

Intro: Hello and welcome to the CPA Australia Podcast, your weekly source of business, leadership, and public practise accounting information.

Nisha Iyer: Welcome to the CPA Congress 2018 podcast series. My name is Nisha Iyer, and I'm one of the conference producers of CPA Congress. I would like to welcome our guest today, Ian Bennett, partner at PWC who would discuss new financial modelling technologies and how they create opportunities. Let's start off with the big question, is Excel dead?

Ian Bennett: Well, so that's a good question, and based on some of the technologies that we've seen arriving more recently and the number of articles that are being written on this topic, you could start to believe that the future of Excel is in doubt, but the reality is that Excel is being used all over the world. There are billions of spreadsheets being used in the world today, and Excel has a place in most organisations for a very long time to come. Yeah.

Nisha Iyer: So, Ian, what are the benefits of the new financial modelling technologies?

Ian Bennett: I think to understand the benefits of those technologies, you need to understand what Excel does for us today and then how Excel might ... how these new technologies might get us to think slightly differently around Excel and how we use it today, so just thinking about how we use Excel today. Excel runs pretty much every finance function in the world, and there's barely a single finance function where it isn't utterly and completely reliant on Excel.

In fact, when you think about it, if I were to ask you to imagine that you came into work on Monday morning and you had an email from the IT department saying that they failed to complete their negotiations with Microsoft and Microsoft Excel was no longer available on your laptop, I think try to imagine what you would do on that day. It tells you how reliant we are in Excel, and you would cry.

In fact, at some of these presentations I've done recently, people have offered that as their first response to that situation. Others would just go home. Some would work out that they could probably open their Excel files in other software, so the likes of Google Sheets and other tools that are out there will actually open an Excel file, but we can't interact with it. We can't use it. We can't manipulate it, so we're utterly reliant on that software and we're utterly reliant on the way that it has become part of the infrastructure of all our finance functions. No matter how many systems we use, how many times we've implemented Team One or Hyperion, or these other newer count-based tools, the reality is that Excel is still used.

It's frequently referred to as the last mile of any process. Last mile is done in Excel, but I think in many organisations, it's much, much broader than that, and in fact, the answer to the question, "What do you use for all of your budgeting and forecasting? What systems do you use?" The answer is frequently just that

Excel is used for that, so I think that tells us that we're actually reliant on Excel, that it dominates that world, and that we're all very familiar with it, and it has many, many benefits.

I'm a professional financial modeller. I've made my career out of Excel. I've made my career out of building models in Excel and reviewing models in Excel. I've built hundreds of models over the years, and I can confidently say that I love Excel. I love its idiosyncrasies. I love its strengths. I love its weaknesses. I guess I equally hate it at times as well, but I absolutely made a career out of knowing it and using it, et cetera, so I'm in no hurry to remove Excel or replace it, but I am starting to acknowledge and understand its weaknesses.

But nonetheless, the benefits around Excel, the dynamic nature of the flexibility, and the fact that you can use it for just about anything, the fact that everybody has it on every single laptop in the world or business laptop in the world, the fact that everybody can audit the calculations and understand what the calculations are doing, there are huge benefits attached to that.

I think when you introduce some of these new technologies and to do tasks which we've traditionally used for Excel, so let's call it financial modelling, budgeting, forecasting, sum reporting, businesses cases, strategic modelling, projects, investment cases. All those sorts of tools and models, they can be done in other technologies as well, and if you start to use those technologies, there are some obvious benefits attached to each of them, and those are more functional things, and I'll talk about those in a second, but the real benefit of using these new technologies is that they make you think differently.

The way that they go about solving problems, the way that you leverage them to solve problems means that you solve the problems better. You solve them in a better way. You get better outcomes, and so to flip that around, I'm confident when I say that Excel constrains the way that we think. It constrains the way that we solve problems. We've all grown up with it and we're so familiar with it that we have allowed it to change the way we think about problems, and so we know this to be true because I have conversation with people where they talk to me about the way, the perfect way that they would build up a forecasting model or budgeting model.

Hidden in that sentence, that description is we thought about doing it this way, which is really good, but that would make the model too big, or that will make it really difficult to change the model in the future, or with that much data, it'd be really hard to keep across all the data, and understand and control all the data. What they're basically saying there is that my perfect way of running my business, it's compromised because of the inherent limitations that I understand in Excel, and I've come to accept. That can't be right. That can't be right that we run our business. We make business decisions about how we're going to run it based on those subcoma, subconscious limitations in Excel.

It's a very long answer to your question, by the way, but where we're moving to is a place where if I don't have those limitations, if I can ... Even if I don't choose which software I'm going to use, but I free myself with some of those limitations, I solve the problem better. I do do the forecast or the budgeting model in a way that best suits my business, but also, I find new problems to solve, which I just didn't think were possible before because I assumed that Excel ... or I assumed they weren't possible because of those limitations of Excel. I think where we're moving to is a place where I can solve problems better and I will think differently if I free myself from those constraints, and maybe we can talk a little bit later about some of those actual benefits to some of those tools that we're finding in the marketplace.

Nisha Iyer: Following on from that, what sorts of limitations does Excel place on us?

Ian Bennett: Yes, so the specific limitations that Excel places on us are around size, and calculation functionality and speed, and the way that it imports data and exports data, and the way that we share it. Those are probably the main limitations. I'll talk a little bit about those. In terms of size, so I frequently hear people say, "Well, we'd like to be able to do it by business unit, but we've got 50 business units, and that would make the model too big."

That's because, of course, once you've got 50 different worksheets, one for each business unit and you built up the model that way, it can become quite large in size, and people are scared by literally the size of the file. It can have lots of worksheets, making it very difficult to navigate around, making it quite difficult to get a sense of what's in there, and that makes people nervous and makes people worried, and also, try to make changes to a model that large can be incredibly time-consuming because depending on how you built it, you might have to make change to 50 different business units every time you want to change something.

It might take a long time to open if it's that large, and that bothers people as well. There's an implication associated with that that it must be a bad model or too large, et cetera. All these things, most of them, subconscious because Excel actually functions really well. When you have big models these days, all of those things limit how people think and in what they do with Excel because of those size sort of issues.

In terms of numbers of rows, it's got over a million now, so we mostly wouldn't run out, but obviously, if you've got huge datasets, then it's going to struggle, and there is a bias, a very strong bias against models, which have 500,000 rows and two calculations. The model is 25 megabytes when you email it to somebody, and that scares people. Even though calculation is trivial, people are scared by the size, so one of the major limitations is the size issue.

Another one I mentioned is the calculation speed, so if you fill a model with complex calculations, particularly if you use volatile functions like offset, and indirect, and other calculations that are similarly memory-intensive, but it can

take a long time to calculate, that might not seem like a lot when it's just a second or two seconds. I guess at five seconds, that starts to be a bit of a problem because you have to wait for it every time to calculate, and five seconds is a long time to wait each time you want to check that it calculated something.

But if you're building something where you have to run it lots of times like sometimes, we build little calculation engines, and then you ... like some of the lease accounting models we've built, you end up building them for one lease, and then you write a macro that throws a thousand leases through, one after the other. If it calculates over five seconds each time over a thousand leases, that's 5,000 seconds. That seems like a lot of minutes, so I can't work it out off the top of my head, but clearly, you wouldn't want to sit there necessarily waiting for that to calculate, so that calculation time is an issue for people.

The other major limitation with Excel is about all the inputs, the calculations on there were in the same place. Once you've got the inputs into the model, that's essentially their home, and that is crazy because you're trying to create one source of the truth, one version of the data, and that's fine when it's just you with your one Excel model and it's all together, but the second you email that model to five people, there are now six versions of that model, but there will be more, and more, and more. Every time you save a new version, there's a new version of that data because all the data is held inside the model, so you're replicating every time you replicate the calculations.

When you think about it that way, that's really odd that you have a software that does that, but that's how Excel works. It's stand-alone. The data moves with it, so it's really hard to share that with people. It's really hard to control the data, and so that's one of the limitations as well.

I guess finally, the ... Another obvious limitation is the fact that only one person can work on it at the same time. I'll run an Excel file. I'd do some modelling on it. I now need someone else to do some modelling. I have to either save it down on a shared drive so they can open it, or I have to email it to them, and they make some changes and send it back. We got really used to that, and so financial auditors in the world are really, really good at checking all of the controls and processes that sit around those kind of needs, those sort of processes where you pass a version of a file to someone who passed it to someone else, et cetera, but it's bizarre in my mind that we allow that to happen. When you think about it, we have these ... We allow one person to work on it at a time. We pass it from person to person.

I'll just for a moment move to some of the other solutions that are out there. The most obvious tool where you don't have that issue are those that are in the cloud where once you move these models to the cloud, they're accessible as one source of the truth, so your data is one place, your calculations are in one place, and many people as you like can log on to start making changes. Obviously, there are risks with that too, but putting that aside for a second,

assuming you could control that, the benefit of not having to make a change and then pass it to someone else is absolutely enormous. You can have two people building two different parts of the mode all at the same time.

Nisha Iyer: Absolutely, Ian. So, what is Citizen Technology?

Ian Bennett: Yeah, so if we're going to talk about new technologies in financial modelling, and spreadsheets, and things like that, and it's hard to understand what some of those are and what the potential of them is, it's worth just thinking about where that's going to take place and who is in control of it now.

Citizen tech is a technology that's been around for a relatively short period of time to describe the stuff that is outside of IT that is built and developed by the finance function, by the HR function, by the strategy team, and then installed over organisations, building tools to solve problems. I've been doing it for years, of course. I've been doing it almost exclusively in Excel and maybe a little bit of Access databases. Remember those? Many of the banks here still run on Access databases, but there aren't very many being made anymore.

Then, maybe we do a bit of SQL, a bit of R because people were coming out of university with those skills. Then, Microsoft introduced Power Query, Power Pivot, Power BI into the Excel Suite, so now that's on everybody's laptops, and we don't have to pay any extra for Power Query and Power Pivot, so they're included in that list as well. It used to be the domain of Excel, but now, a number of technologies fall into that category and a number of other cloud-based technologies, which maybe I'll come on to later. This is Citizen Tech. This is the technology and the tools, the analysis, the analytics that's being created by the people, by the people.

The other technology that describes Citizen Tech is Shadow IT. Shadow IT is a technology, which I think was created by IT departments to basically cast doubt and fear over Citizen Tech. "Citizen Tech" was a phrase created to replace Shadow IT, but when IT departments realised that the business was taking over what tools used, was demanding new tools that the IT department couldn't keep up with, they created this phrase "Shadow IT" to make everybody scared about this stuff that sits out of IT in this dark world. The [fairest 00:15:33] software which we shouldn't [rely on 00:15:35].

I think generally speaking, the recommendations and the advice that Gartner is providing to IT departments these days is embrace the Citizen Tech. Be there to support the decision-making. Do the security testing that's required if it's cloud-based, and support the implementation of these tools, and so there's a transition going on. In fact, Gartner said in 2017 that 38% of all technology purchases would be managed to find and control by business leaders.

Over a third of all technology buying would be controlled by the business outside of IT, not controlled by IT, and the IDC, the International Data

Corporation reckons that by 2020, there will be more than half, so more than half of all IT is not really IT anymore. Technology spend is going to be controlled entirely by the business. Some of that already happened because we used to buy add-ins for Excel. We used to go buy @RISK, which finance functions might do, evaluation teams might do, and buy other add-ins that they needed, and these were pretty small bits of software.

Then, they might buy a Power BI licence to go on top of their Excel. Maybe somebody needed Tableau. Someone realised the benefit of Alteryx, so little discrete, little licences being bought. Maybe they needed SQRL. Maybe someone came out of university into the team who had used Python before, and everybody's eyes were opened to the power of that, so you've got all these new tools coming in, and the IT department or the finance department was taking the opportunity to buy them and bring them into the organisation.

That was the start of the Shadow IT conversation, but I think going to Gartner and the IDC, I think that battle is now being won. The technology spend will move into the business and IT will support the implementation of that type of IT just to make the big distinction. No longer can you claim that Hyperion, or SAP, or one of these other like big tools, which are absolutely amazing ERPs will eventually spread through the business and meet all of the analysis and analytical needs, which the business has.

You have to acknowledge the fact they will only go a certain way. They probably can't move fast enough to keep up with all the [dance 00:17:55] of the business these days, so the business will deploy its own technology and its own tools to solve those problems on a daily basis, and IT will need to switch to a position of support in order and to be able to support that.

Now, from a business perspective, this is amazing. This opens up the potential for what we can use on a daily basis. We don't have to wait six months for a software to be tested by the market, then by our IT departments. Then, we have to commission it, and then we can start to use it. If we can download it tomorrow, if we can get a licence to a cloud-based tool, we can start using it tomorrow. We can teach our analysts how to use it in a couple of hours and away they go, so this is how the world is going to transition. That's how businesses are going to solve problems in the future.

Nisha Iyer: Final question for you, Ian. How will we do financial modelling in the future?

Ian Bennett: If we start to think about how these new technologies, which we have at our fingertips and our business these days, it will change the way we solve problems. Not just purely by their functionality. That is to say that a cloud-based tool allows multiple people to access it all at once. I think that's obvious, the benefits to those sorts of things are obvious, but also because like I said before that we're going to solve problems differently. We're going to look for new problems to solve.

If we implement platforms where finance is in control of a single source of data, which they originally did just to do one model, but now realised that once that data is in that platform, they can do multiple models on the same platform rather than having to repurpose one financial model to be from the investment stage to the financial close stage through to the construction phase and through the operational phase constantly repurposing, remoulding, reshaping that one financial model, which is very, very painful and very, very risky.

Instead, you can just create that platform and then just dial up new models of that platform to do each of those different stages. You don't lose anything by doing that. I think if you see some of those benefits coming through and solving problems differently, then I think people will embrace this technology faster and faster. So then, we look to the future and say, "Well, how will we do budgeting, forecasting, financial modelling in the future?"

Well, there's a number of different options. One option is that we carry on using Excel. It's a pretty good option. We're going to be using it a lot going forward when ... As an aside, I was writing spreadsheet risk policies 15 years ago, maybe 10 to 15 years ago. When we were writing those policies for the big financial institutions, we had half of mind that said that within four to five years, all spreadsheets will be systemized anyway so it didn't really matter, so these spreadsheet risk policies were really only short-term because the big systems of the day were going to take over all spreadsheets, and so there would be ... This concept of the systematisation of spreadsheets was a very popular conversation.

That obviously didn't happen. In fact, the exact opposite happened. Spreadsheets have grown exponentially, replaced now by Citizen Tech, which will continue to grow exponentially, but nonetheless, Excel will be an important part of that. It will continue to be a really critical tool in businesses. The natural extensions from that are Power Query, Power Pivot, and Power BI.

Can you do financial modelling in those? Yeah, you can. You will do components of the financial modelling in those, so the clunky parts of financial modelling, the bringing the data in, the manipulating the data, the having to decide whether you do product first, or region first, or region first and product first.

Power Query can do all those decisions for you really neatly, and you can focus in Excel on the calculations, the commercial-based calculations. You don't need to spend much time on the subtitles either, or the graphs, or the analysis that comes out of it because Power BI will do that beautifully for you as well, but the actual commercial financial modelling Excel will do that really well and continue to do that really, really well.

Now, will it be the Excel we know today, or will Excel online have gradually caught up into a place where we're reliant on the cloud wholly? That is to say that all the data and all the calculations live in the cloud and/or the calculation

engine sits in the cloud so you don't rely on your laptop, you iPad to do any of the calculations. It's all being done in the cloud, on the service.

I can see that being a really important part of the future. Microsoft are moving direction, so I might say they're not moving fast enough in that direction, but they have a big collection of spreadsheets today, which people are using, which they will need to transition away from very gradually. Of course, because they're moving slowly, other people have come in and taken that space as their own.

Google Sheets is a perfect example. That is an entirely cloud-based modelling tool where all the calculations are done in the cloud. All the data are stored in the cloud. We use it in our team a lot, but we don't do financial modelling in it, and I think it's going to be a while before we do, but some of the reasons for that are immediately obvious.

One of the main reasons is that the keyboard shortcuts in Google Sheets are awful, and that's because you have to use Chrome or some other browser, and so the keyboard shortcuts are mostly attached to the browser, but if we could just for a moment imagine that you could install Google Sheets on to your laptop and really all that walls because of window, a window frame into a browser, but the ... and the only thing that window frame does is controls your keyboard shortcuts.

If you can imagine that on your desktop and what you've got is all the power of a cloud, all the power of the calculations, Google Sheets essentially uses all the Excel calculations. Anyway, not all of them. Some better, some worse. It doesn't have all the functionality, but it's moving in that direction. What it does have now is the keyboard shortcuts.

I think a lot more people will be using Google Sheets, and I think they will be sharing models with their team with Google Sheets and with their bosses, and maybe gradually externally as well as we get the security right for the cloud, and we'll be using Google Sheets to send models to third-party investors, to other people like banks, et cetera who need to see your business models. Then, you've got one source of the truth. You could control their access and no longer do you need to email files to people, so maybe that's the future or maybe Excel will do that, Excel Online will do that. There are two obvious options around the future of Excel.

Now, a major cohort for what we're going to do, financial model, in the future is some of the cloud-based corporate performance management CPM or EPM tools. That space is previously dominated by big software like Hyperion and Team One, et cetera, but if you look at the Gartner Quadrant, you can see that they're severely under threat and impression by the cloud-based tools, which are coming through.

The main ones in that space: Anaplan, Adaptive Insights, Host Analytics, Jedox, [Digesic 00:25:05], and BOARD, and there's others. There are others, but those are the main ones. Now, those are relatively new pieces of software. Most of them ... of that list are entirely cloud-based. They use calculations just like Excel. Very, very similar, not identical calculations, but they're all based off big multi-dimensional databases, which sit in the background, so that takes care of your data in a beautiful, clean, well-managed way just like what you'd expect from a database, and that's where your data lives, and then you put your own modelling on the top of that.

Now, those tools are really designed for the finance function. They're sold to finance functions. They're not sold to IT, and that's a really important distinction and very much is part of that transition to Citizen Tech. I would say these fall into that category of Citizen Tech because they can be purchased as a software, as a service by the CFO and by the financial controller, implemented by those people. They train their analysts to use them. Entirely self-supportive. The only reason you need an IT is if you need to do a data connection to some of your existing data systems.

That's part of the Citizen Tech world, but these are big tools. They are big tools that come with licencing costs and all those sorts of things, and some very, very large organisations are using them to do their monthly budgeting, their annual budgeting, their monthly forecasting, et cetera. But if you think of them as just Excel in the cloud, it's a blank page, you open up that blank page, and you start modelling in it using the benefits of that software, then that has a really interesting appeal for a financial modeller.

There's a couple of obvious benefits. There's many obvious benefits. It comes with the one source of truth because it's on the cloud and the logins are controlled, so you can control who sees what, and who edits what, and who can access what, et cetera, but the real main ones are around the way that the data and the calculations are structured.

Firstly, multi-dimensional databases means that you don't have to decide what your structures are going to be and you're modelling advanced. You can build up all the data and then overlay the calculations on top of that, so for example, if you're going to do 50 business units, and then you might need to roll up to region or you might need to roll up ... and then up to global or maybe you roll up by product and then roll up to region, or roll up by product and then up to global, in the Excel model, you have to make those decisions in advance, and you can't really change it once you've decided.

In these tools, you don't really what order you're going to do it in. You can change it dynamically later. All the data is controlled in a nice beautiful database. It's well-structured and well-protected. The other benefit of that is that if you change the number of components, it's really easy to do. We've all got financial models in our organisations where with a bit of foresight, we realise that we've got five revenue categories at the moment, but maybe there's

two more coming down the track, and maybe we'll do an acquisition that's going to bring in a third, so now we need eight. Definitely, but we all know how hard it is to add new categories to a financial model. It's very, very difficult, very, very painful.

If you need to do it, then ... Many people end up rebuilding their financial models rather than having to go through every component of the model and add those in. They'll wait, and so the model itself is just essentially redundant for many reasons, and then use that as the opportunity to rebuild it. With these tools, they should tell it how many revenue lines there are going to be and you don't have to build in spares.

Most financial models would have [inaudible 00:28:51]. There could be eight different revenue categories, and they'll have five spares, and those five spares has lived there forever. They're either never used or they're not enough. That's never really the golden rule, but you have to build in spares, and we've all got financial models. In our organisations today, we have spares, and nobody can remember why they're there, but you send the insurance policy in case you need to add it in later.

In the cloud-based tools, because of the way that the data is structured, you tell it ... There's going to be more than one, but I can't tell you how many. Is it going to be five? Is it going to be 50? Is it going to be a thousand? It doesn't care when it goes to do the calculations, you tell it at that point how many there are, and it expands and contracts accordingly, so not only does that give you optionality when you're building the model, which is incredible really. Not only you do not have to build in the overhead of spares, but it grows with your business. As your business evolve, the models evolve in a beautiful way. That means that you don't have to constantly repurpose the Excel model.

If I reflect on what we've been talking about then over the last few minutes, I think what we're saying is that Excel is an amazing tool. I love it. We all love it. It runs the finance functions of the world, and in many circumstances, it will continue to be fit for purpose in that regard, and we shouldn't be scared of that. We should embrace it, but at the same time, we need to be aware of new technologies for two main reasons.

The first one is they bring significant benefits. The sheer functionality of those tools that are described bring benefits which are better than Excel, but also, and this is important, is that they ... By freeing ourselves from the constraints of Excel, those limitations that we didn't even know were impacting the way that we solve problems, we solve problems differently, and we solve them better, so my recommendation to anybody listening to this podcast is to understand a little bit about some of these technologies, a little bit more than I've covered, so that you familiarise yourselves with the potential., but don't replace what you do today in that new technology.

Think about the problems you are trying to solve, and try and think about how you might deploy that technology to solve those problems in a better way. Don't just replace your Excel models. Don't just try and upgrade yourself and your finance function. Solve problems better, and then decide after that what technology you're going to use by virtue of the solution you conclude upon, and I think if we do that, we will solve problems better, we'll have better design solutions, and we'll be then embracing those technologies as we move forward into the future.

Nisha Iyer: Thank you, Ian. It has been extremely interesting discussing the future of financial modelling, and I'm sure our listeners have got a lot out of this podcast.

Outro: Thank you for listening to the CPA Australia Podcast. To download the transcript and to access the show notes for this episode, please visit www.cpaaustralia.com.au/podcast/102.