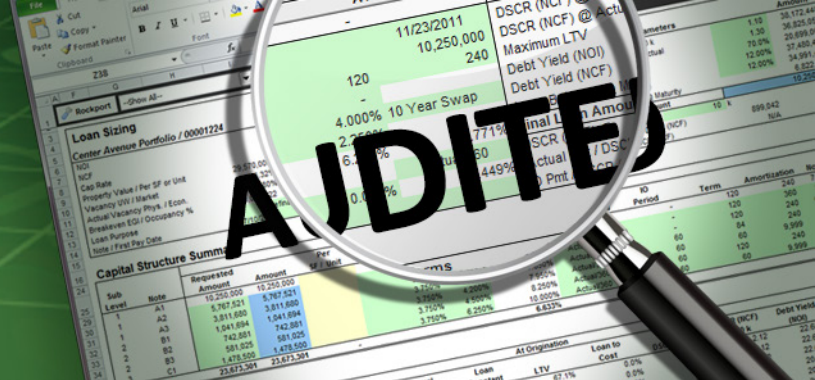


SumProduct

NEWSLETTER #33 - August 2015

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Have you 'ad it with audit?

This month we look at when you may need to have a model audited – and why. The cynics amongst you might feel that we'll be a little one-eyed as modelling consultants, but we do try to provide objective insight. Honest!

We also detail the newly-released Microsoft Office for Mac 2016, the free Windows 10 free upgrade and even have time to answer a record **three** reader's questions this month – although some of you may argue we are advertising under false pretences there...

Until next month.

Liam Bastick, Managing Director, SumProduct



Microsoft Office for Mac 2016 Released

Office for Windows and Mac are now closer to alignment given that Microsoft has finally launched Office for Mac 2016.



Four months after releasing the Office for Mac 2016 Preview, the final version was launched on 9 July 2015 for Office 365 subscribers only (at this point). The updated Office suite provides a number of new features, with a huge focus on co-authoring and, more importantly, a unified experience across multiple platforms, meaning a less clunky transition for those using both Windows and Mac platforms.

Microsoft has also said that it has made many tweaks to the final version of Office for Mac 2016 based on thousands of pieces of feedback provided during its public trial programme. The software giant has stated that Office for Mac is cloud-connected, so documents may be accessed from various devices from the point last saved. New, built-in document sharing tools will make it easy to invite colleagues to work on a document together, although we wait to see this working in practice recalling the dark days of Excel file sharing.

For the cynics amongst you that might wish to suck it first to see users still have until Sunday 9 August to download and use the Preview versions of Office for Mac 2016.

Office for Mac is exclusively available for subscribers to Microsoft's Office 365 service in every supported country, apart from Turkey (not Australia for once!). However with this being said, Microsoft representatives have said that a standalone version of Office for Mac 2016 should be available as a digital download or boxed product later by September – around two months after it becomes available for Office 265 subscribers.

According to Microsoft, all you need to run Office for Mac 2016 is OS X Yosemite, which will automatically rule out any older Macs that don't support the recent operating systems. The following Macs should be able to run Yosemite:

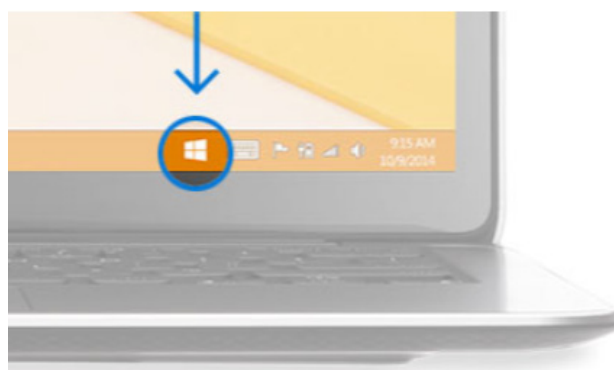
- iMac (Mid-2007 or newer) MacBook (Late 2008 Aluminum, or Early 2009 or newer)
- MacBook Air (Late 2008 or newer)
- MacBook Pro (Mid/Late 2007 or newer)
- Mac Mini (Early 2009 or newer)
- Mac Pro (Early 2008 or newer)
- Xserve (Early 2009).

Windows 10 Upgrade



Microsoft is making Windows 10 available as free upgrade for qualified Windows 7, Windows 8.1 and Windows Phone 8.1 devices. Upgrades started on Wednesday 29 July. You may have upgraded already. If you want to upgrade and haven't already done so, you'd better be quick: you only have a year left to reserve your free upgrade...

To upgrade, simply click on the 'Get Windows 10 App' in the status bar:



The only requirements are that the device is compatible, and that the device is running genuine Windows 7 Service Pack 1 (SP1) or Windows 8.1 (Update). It is designed to run on Windows 7 and Windows 8.1 PCs.

Microsoft is planning to roll out the Windows 10 Upgrade "...in an organised way...". So do remember to take a ticket and stand in line, head straight shoulders back. For those who have reserved the upgrade, it should download shortly (if it hasn't already) and then it may be installed when convenient.

For newer machines, the installation should take approximately 20 minutes, but Microsoft does advise users to allow about one hour for the installation to complete. Some Windows 10 features will require advanced hardware and not all features and services are neither

available on every device nor in every market. For instance, Cortana is not available in all markets.

Whilst it is free, there is a potential catch for some users. Windows Media Center is not part of Windows 10 and won't be available after upgrading to Windows 10. If you use Windows Media Center, you will receive an alert you during upgrade that Windows Media Center is not available on Windows 10. However, Microsoft has assured Windows 10 users that there will be a free DVD playback app in Windows 10 for Windows Media Center users.

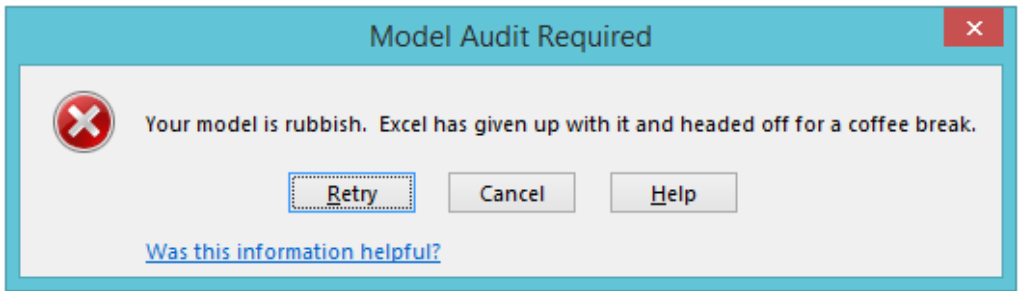
Some are confused which version of Windows 10 they will receive. The following table provides a high level summary:

From Edition	To Edition
Windows 7 Starter	Windows 10 Home
Windows 7 Home Basic	Windows 10 Home
Windows 7 Home Premium	Windows 10 Home
Windows 7 Professional	Windows 10 Pro
Windows 7 Ultimate	Windows 10 Pro
Windows Phone 8.1	Windows 10 Mobile
Windows 8.1	Windows 10 Home
Windows 8.1 Pro	Windows 10 Pro
Windows 8.1 Pro For Students	Windows 10 Pro

It should also be noted for business customers / readers, that Enterprise customers with active Software Assurance subscription in volume licensing have the benefit to upgrade to Windows 10 enterprise offerings outside of the public upgrade offer.

'Ad It With Audit..?

A common query from our clients is, “when and why does a model need to be audited?”.



Essentially, the question is, why do models or spreadsheets need to be reviewed in the first place? The simple answer is that we are all human; we make mistakes. Even the most experienced modeller will eventually make errors accidentally: linking cells incorrectly, forgetting to anchor a cell reference, duplicating inputs, making mistakes that can be attributed to fatigue and even duplicating inputs...

Auditing expert Professor Raymond Panko (professor of IT management at the University of Hawaii and recognised world authority on spreadsheet errors) determined that 5% of the time all modellers make errors. As we get more experienced, we are expected to take more complex work in shorter time and it means our error rates remain constant.

Another issue arises because of how easy Excel is to use. You might be thinking: if it is so easy, why would that result in more mistakes?

The answer is that so many people use Excel to build complex spreadsheets, precisely because it is so easy. Spreadsheets forgive poor layouts, complex formulae, prevalent hard code and ultra-complex technobabble. Since you are reading this, you are probably in the minority who have been formally trained to build better spreadsheets (if you haven't been trained, on a completely unrelated shameless marketing plug, do you know we run training courses?), but not everyone has been so lucky.

Just in case you are looking for more reasons, consider the time pressures that spreadsheets are built under, combined with tight budgets, transaction deadlines and pressure to submit to scope creep. Under the pump, we are all more likely to make mistakes as we take short-cuts and forget to finish our

So hopefully we can all acknowledge that models need to be checked. There are several types of checking:

- **Self-reviews:** not necessarily undertaken by the model developer (it could be a colleague), these are often high-level “sense checks” by someone who is swayed by the same logic (e.g. they may work in the same team, for the same company, etc.). These sorts of reviews are better than nothing, but experience has demonstrated these informal checks will only pick up some types of mistake;
- **Agreed Upon Procedures:** undertaken by independent third parties, these are procedures stipulated by the end user or model client (e.g. ensure all inputs are used in the model, confirm outputs refer to the calculations spreadsheet). The checks are specific and by definition, must be objective. Typical outputs are the findings of the procedures undertaken with no assurance provided whatsoever;
- **Audits:** also undertaken by independent third parties, these types of review analyse models from both a detailed and a high-level perspective. Sufficient checking (determined by the expert, not the client) is undertaken so that an opinion may be provided on the integrity and veracity of the model, be it under one scenario (“base case”) or for multiple defined scenarios / sensitivities. These can be limited in scope (e.g. only review the US subsidiary, rows 220 – 250, next 12 months’ projections) or be required for all that is reported by the model.

Audits are frequently required by banks to secure financing, by courts in financial lawsuits and by various securities / accounting institutes to comply with corporate governance (e.g. Sarbanes Oxley). When opining, there are a couple of different types of things we can say about a model (four letter words aside). We can think of these as **positive** and **negative assurance**. So what do these terms mean?

Positive Assurance	Negative Assurance
<p>Making a positive statement about the model; that is, an affirmation of something that is true about the model. Example: “The model output is materially correct” or “The model is free from errors”.</p> <p>In this case, a reviewer is providing strong assurance that not only did they not find any errors, but that the model contains no errors at all.</p> <p>Positive assurance is difficult to obtain in practice. It requires more work – where possible – and will always be more expensive as a consequence. Not all scenarios can be foreseen where an error may occur. If someone offers you positive assurance, do consider whether the third party understands what they are doing: alarm bells should go off.</p>	<p>Making a negative statement about the model, or one that notes things that are not true about the model. Example: “Nothing has come to our attention to suggest that the model contains material errors”.</p> <p>This differs from the positive assurance example in that a reviewer is acknowledging that there may be errors in the model that they did not find. This is essentially a lesser form of assurance, but is accepted by most accounting institutes, financiers and courts.</p> <p>Typically, this is the highest level of assurance provided by a model audit.</p>

As explained above, positive assurance is not always assured from a reviewer! It is much harder for a reviewer or auditor to be able to give positive assurance, due to the additional rigour of testing to ensure that all errors are captured throughout the review process. As a result, such assurance will generally be more expensive.

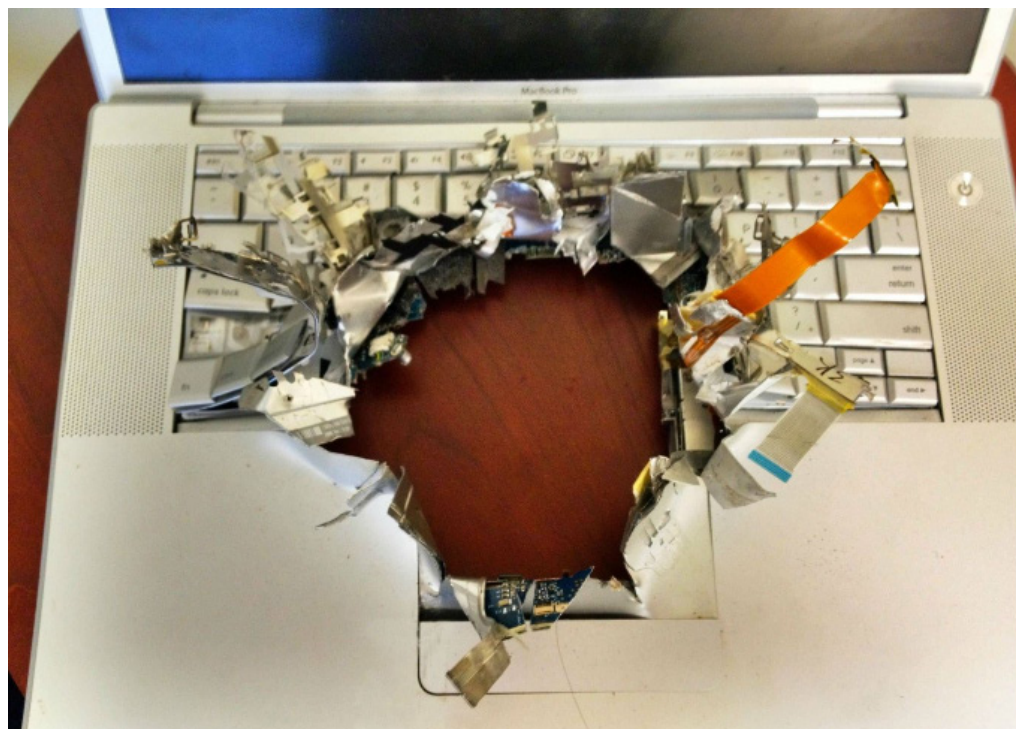
Model reviews can be costly and in some instances may cost more than the development of the original model. The key determinants of cost pricing include:

- Number of unique formulae in the model;
- The complexity of the formulae;
- The structure of the model (e.g. level of duplication, complexity of subject matter);
- Reviewer's estimation of likelihood of errors;
- Reviewer's estimate of how many iterations of the model they will need to check;
- How quickly queries may be resolved;
- Time available to complete the review.

But audits are not always necessary.

Where audits are not required, you can – and should in any case – check the model yourself, or have a colleague peer review it. If you are building your spreadsheets using good practice, you are probably

already self-reviewing: perhaps you have built in error checks to search for unbalanced numbers, or you use the row differences tool to check if your formulae are copied across a row? You're a reviewer!

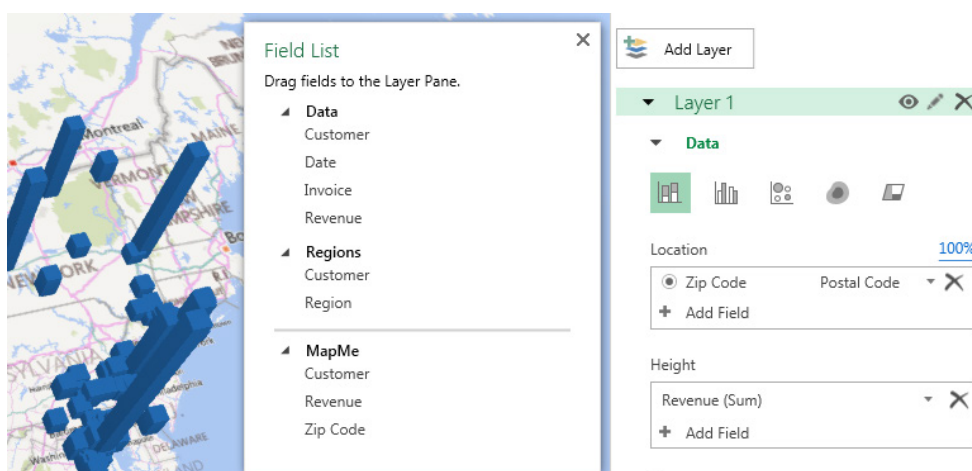


Whether you are reviewing things yourself, or if you're getting an external party to help out, there are a few things you may need to consider. You know the saying: "the bigger it is, the harder it falls". There are also cues that a model or spreadsheet might need reviewing: once it gets too big and complicated, or if it has evolved way beyond its original purpose. You know the type – the ones that have passed through numerous owners and are built with a multitude of styles, which no-one in the company really understands. So, you might ask yourself, when was the last time your spreadsheets were reviewed?

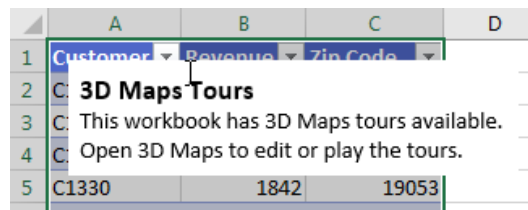
If you would like no-obligation advice on checking an audit, drop us a line at contact@sumproduct.com or give us a call on the usual numbers.

New Look for Power Map

For those of you previewing Office 2016 and playing with the latest version(s) of Excel, late July saw Power Map change its appearance.



Some of the drop down menus have been replaced by what Excel guru and fellow MVP Bill Jelen refers to as "floaties", menus which were previously in drop down panes which now 'float' over graphics and spreadsheet data.



Personally, we find these sorts of panes can be more trouble than they are worth: too frequently they appear over something you wish to select, so either you cannot select what you want or worse, you close the floating pane only to realise you need it and cannot figure out how to display it once more!

To be fair, for those just starting out, they can be very useful if the pop-up content is relevant to context – something Microsoft has worked hard on over the years. Whatever, no doubt trialists will form their own view over the forthcoming months.

Reader's Question

This month we thought we'd relay one of the more common queries we get:

"Is there a function in Excel that will convert numbers into words?"

No.

Another Reader's Question

"So is there any way at all to convert numbers into text in Excel..?"

Yes.

Yet Another Reader's Question

"Please elaborate."

Please don't be frightened off contacting us with the above frivolity – we do try to assist where we can! This problem is a common one (e.g. for cheque production, invoicing), but clearly the precise mechanics will differ depending upon what language you wish to report in (SumProduct is fluent in English and profane so we thought we would demonstrate with the former). The solution is to create a user-defined function.

To create a user-defined function, press **ALT + F11** to start the Visual Basic Editor. On the Insert menu, click Module and type / copy the following code into the module sheet.

```
Option Explicit
'Main Function
Function SpellNumber(ByVal MyNumber)
    Dim Dollars, Cents, Temp
    Dim DecimalPlace, Count
    ReDim Place(9) As String
    Place(2) = " Thousand "
    Place(3) = " Million "
    Place(4) = " Billion "
    Place(5) = " Trillion "
    ' String representation of amount.
    MyNumber = Trim(Str(MyNumber))
    ' Position of decimal place 0 if none.
    DecimalPlace = InStr(MyNumber, ".")
    ' Convert cents and set MyNumber to dollar amount.
    If DecimalPlace > 0 Then
        Cents = GetTens(Left(Mid(MyNumber, DecimalPlace + 1) & _
            "00", 2))
        MyNumber = Trim(Left(MyNumber, DecimalPlace - 1))
    End If
    Count = 1
    Do While MyNumber <> ""
```

```

Temp = GetHundreds(Right(MyNumber, 3))
If Temp <> "" Then Dollars = Temp & Place(Count) & Dollars
If Len(MyNumber) > 3 Then
    MyNumber = Left(MyNumber, Len(MyNumber) - 3)
Else
    MyNumber = ""
End If
Count = Count + 1
Loop
Select Case Dollars
Case ""
    Dollars = "No Dollars"
Case "One"
    Dollars = "One Dollar"
Case Else
    Dollars = Dollars & " Dollars"
End Select
Select Case Cents
Case ""
    Cents = " and No Cents"
Case "One"
    Cents = " and One Cent"
Case Else
    Cents = " and " & Cents & " Cents"
End Select
SpellNumber = Dollars & Cents
End Function

```

` Converts a number from 100-999 into text

```

Function GetHundreds(ByVal MyNumber)
Dim Result As String
If Val(MyNumber) = 0 Then Exit Function
MyNumber = Right("000" & MyNumber, 3)
` Convert the hundreds place.
If Mid(MyNumber, 1, 1) <> "0" Then
    Result = GetDigit(Mid(MyNumber, 1, 1)) & " Hundred "
End If
` Convert the tens and ones place.
If Mid(MyNumber, 2, 1) <> "0" Then
    Result = Result & GetTens(Mid(MyNumber, 2))
Else
    Result = Result & GetDigit(Mid(MyNumber, 3))
End If
GetHundreds = Result
End Function

```

` Converts a number from 10 to 99 into text.

```

Function GetTens(TensText)
Dim Result As String
Result = "" ` Null out the temporary function value.
If Val(Left(TensText, 1)) = 1 Then ` If value between
10-19...

```

```

Select Case Val(TensText)
    Case 10: Result = "Ten"
    Case 11: Result = "Eleven"
    Case 12: Result = "Twelve"
    Case 13: Result = "Thirteen"
    Case 14: Result = "Fourteen"
    Case 15: Result = "Fifteen"
    Case 16: Result = "Sixteen"
    Case 17: Result = "Seventeen"
    Case 18: Result = "Eighteen"
    Case 19: Result = "Nineteen"
    Case Else
End Select

Else                                     ` If value between
20-99...
    Select Case Val(Left(TensText, 1))
        Case 2: Result = "Twenty "
        Case 3: Result = "Thirty "
        Case 4: Result = "Forty "
        Case 5: Result = "Fifty "
        Case 6: Result = "Sixty "
        Case 7: Result = "Seventy "
        Case 8: Result = "Eighty "
        Case 9: Result = "Ninety "
        Case Else
    End Select
    Result = Result & GetDigit _
        (Right(TensText, 1)) ` Retrieve ones place.
End If
GetTens = Result
End Function

` Converts a number from 1 to 9 into text.
Function GetDigit(Digit)
    Select Case Val(Digit)
        Case 1: GetDigit = "One"
        Case 2: GetDigit = "Two"
        Case 3: GetDigit = "Three"
        Case 4: GetDigit = "Four"
        Case 5: GetDigit = "Five"
        Case 6: GetDigit = "Six"
        Case 7: GetDigit = "Seven"
        Case 8: GetDigit = "Eight"
        Case 9: GetDigit = "Nine"
        Case Else: GetDigit = ""
    End Select
End Function

```

Once this code has been entered you can then use the 'invented' (i.e. "user-defined") **SpellNumber** function, either on a value or a cell / range reference. User-defined functions differ from native Excel functions insofar as they do not capitalise when entered into a formula and they run more slowly as they access Visual Basic code. They only work in files which can access the source code too. But they can be very useful when that function you want just doesn't exist.

We will be honest, this solution has been lifted from Microsoft's support pages for Excel – but it is amazing how many people are unaware of the existence of support pages. If you get chance, check out other support advice from Microsoft at <https://support.microsoft.com/en-us>. If you have a specific query though, drop us a line at contact@sumproduct.com.

Upcoming SumProduct Training Courses

Location	Date	Course	Duration
New York	31st Aug - 2nd Sep 2015	Strategic Planning, Forecasting and Budgeting	3 days
Hong Kong	12th - 13th Oct 2015	Financial Modelling for Financial Analysis	2 days
Singapore	15th - 16th Oct 2015	Financial Modelling for Financial Analysis	2 days
London	19th - 21st Oct 2015	Strategic Planning, Forecasting and Budgeting	3 days
Singapore	19th - 22nd Oct 2015	Strategic Planning, Forecasting and Budgeting	4 days
Hong Kong	26th - 29th Oct 2015	Strategic Planning, Forecasting and Budgeting	4 days
Sydney	25th - 26th Nov 2015	Financial Modelling For Financial Analysis	2 days
Melbourne	30th Nov - 1 Dec 2015	Financial Modelling For Financial Analysis	2 days
Dubai	8th - 10th Dec 2015	Strategic Planning, Forecasting and Budgeting	3 days

Key Strokes

Each newsletter, we'd like to introduce you to several useful keystrokes you may or may not be aware of. This month we maintain the audit theme:

Keystroke	What it does
ALT + M + V	Evaluate formula
ALT + R + G + H	Track changes
ALT + T + K	Initiate error checking
ALT + T + U + E	Trace error
ALT + T + U + W	Open Watch window
CTRL + [Trace precedents
CTRL +]	Trace dependents

There are over 540 keyboard shortcuts in Excel. For a comprehensive list, please download our Excel file at <http://www.sumproduct.com/thought/keyboard-shortcuts>.

Our Services

We have undertaken a vast array of assignments over the years, including:

- Business planning
- Building three-way integrated financial statement projections
- Independent expert reviews
- Key driver analysis
- Model reviews / audits for internal and external purposes
- M&A work
- Model scoping
- Project finance
- Real options analysis
- Refinancing / restructuring
- Strategic modelling
- Valuations
- Working capital management

If you require modelling assistance of any kind, please do not hesitate to contact us at contact@sumproduct.com.

Link to Others

These newsletters are not intended to be closely guarded secrets. Please feel free to forward this newsletter to anyone you think might be interested in converting to "the SumProduct way".

If you have received a forwarded newsletter and would like to receive future editions automatically, please subscribe by completing our newsletter registration process found at the foot of any www.sumproduct.com web page.

Any Questions?

If you have any tips, comments or queries for future newsletters, we'd be delighted to hear from you. Please drop us a line at newsletter@sumproduct.com.

Training

SumProduct offers a wide range of training courses, aimed at finance professionals and budding Excel experts. Courses include Excel Tricks & Tips, Financial Modelling 101, Introduction to Forecasting and M&A Modelling.

Check out our more popular courses in our training brochure:



Drop us a line at training@sumproduct.com for a copy of the brochure or download it directly from <http://www.sumproduct.com/training>.

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