And you can have bite size chunks that you can look at, whether that data set's 10,000 records or a million records.

Now, grouping analytics are somewhat obvious, but you are basically doing group by or summarizations of a particular trait. So I want to count the number of transactions posted by each user. I want to total the amount of transactions that went through this account in the year. I want to understand how many credit card transactions did we make this year at American Airlines? What we do is we group that data on attribute to get an account and a sum most often, but there's other calculations you can do, but you're breaking up a big data set into meaningful chunks.

Now, people analytics, this is as understanding who's responsible for entering the transaction, approving it and/or changing it. So this gets into the light of fraud risk. So we had a fraud scheme a while back where there was an employee who was funding the financial aid account of their significant other. And we identified it by looking at the count of transactions posted by a certain user to another. And it rose to the top, it was the most frequent. So this person was posting a frequent number of transactions to another. And when we investigated that a little further, we found that they had a relationship there. And there was nothing about the transaction itself in terms of the description, the accounts, the

amounts that would identify us other than the user that was posting it and the account that became interesting.

Trending analytics, trending analytics are using the element of time to help you identify a spike or a lull or a peak or a trough. So trending is vastly important. And that's really hard thing to do with traditional audit or internal audit means of sampling like, hey, what's normal for this account? So we are always looking at results by month, by quarter, even by day, but time is going to be really helpful.

And then lastly a big bucket here, transaction analytics. So this is specific attributes that are outside of our expectation or risky. So transaction analytics, round dollar, transactions that maybe occur outside working hours, transactions with a blank username or a blank description, transaction to a suspense account. These are elements, DNA of a transaction that we deem to be red flag. These are really important, but what we often find when people purchase data analytics solutions off the shelf, or they kick off doing data analytics in a particular area, they base most of their analytics on these transaction type analytics. They're looking for these traits or these elements that they know to be risky.

And that is a useful thing to do, but it's more useful to do those things when you do them in the context of population grouping, people and trending. So when we see a program or when we have a client that's looking at a data set, the general ledger, cash disbursements, payroll, financial aid, credit card, et cetera, et cetera, each of those data sets, we're looking to make sure that they're doing tests from each of these buckets to make sure that we're shaking that sandbox from every direction.

Troy Hollings:

That's great. And I think Ryan, probably also going back to that, start with the conceptual then move into the analytics, it probably makes sense to look at what are those functional areas that you want to build the analytics. So I bet you and Chris probably have some thoughts on this, maybe you want to kick it off and then Chris, feel free to jump in if you see anything interesting on these couple slides.

Ryan Merryman:

Mm-hmm. Sure, I'll start here. Again, there's common data areas to look at, data sets. Often these come from a different system, right? The GL, that's coming out of your ERP system, payroll might be coming out of your ERP or it might be coming out of ADP. Purchase cards, that might be coming from a system like Concur or American Express or MasterCard, what is the data source? What is the data set, what is it tracking? So you've got that transaction data set, and then within it, there are some risks that you can identify. So let's jump back to that last slide there. Troy.

So here are a couple of things we're going to show in the demo, specific risks that we might be able to identify. These are going to go to that kind of transaction level from that last, but hey, do we have any unauthorized industry codes? Do we have people making purchases at ballparks or retail stores? Who's doing that? Do we expect that when mostly we expect it to be hotels, airlines, rental cars, et cetera? Do we have duplicates where someone maybe submitted the same receipt more than once? Do we have evidence of gifts? That might be a Foreign Corrupt Practices Act thing. So we are identifying fraud risks that a particular data set might be able to show us, might that data set have evidence of these fraud schemes? And then we go and look for them.

Chris Suda:

Yeah, yeah. I think that's great, Ryan. Just to add on to that, clearly internal audit is looking at areas of fraud risk, but also at the top of their mind are areas of non-compliance. There's always that huge worry of something going on in student financial aid or grants and contracts that's going to rise to the top when the external auditors come in and find material non-compliance. There's lots of different areas of



compliance within a public university. And we're talking about I know as of recent, I mean, internal audits looking at NCAA, NIL rules, it's just such a broad spectrum and for you to be able to go in and actually cover all these project by project is impossible.

So with that being said, as it relates to fraud, I feel like I've seen it all by now, but again, I haven't, but I think Ryan's covered a lot of this. I mean, clearly Pcards, those are not material type frauds typically, but again we have unauthorized, unallowed expenditures. Bursar is always clearly an area where we're unauthorized changes in student refunds, now we have awards, there could be unauthorized changes there. Construction and maintenance, that's just always a common area where we're seeing kickbacks, bribes, unauthorized, overtime hours, provided for maintenance. I mentioned grants, misuse unallowed purchases. And we always have that concept of burning too. I mean, it's the non-compliance piece with grants where we're moving funds over to another grant for budgetary or period of performance reasons, and then payroll.

And I'm speaking to this just because whenever I walk into a public university, there's always a laundry list of frauds that are being investigated. I mean, hopefully not, but typically there are, and this is what I'm seeing. Payroll, we're always having the unauthorized changes in payroll system that pops up, time card theft, pay for time not worked, accounts payable. Clearly there's always that risk of unauthorized vendor file changes, changes in the ACH to the payee and then cash. I can't say enough. I mean, I can almost nine times out of 10 walk into a remote location or cash vault and there's a problem. I mean, cash faults, cash registers, remote locations are all susceptible to fraud. And then there's even that remote chance that some department has an unauthorized bank account off the books. I mean that's something that's almost impossible to catch, but again, I mean, there's high risk areas, athletics, admissions. And then just to throw out there we're all seeing and hearing about this clear uptick in external theft through cyber security.

So that's just kind of from an industry standpoint, kind of what I'm seeing from a fraud and non-compliance perspective.

Troy Hollings:

Yeah, no, that's great and that's good context, and I'd love to see if we can stump Chris again. So audience, I would love some responses here, so which of those areas, and we've whittled it down, I know we threw out a lot of different things, but which functional area is the biggest challenge at your university? You can read through them, we'll give it 15 seconds. Okay. I'm seeing zero responses, which makes me think... Oh, oh, oh, here we go. Coming in.

Chris Suda:

Yeah, I think it's taken a while to feed, but that is interesting. I mean, I expected the procurement cards, travel and entertainment, yeah, financial aid.

Troy Hollings:

So too procurement. Yep, procurement and travel expenses.

Chris Suda:

And I'll say financial aid is that one area where clearly the risk is non-compliance. I mean, there could be misappropriation of assets, but typically you're going to see non-compliance and that could take a lot of resources to build analytics, because that's a sophisticated area. I mean, just to start, you got to understand all the compliance requirements. So that's typically an area we would see groups asking for help in that area. So that's interesting.



Troy Hollings:

Yeah.

Ryan Merryman:

What are the biggest challenges, those areas, the travel and entertainment and procurement cards in those data sets is where you will find misappropriation, potentially corruption, right? Fraud, there's basically three general types of fraud, financial statement fraud, corruption, and misappropriation. And misappropriation is the most common. It obviously can be significant, it usually is smaller in terms of dollar value, but more frequent. That could be true also of when you look at procurement cards and travel and entertainment expenses, those data sets are often synonymous, but same type of risks there, accounts payable, GL, financial aid, those also, you could find misappropriation looking in those data sets. In GL you're also looking for the financial statement risks as well.

Troy Hollings:

Great. And thanks for all the responses, everyone. Scared at the beginning, but it all came through. So lot of good participation. So if I can transition, so I think if I'm sitting in your all's shoes there's that question of what does something like this even look like? You can go buy IDEA, go buy Power BI but we need some people to help set it up. Do we hire someone in-house? And so I know Ryan said, there's almost an infinite level of analytics, there's a lot of ways to solve this problem. So we want just to kind of give an example of how potentially we think about this. This isn't set in stone, more just designed to be kind of helpful thoughts. So Ryan, you want to maybe run through this in the next slide?

Ryan Merryman:

Yeah, when we help a client to set up a program, usually we kind of employ the crawl, walk, run metaphor. And what we're doing is we start with the areas that are in most need, maybe they're keeping the internal audit group up at night or they've had issues in the past, or they haven't really looked at it using analytics before. And what we'll do sometimes is we set up the data and analytics in that first year and we help them get through the first three phases of that methodology in regards to a particular area. So, hey, we'll do some whiteboarding and some brainstorming on, what are the risks? We bring our knowledge and experience to the table there, and then we'll help them assess their systems. And then we will help them to design their analytics and then we'll do some training.

And then in the first year we were doing a lot of the heavy lifting and then in years two and three, they take that on and we're either done and they're good to go, or we'll move on to another area in that second or third year. So in the first year, maybe we're looking at two or three areas. In the second year, they handle those two or three areas and we're helping them to stand up the next areas. And so at the end of the time period, then they're looking at most of the areas that they want to after a couple of years.

Troy Hollings:

Great, thanks, Ryan. And then getting a little bit more tactical on, okay, hypothetically, conceptually, that makes sense, what could some of these deliverables look like? And then we've got one polling question then we'll show an actual sample deliverable, but Ryan, you want to give any comments on just this really wide ranging just sample of a potential project?

Ryan Merryman:



Yeah, this is really an estimate and it's tough because everybody has different systems and a different risk profile. You look at financial aid at one institution versus another, we're going to be looking at it with a slightly different lens. So it's tough to give an estimate without having a more in depth discussion, but we wanted to just provide like, hey, what does it look like to get some help on one of these areas, if we don't have that skillset or we haven't done it before? And that's what we're providing here, this is really a ballpark estimate. It could be smaller or larger in terms of timeline and investment.

Troy Hollings:

And we'll make sure that you all have access to these slides. So last polling question, if you can stick with us and then we will have Ryan give kind of just a quick, interesting demo of this has been pretty conceptual, what might some of this look like? So polling question, have you explored using data analytics in your internal audit department? Just be curious about where everybody's at. So we'll give it 15 or 20 seconds. Oh, we got some early adopters. "Yes, I couldn't live without data analytics," that's 26%. Some folks who are dipping their toes in in early stages, that's good to see.

Chris Suda:

Yeah. And Troy, I think that's exactly what I see working with public universities, public research universities, that seems to be pretty consistent. It's just based on what your budget is, what you've been budgeted for resources and just kind of tying back to those couple of slides that Ryan just covered. I mean, I think this really speaks to internal audit. They need help, they need someone to come in and help supplement what they're doing. I mean, we're not coming in and taking over, but we're supplementing and providing solutions. And I think this is exactly what I was thinking.

Troy Hollings:

Yeah. And it seems like a lot of this is it's kind of that urgency versus importance. And so there's the day to day whirlwind, which is really important and really urgent, but then this is important, but easy to kind of not start. So it seems like there's a lot of folks who really couldn't live without it, some in early stages and then some that are still kind of trying to figure out what this might look like. So thanks for joining the webinar. Ryan, I think you were starting to say something?

Ryan Merryman:

Yeah, I think this is common to what we see in higher ed. I will say that it also is common in other industries within internal audit. We've got maybe 15 to 25% of clients that we run into are doing, they have some integration of data analytics, but the other three quarters really aren't, they're dabbling or they haven't really seen the benefits. So there's still a lot of room for improvement in higher ed and beyond.

Troy Hollings:

Great. So with that, Ryan is going to share just to sample demo de-identified data. Will definitely look different at your organization. But just wanted to, we talked about a lot of these, okay? This different type of analytics, but what could some of that look like? Okay, how do we find those outliers? What could some of that process be? So Ryan, you want to go ahead and pull that up?

Ryan Merryman:

Yep. Okay, so hopefully this will be interesting. The survey results said that PCard and travel and entertainment expenses were one of the biggest challenges. So that'll be good, that result is nice



because this is a Power BI data model around travel and entertainment expenses that were going through an organization's PCard. So like Troy said, this is random data. So the dollar values, dates, names are all random. So take some of the results with a bit of a grain of salt.

So here, this is an example of a population analytic here. We're looking at a high level, what's going on here on a monthly basis? We got an upward trend, maybe all of the data for July and August is not reported, down here we get a breakdown of spend by expense type. So we've got hotels, airfares. This is our largest expense. And then over here, our top 10 employees in expenditure over the period. So we're looking at about a year's worth of data here, but this is all in Power BI, everything's live. So if I want to see expenditure in the hotels, I can click on that and it's going to show we had 3.6 over the period. This is the trend with respect to hotels. So you got that high level population view, and then you could drill down. We have transaction counts here. So this is just a start to get a pulse on the overall data. Right now, I've got 406,000 this month, usually we hit to 3 million. So I know that all the data has not been input yet.

Next, we want to get a little bit more granular and take it to an employee level. So right here is a matrix view of expenditure by employee by month. Here, I can see in this tree map the expenditure by job title. Here, I've got 2300 employees, 10,000 different vendors, 154,000 transactions. This is a huge volume of travel and entertainment data, but I can begin to make some sense of it. So who are my biggest users? And then I can pop in to a particular month where I see transactions outside of my expectation and see what's going on. So by hovering this month, I can see, "Wow, we had a couple of six of \$600,00, 500,000 of booking a winter conference at the Marriott. Is that within this person's role?" And that's just a quick way to drill down.

Furthermore here I can choose someone. Let's just pick Tate here. I can drill through to Tate and look at a specific view for them. So, wow, they spent in the last year 300,000 on parking, are they buying parking passes for the whole organization? How could that be? Maybe we need to look into that a little further. Again, this is random data, so it's not maybe exactly sensical, but you get an idea of the depth and types of things that we're going to be looking for. This is an example of people analytics and trending analytics and grouping because we've got the expenses by type here as well.

Maybe I look at this and say, "Wow, we had a million dollars in personal car mileage. What's going on with that?" I can drill through and see personal car mileage. "Wow, okay, we have these users here are booking more than 14, 15,000 miles in a year and the expenditure here is five, six, \$8,000. All right, let's get these people a company car, and that might half this expense," maybe not. So those kinds of decisions can be made real quickly when you look at data in this organized way. Let me-

Troy Hollings:

I think where my head goes, Ryan, is I think that what you showed is great if let's say you know a specific person, you click on them, you get all the data or you know a specific category, but maybe talk a little bit about that interplay with that on one side, but then also looking and finding those outliers on the other side and just mindful. We do have a couple questions, so we'll make sure to allow enough time to answer to your all's questions.

Ryan Merryman:

Sure, let's show, so this is another page in the dashboard here, outliers. So here on the left, we have our expenses by type, hotels, airfare, going through suspense, personal car mileage, et cetera. And it's easy to pull statistics like the maximum single amount, the average, the median. We can click and see the top five users and the biggest transactions in there. So we're getting an idea of, hey, what are the traits? But this type of depiction is also quite useful. This shows us the typical spread of transactions, and this is the



dollar value on the X axis. So it's quite typical that banquet expenses are from zero to 25,000 here, that's very typical for this, but we've got these big outliers. And then down here, you can see what those are and who's responsible for them. So showing the group of transactions in a visual way is a really nice way to identify outliers and see how far are those things out from expectation? Yeah, thanks for bringing that up, Troy.

I'll show a couple more here real quick. Going towards that specific risk, how do we show duplicates in a meaningful way? Here's one such example. So here, this type of analysis gets a little wonky with randomized data, but here what we're showing is the vendor, the number of duplicate amounts, and then the number of transactions, and then the sum of the dollar value. So in here we had 440 line items that hit Google. And so if I click here, it's going to filter and say, "Okay, we had 407 \$500 amounts, 22 \$1,000 amounts and then over here is the detail and here are the roles responsible for those." So I could say, "Wow, 407 \$500 transactions." So if I click on that, it's going to filter for me, might take a moment here. Here are my \$500 transactions. Okay, so what are these? Are these right below a threshold, do these make sense? Are these monthly? Are these approved? Should these be going through the credit card or maybe through something else?

So that's a decent way to look for a specific risk. In this sort of presentation, where you've got vendor and amount, visual and chart, this works really well for duplicates and then also other outliers like round dollar. So here you can see round dollar, we did anything round with respect to 1000 and we can identify are there specific trends here that we need to look into? So we've got \$22,000 with Google, 11, 2000, 5 \$20,000 transactions at Marriott, does this make sense to us? And then we can follow up.

Troy Hollings:

Just a quick, one of the core things underpinning all of this that ties into these questions as well is how do you get data out of legacy systems, Sean Malone asks Banner but Colleague, Jenzabar any other system, how do you think about getting that data into something like you just showed? Is that a really laborious process, easy, in the middle? How do you think about that?

Ryan Merryman:

Generally it's not, sometimes it is a challenge. If the system is a cloud based system, there's almost certainly a quick, and I won't say easy, but an efficient method of connecting to data. If it's an on-prem system, there's also usually a way. But we're looking at what we're trying to identify us a repeatable way, because something that we haven't talked a lot yet in this session is, hey, we might want to do this once, right? To do it at the end of the year, but better yet, let's do it every month. Every week, every day, we can have these dashboards updating and maybe someone checks in on them once a week or once every two weeks and the data is refreshed. So we're looking for that. The specifics of a particular ERP we could explore that more, but usually there is a way to set up a repeatable extract for the data elements that we're looking for. And we're going to set it up so that you're not kicking out to a CSV every time, we're wanting to do it something that's more repeatable if possible.

Troy Hollings:

Great. No good answer. We're just making sure we answer these.

Chris Suda:

Troy, just to add-

Troy Hollings:



Yeah, go ahead.

Chris Suda:

Yeah, just to add to that a little bit, I mean, Banner Ellucian, I mean, that's one of the most common, widely used systems in higher education. And from an external audit standpoint, I mean, we extract the data from that type of system specifically all the time. And it's really just working with IT to develop the proper scripts to pull that data. It's not uncommon in all the internal audit groups that I work with that use Banner. I mean, they're pulling the data to do various data analytics, so it's definitely doable.

Troy Hollings:

Great, appreciate it. Really good question from Paul so he's from a private university, do you find significant differences between public and private when it comes to data and analytics? So either of you have any thoughts or comments on that?

Chris Suda:

I mean, I can kind of jump in and then Ryan can. But I guess from my perspective clearly the chart of accounts are different private to public. One's reporting in government standards, the other FASBY world, but at the end of the day, I mean, they still have the same non-compliance and fraud type risk. So I guess that would be my thought. I mean, my other thought is a lot of the medium to smaller size private universities that we work with, they don't have internal audit departments, they don't even have the resources at all. So I'll just throw that out there.

Ryan Merryman:

And I would say that it's not usually the biggest distinction when we're speaking with a university in terms of doing data analytics whether they're public or private, it's more their internal control environment and their risk and their pain points. Those vary a lot, even from university to university that you would think would be very common, the risk profile is different. And that's the main determiner of what data and analytics make the most sense. Usually we're trying to identify where is the most risk, and we start with that, or where are they having the most challenges and we start with that. And that's more of a key driver than the size or the nature of the university with respect to public or private.

Troy Hollings:

Great. Thanks, Ryan. Let's get this last one. So good question from Ron, what would be considered best practice for how often internal control business cycles are reviewed and revised? They've been using the same 11 business cycles for a number of years for the statewide control system. So I'll open that up to either of you, if you've got thoughts on that.

Ryan Merryman:

Maybe I'll take this one first, Chris. So one of the benefits of using a data analytic methodology is that you can change things up really easily from year to year. So we really like to see analytics updated year to year based on what was effective in the prior year. And when you use the methodology and you set up that connection where you've got the data wrangling and the queries designed in year one, well, really, you're just changing the visualizations and a few calculations in year two, and that's much easier. So we kind of have a game plan on, Hey, what, what worked in year one? How can we refine it, build on it in year two so we're changing things up a little bit in terms of what tests we actually provide?



Chris Suda:

Yeah. I think that's a really good answer, Ryan. I wouldn't have anything to add.

Troy Hollings:

Great. Seconded, I agree.

Ryan Merryman:

Yeah. And then just a closing comment on that there's often sort of a misconception in internal audit of, "Hey, let's look at something once per year," and we hear that in from a lot of clients like, "Hey, in our program, we're going to sample this year, we're not looking at financial aid this year because we looked at it last year but this year we're doing the GL," something like that. With data and analytics, you can look at everything every year and you just do it on a risk-based approach based on your bandwidth. And I think that's a big change in terms of ethos. If you set something up to recur and refresh every night or every week, why not look at it every year? And I think that's a big difference.

Troy Hollings:

No, that's great. And I think that is a great tie into the first survey question of people are short staffed so you kind of have to use that technology leverage. And if you already have that set up, you can look at everything. So really appreciate the time everyone. We didn't really lose anybody basically so thanks for everybody being engaged, putting in those responses, answering questions. I think according to our marketing department, there'll be a popup. If you want to talk further, if you want to talk to Ryan or me or Chris on some of this, even just to compare notes, I think we'd be be happy to, and again, thank you very much for attending.

Ryan Merryman:

Thank you all. Appreciate it.

Chris Suda:

Thanks everyone.

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