

**A RADICAL  
GUIDE TO**

# **DATA ANALYTICS MASTERY**

→ **For Spreadsheet Users**

**alteryx** | The Thrill  
of Solving

## ODE TO SPREADSHEETS — THANK YOU, NEXT

*Why working within workbooks  
causes job fatigue and career  
dissatisfaction*

03

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data  
analytics  
mastery

# 01

## ODE TO SPREADSHEETS — THANK YOU, NEXT



*Why working within workbooks causes job fatigue and career dissatisfaction.*

According to the Gallup State of the Global Workplace report<sup>1</sup>, 87% of us are disengaged at work. Let's think about that for a minute. Many are disengaged in jobs where they spend most of their waking hours.

Now let's talk about your job. According to research, an analyst such as yourself likely spends 90% of the work week on data-related activities<sup>2</sup>, chasing the dream of actionable insight. What's worse, most of this time is zapped from only the first step in the analytics process — gathering and preparing your data.

<sup>1</sup> State of the Global Workforce, Gallup

<sup>2</sup> "The State of Data Science and Analytics"





According to research, analysts such as yourself spend 90% of the work week on data-related activities, chasing the dream of actionable insight.



# fifty-four million

Spreadsheets are one way to calculate and manipulate numeric data into insight to make decisions. Fifty-four million analysts and data workers all over the world have built up their expertise to use spreadsheets for complex analytical tasks, too. It's exciting upon first click.

But you've probably pushed a tool that's perfect for calculating and manipulating data past its limit. Heavy data cleansing and processing, blending multiple data sources, and joining multiple datasets is a lot to ask of your spreadsheets.

**Spreadsheets are one way to calculate and manipulate numeric data into insight to make decisions.**



**Simply put, spreadsheets have their limits, and they're probably testing yours ■**

# 02

## NIGHT AND DAY DIFFERENCE IN YOUR DAY JOB



*Five symptoms that signal you might have an overdependence on spreadsheets.*

While spreadsheets readily solve many ad hoc needs, they simply can't fulfill the data blending and advanced analytic needs that you require today. Here are five signs you might be overusing spreadsheets:

- 01 MULTIPLE DATA SOURCE INSOMNIA
- 02 MANUAL DATA PROCESSING + CALCULATION FIXATION
- 03 DIRTY-DATA PHOBIA
- 04 REPETITION MALAISE
- 05 ANALYSIS PARALYSIS

## 01 **MULTIPLE DATA SOURCE INSOMNIA**

More data means more sources of data. In spreadsheets, blending multiple data sources, such as Access, SQL, cloud-based data, social media data, and other spreadsheets, can be complex or even impossible without the help of a crew of data specialists or other tools. Scripting, lookups, and SQL queries are not for the faint of heart — especially at 2 a.m.

## 02 **MANUAL DATA PROCESSING + CALCULATION FIXATION**

If you juggle cross-updating spreadsheets and tabs within spreadsheets linked by VLOOKUPs and other functions, this is likely speaking to you. What happens when the perfect spreadsheet call goes wrong, leaving only vague errors like #NAME, #REF, and #NA?

## 03 **DIRTY-DATA PHOBIA**

Data can be dirty, fraught with errors, and often missing parts altogether. Spreadsheets limit your ability to cleanse, restructure, and reformat data, leading you to rely on IT to deliver the datasets you need.

## 04 **REPETITION MALAISE**

If you're faced with the tedious chore of repeatedly producing the same reports and tasks, we sympathize. Although some automation is doable, it often requires creating macros (or Visual Basic scripting) and manual intervention (or fragile hacks) to succeed if you are using spreadsheets.

## 05 **ANALYSIS PARALYSIS**

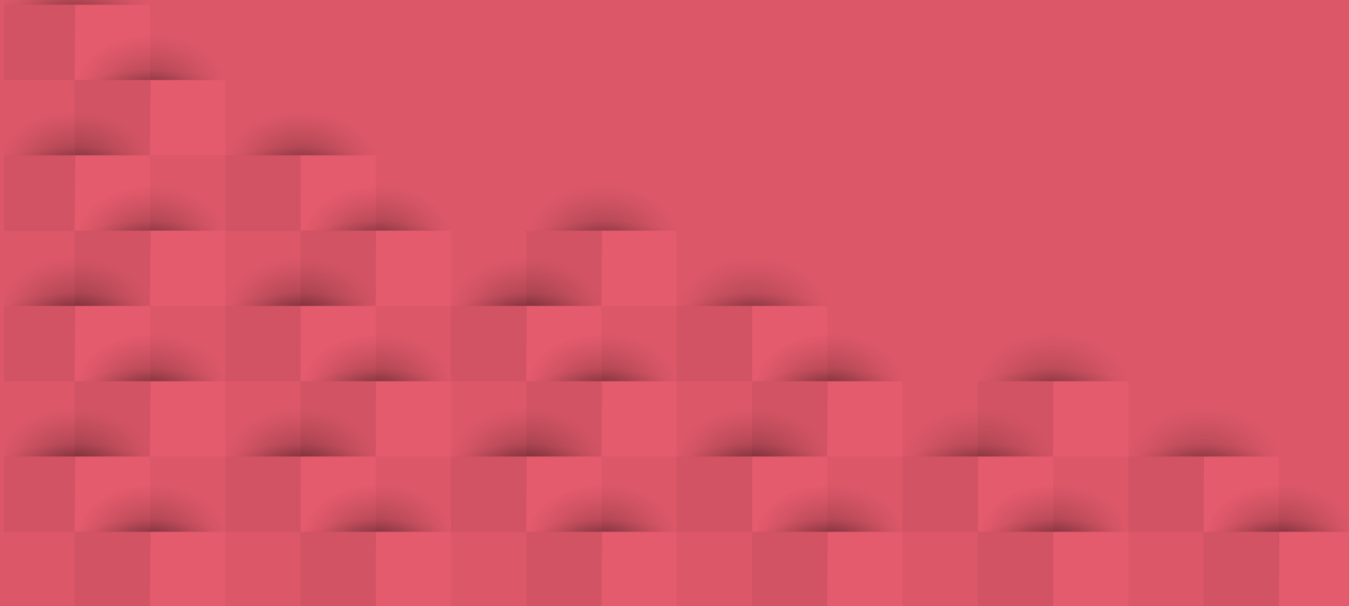
Most organizations expect their business analysts to use predictive analytic tools. You may be asked to provide actionable, timely insight through a combination of geospatial data, predictive models, and visualizations. Can you pull this off in a spreadsheet? ■







## Warning Signs of Overdependence on Spreadsheets



### ☐ *Do you feel*

**UNFULFILLED BY YOUR EXISTING  
SPREADSHEET REPORTS, LEARNING  
CURVE, OR LOST PRODUCTIVITY?**

### ☐ *Do you wish*

**YOU COULD TAP INTO ALL OF  
YOUR UNREALIZED DATA ANALYST  
POTENTIAL?**

### ☐ *Do you aspire*

**TO ANALYSES YOU BELIEVE COULD  
NEVER BE ACCOMPLISHED WITH  
YOUR EXISTING TOOLS?**

# 03

## DATA DECONSTRUCTION, A PROCESS REIMAGINED



*Explore six new ways to think beyond rows and columns and improve spreadsheet myopia.*

**F**rom pain points to possibilities, moving from worksheets to workflows not only raises the quality of your day, but the trajectory of your career, and the way you orient yourself to the data movement. Will it seem daunting with every advancement or will you see your unique position in this digital transformation?

We've listed some of the most common data-related tasks performed in spreadsheets that can be transformed with modern analytics.

# INPUT

## Can't all data sources just get along?

Life as a data analyst ought to be pretty sweet. After all, you're paid to find the golden nuggets of insight buried deep in a mountain of data — and you love to roll up your sleeves and start digging. You start by opening data sets. And more data sets. Each set might be from a different source or program, especially if the data comes from different departments (if you can even get past the gatekeepers to get hold of it).

This is where the mess starts piling up. Accepting data in multiple formats isn't particularly easy in spreadsheets, to say the least. To build a data set you can work with, you've got some wrangling to do. Maybe this situation isn't so sweet after all.





At one of America's leading healthcare providers, Thomas Hall works closely with several teams to analyze trends, performance, and create automated reports. Read their worksheets to workflows story.

READ NOW



Also, as you work to incorporate data, you've got nagging worries in the back of your mind: Am I adding duplicate or unnecessary information? Will I lose something across files in different formats? Will I have to leave out important info altogether because it isn't compatible with my data set?

Analysts everywhere must contend with **data silos**, where information is trapped in unusable formats and insulated departments. And they dream of data nirvana: smooth, seamless **data normalization**, where all data is organized logically and consistently.

data  
normal-  
ization



Watch a quick demo of how to work with data on a canvas so you can focus on game-changing insight, not mundane data prep.

WATCH NOW

## DATA SETS REALLY CAN PLAY NICELY TOGETHER.

There is an easier way to build and normalize a data set, even if you're working with incompatible file formats, database connections, or cloud data stores. In fact, the possibilities for data types you can include in your work are nearly endless. You simply need a starting point where all formats are welcome and no data is left behind.

In Alteryx, that starting point is called your **canvas**. It's visual, it's simple, and it can change your life. Just drag and drop an Input Data

Tool onto your canvas, locate the data set you're trying to import, and select.

If you've ever wasted most of a sunny day trying to get your spreadsheets solution to accept a data source, you're going to love the Alteryx way of doing things. Different file formats or structures? Alteryx won't even blink. You can access data locally from Excel, Access, XML, SAS, SPSS, or MapInfo, as well as data stored in databases or HDFS.

Alteryx also has direct connectors to cloud systems such as Amazon S3, Twitter, Foursquare, Marketo, Salesforce, and Microsoft SharePoint, as well as other Big Data environments such as Amazon Redshift, Impala, and Spark.



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# CLEANSE

## Data cleaning: where joy goes to die.

The secret is out: The mundane job of data cleaning is where you spend most of your time as an analyst. By the time you get to the good part — you know, the “analyzing” — you’re out of gas and out of time. You still need to deliver the analysis, of course. (Hope you didn’t make any mistakes.) Is this lack of balance really the nature of cleaning data? Or is it simply the nature of spreadsheets?

In spreadsheets, cleaning is a highly manual process. Parsing, creating columns, deleting rows, removing white space, and so on can take eons and suck the life right out of you. Believe us, we know.



Exercise your own workbook to  
workflow skills. Take Challenge  
#19: Excel Record Locator

EXERCISE NOW



But there's a bigger issue to consider. All that cutting and pasting and renaming doesn't just take a crazy amount of time — it's also an invitation to make mistakes. Miscalculations, mental errors, and duplicate records in these early stages can send your analysis careening in the wrong direction or even force you to start over.

**Data integrity** should be your biggest concern in the cleaning stage. You want to be confident in the accuracy and consistency of data, no matter where you move it or how you change its format, and make sure its meaning isn't unintentionally altered as you tidy it up.

data  
integrity



## IT'S TIME TO RETHINK THE MANUAL APPROACH.

Instead of a mind-numbing, soul-crushing series of clicks, what if data cleansing was one broad function accomplished by higher-order tools? What if instead of a thousand actions, you took just one or two?

Switching to Alteryx will dramatically change how much time you spend cleaning data. We won't lie — it's a big deal.

You can create new columns, remove rows and columns, and change data types with

a single step in Alteryx — a step that applies instantly across your entire data set. You can also let Alteryx take control and automatically interpret your data, assigning types and sizes appropriate for the content. Either way, no more remembering and repeating changes manually in multiple files. And the history of what you did is always there, so you never again have to start over if you mess up. (Seriously.)

This sophisticated approach to data cleaning virtually eliminates manual processes and human error, freeing up your time for more important things.



**You can create new columns, remove rows and columns, and change data types with a single step in Alteryx — a step that applies instantly across your entire data set.**



# JOIN

## What the analyst has joined together, let no one separate.

Here's where things start getting interesting — or scary, depending on how confident you feel in blending and appending data from separate worksheets. Joining data sets always means altering your source material. If you're lucky, you get through this stage without accidentally damaging your data set. If not, it's back to square one.

As with most of the steps for processing data in spreadsheets, the required actions for joining data sets are incredibly tedious. Is it just us, or is repeating "VLOOKUP" a recipe for madness?

The trouble with blending data the old-fashioned way is that spreadsheets aren't **agnostic**. Spreadsheet programs recognize only their preferred format, and they can't step outside that format without direct input from you via manual tools like VLOOKUP or INDEX MATCH. Once you start layering in multiple fields and multiple sheets, the odds for error skyrocket.



Ready to test out self-service analytics? Don't go it alone. Check out this super cool data analytics mastery starter kit.

SEE NOW

## THERE'S A BETTER WAY TO BLEND.

What if your program could simply blend the data for you so you didn't have to waste time worrying about format? And what if it could keep track of everything it did so you could always go back and undo?

One profoundly simple set of tools in Alteryx (Union, Find and Replace, and Join) gives you all the blending functionality of your old spreadsheet program but with a shiny new set of creative capabilities you didn't even

know you needed. You can trace and retrace your steps to any point in your workflow at any time — and follow them right back to your starting point if you need to.

Combine multiple worksheets based on field name while maintaining the position of each column. Or change the column order if you like. Join two data streams with a common field by performing an inner or an outer Join.

In fact, bring data together any way you like. By letting Alteryx do most of the work, you can get right to the business of exploring your data set more deeply.



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# TRANSFORM

Ever forgotten a filter?  
We get it.

To discover data's deeper meaning, you need to view it through your own carefully-chosen parameters. To do this in spreadsheets, you filter, sort, and pivot to transpose and rearrange the data exactly the way you want it. Those aren't necessarily difficult tasks, but they must still be done manually.

Also, once you start slicing and dicing, it can be difficult to remember exactly what you did. You can use the **trace dependents** function to track your actions, but again, that tool is manual and error-prone.

The **data transformation** process in spreadsheets can be frustrating and time-consuming for you personally, but the larger concern is that hidden data fields and forgotten filters can wind up costing your company a lot of money. When you finish an analysis, how confident are you that nothing got lost along the way? Would you stake your job on it?



A major fast food chain is entering the next chapter of data-driven success. Read more about their analytics maturity journey.

READ NOW

## THE 21ST CENTURY IS CALLING.

By performing common data transformation functions with highly intelligent tools, you can reduce errors — and risk — as you move through the most exciting part of your work.

The Sort, Transpose, and Cross Tab Tools in Alteryx allow you to organize and pivot your data in many different directions automatically — allowing you to see the big picture quickly. And by using these tools in workflows, you can always get back to your

starting point and account for your steps. Being able to explain your methodology and change views on the fly is priceless.

How would we compare transforming data in spreadsheets to transforming data in workflows? We wouldn't. It's like comparing a 1950s rotary phone with one function to a brand new smartphone that can do a thousand different things. When it comes to establishing a forward-thinking strategy for **data methodology**, workflows are the difference between a siloed organization and one with a true culture of analytics.



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# CALCULATE

## Frustrated with formulas? It's only logical.

Let's crunch some numbers, shall we? Spreadsheets are built to calculate logical formulas using IF statements, which are pretty painless to set up. But applying those formulas everywhere you want them is something else entirely.

When you apply formulas, you hold a lot of information in your memory about what you're doing and how you got there. Cutting and pasting formulas starts to feel a little sketchy. Where did you put that set of rows you thought you didn't want, again? Did you apply that formula everywhere it was supposed to go? Wait — did you hide some cells? What happened to all the stuff on your clipboard? Was it important?

**Yikes.**



## The Magic of Self-Service Analytics

Manual cross tabs? No way.  
Manual formulas? Gone.  
Manual summarization?  
Get out of here.

Get to the good part of  
analyzing right away.

### BETTER TO SET IT AND FORGET IT.

Setting a formula once, with a single tool, and applying it exactly where you want it, is a far superior solution to manually applying formulas all over the place and trying to remember what you did.

The Formula Tool in Alteryx is a powerful processor — with a single action, you can add a field to an input table or create or update data fields based on an expression or a data relationship. If anything is added,

subtracted, or altered, your workflow shows what, when, and where so there's always an option to rewind and rethink.

In Alteryx, **data**, **logic**, and **execution** exist in separate layers. That means you can take time to plan out your logic before you execute it, and no data will be harmed once you do. If something changes or new records are added, your logic will automatically apply, so you can be confident in your results.

Another worry crossed off the list. It's incredibly freeing.



**The Formula Tool in Alteryx is a powerful processor — with a single action, you can add a field to an input table or create or update data fields based on an expression or a data relationship.**

# AGGREGATE

**Do you type as fast  
as you think?**

The descriptive and predictive power of data lies in aggregation — it's where the secrets are revealed. But summarizing data in spreadsheets requires the use of pivot tables, so you're still in single-focus mode as you discover key insights and deliver your results. Viewing data through a single lens compromises your agility and accuracy in the final phase of analysis and prevents you from being able to answer every tough question your boss dreams up.

And then there's the technical difficulty of working with extremely large data sets. Sometimes your system can't handle the load when you need to change your parameters, shift positions, or rethink your assumptions — and that's when the spinning wheel of spreadsheet death hits the screen.

[illegible]

## Σ Summarize (50) Configuration

☐
☒
☐
☐
☐
☒

### Fields

	RowV	_String
	Customer ID	Int16
	Product_Name	V_String
	Sales	Double

### Actions

	Customer ID	GroupBy ▼	Customer ID
	Sales	Sum ▼	Total Spend





## **UNLEASH YOUR BIG, BEAUTIFUL MIND.**

What you need is a powerful summary tool that can deliver multiple results and views automatically — allowing you to explore outliers, find patterns, and ask deeper questions as fast as you can think of them.

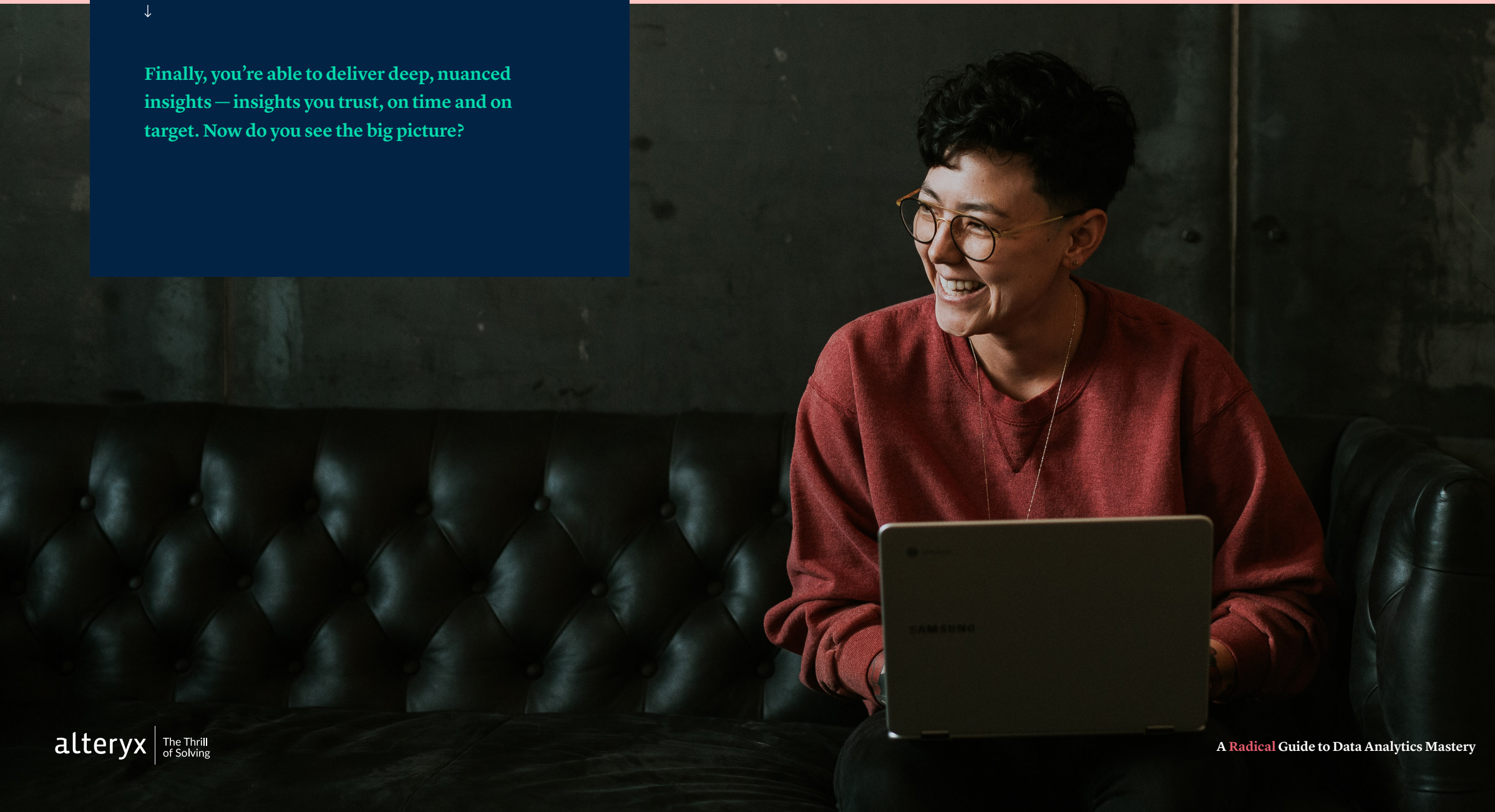
The Summarize Tool in Alteryx processes data instantaneously at every step along your data journey so that you can see many views at once, speeding your time to impact. No more building pivot tables! Group your data and then perform any number of calculations on any fields you like, including more advanced functions not found in spreadsheets such as financial, numeric, spatial, and behavioral analysis.

Finally, you're able to deliver deep, nuanced insights — insights you trust, on time and on target. Now do you see the big picture? ■





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## IS IT TIME TO THINK BEYOND COLUMNS AND ROWS?

### ☐ **Data Cleansing**

You are manually removing unwanted characters and trailing spaces.

### ☐ **Combining Multiple Datasets**

You perform error-prone cut and paste operations or a lengthy Power Query process.

### ☐ **Filtering Data**

You use filters to select data, but you can only apply a single operation to the results.

### ☐ **Complex Data Prep Operations Involve A Variety Of Steps**

You use complex nested formulas, which can become hard to understand and adapt.

### ☐ **Troubleshooting**

Your logic is embedded in each cell and no one can follow your trail.

### ☐ **Handling Big Datasets**

You wonder if your system has frozen completely — and maybe that's what happens.

### ☐ **Repetitive Analyses**

Error-prone steps are needed to apply logic even if it's in the same format, yikes.

### ☐ **Scheduling And Automating Jobs**

You run each analysis or write complex procedures and batch scripts to schedule jobs.

### ☐ **Auditability**

You painstakingly audit in complex spreadsheets with nested formulas.

### ☐ **Advanced Analytics**

You use Python and R to code functions beyond the reach of spreadsheets.

**IF YOU'VE ANSWERED YES TO ONE OR MORE, IT'S TIME TO EXPLORE OTHER OPTIONS.**

# 04

## FROM WORKSHEETS TO WORKFLOWS



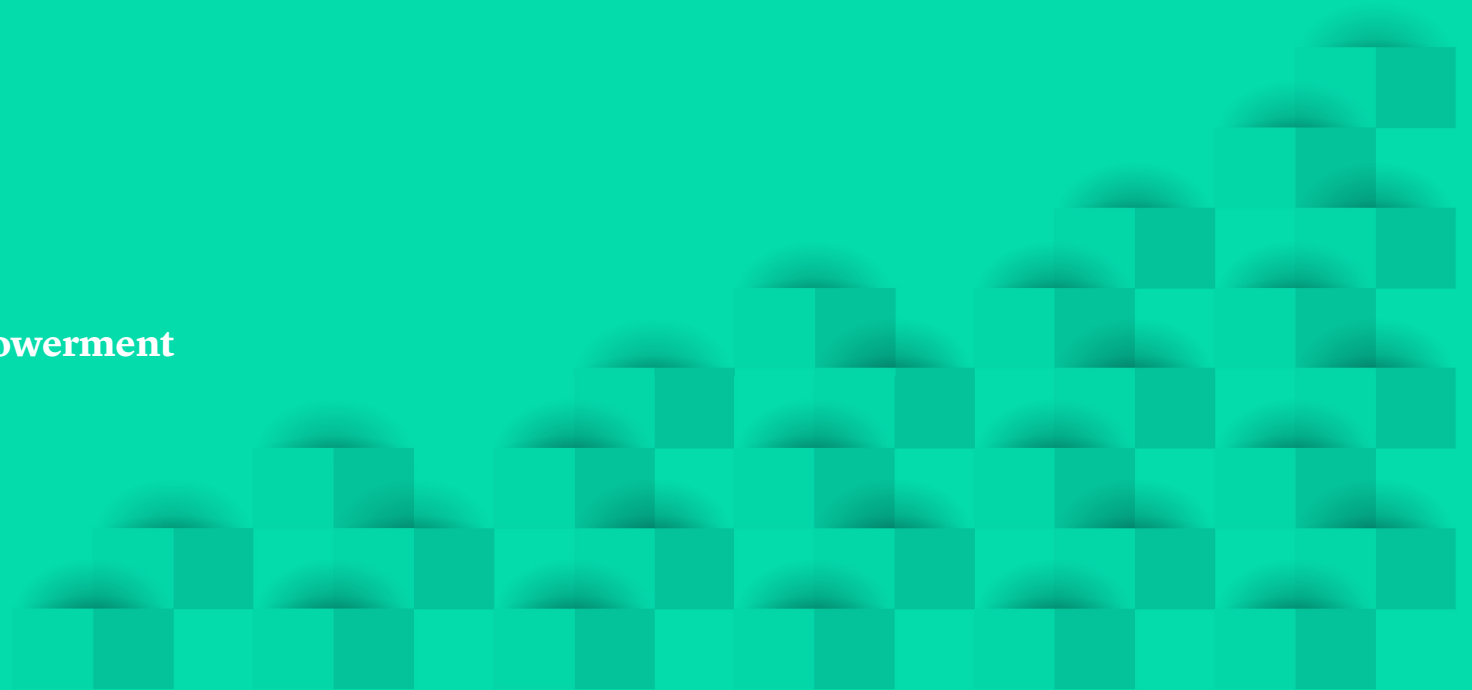
*Learn from sages across data roles and build on your existing skills.*

**I** imagine how your workday could change if you invested in yourself and built upon your existing spreadsheet skills. Instead of spending time on manual operations — including repetitive copy-and-paste tasks that are ripe for automation — you can let self-service analytics automate and simplify many operations and free your time for those advanced analytics we mentioned earlier.



## Signs you are becoming a modern analyst:

- ☐ Predictable predictive analysis
- ☐ Enhanced productivity
- ☐ Feelings of euphoria
- ☐ Newfound office popularity
- ☐ Improved self-esteem from data empowerment
- ☐ Envable geospatial awareness







**See your data changes in motion.**  
**Alteryx Visualytics enables analysts to visualize the data not just at the end of the analytics process but throughout the entire problem-solving journey.**

**SEE MORE**

## **IT'S LOGICAL IF YOU THINK ABOUT IT**


With spreadsheets, logic is embedded into the data and expressed as formulas applied to each cell. In contrast, modern self-service analytics separates logic from data. You build the logic in visual workflows that make it easy to see the exact sequence of steps applied to each dataset. That makes it much easier to perform repeating analyses, adapt logic for new purposes, apply complex prep and blend operations, and troubleshoot problems.

The beauty of a workflow is it allows you to stop thinking about data and analytics in rows and columns, incorporate a wider variety of data sources, and look at it as more of a process. It allows you to understand where issues or errors might be in the data and the process.

**The beauty of a workflow is it allows you to stop thinking about data and analytics in rows and columns, incorporate a wider variety of data sources, and look at it as more of a process.**

workflow





“I feel like a lumberjack that just discovered a chainsaw. I’ve been an Excel power user for 25 years and I look at it and go, ‘Excel just got lapped ... bad.’”







## ***Five Ways to Improve Spreadsheet Processes***

Alteryx alleviates five major challenges you face when using spreadsheets for data preparation, blending, and analytics:

- 01      TRANSPARENCY**
- 02      REPEATABILITY**
- 03      OPERATIONALIZE**
- 04      SCALABILITY**
- 05      ADVANCED ANALYTICS**

# TRANSPARENCY

If you're building out a workflow and notice an error, you can go right to that point in the workflow and make the change without starting over. And you don't need to comment and document your thought process — because it's all right there for everyone to see.

That means if you ever need to go back and demonstrate how you came to an answer, you can do it with ease.



“[I can] actually take a lot of the processes in Excel and put them into a visual format ... a senior analyst can then design a solution and easily transfer it to somebody else .... So now we’ve actually captured what I think of as the intellectual property of that analyst, transferred from an Excel file to a workflow that anyone can understand, no matter what language they speak.”

**Tom Sturgeon**

Director of Business Analytics, IT Business,  
Schneider Electric





# REPEATABILITY

Free yourself from the tedious task of producing the same reports over and over. Build out an analytic process once — and use it again whenever the data changes. Best of all? You can do it all in a drag-and-drop canvas that requires no coding.



↓  
**Stratasys increases efficiencies and generates big-time savings by automating repetitive weekly and quarterly reports. Reports that once took five hours now run in 30 minutes.**

**READ MORE**

# OPERATIONALIZE

You should be able to operationalize any process. Once a workflow is created, users can schedule and automate a workflow to run at a specific time or interval to feed downstream processes. Workflows can also be turned into macros to simplify future processes, or even wrapped into an analytic app.

Find out how one American chain of gourmet supermarkets builds self-service apps the whole team can use no matter their analytic skill level.



# SCALABILITY

Without any limitations on either data size or format, a modern analytics solution allows your analysis to grow with your data and reporting needs.

# ADVANCED ANALYTICS

Self-service analytics makes it easy to incorporate statistical, predictive, and spatial analysis in the same workflow environment — and you don't have to write a single line of code. ■



# 05

## A NEW DAY FOR THE ANALYST



*Delivering a whole lot more  
with a whole lot less.*

The evolution of self-service analytics is upon us. What started out as a means to an end for a data analyst who dealt with a single source of data, has now led to the necessity of combining multiple sources of data. Throughout this evolution, data blending has empowered those analysts in the line of business with the ability to access and combine data from multiple sources to reveal deeper intelligence that drives better business decision-making.




Modern, self-service analytics platforms are designed specifically to handle that heavy lifting for complex analysis — and to make it simple, fast, and fun. Self-service analytics platforms work in ways that are fundamentally different than spreadsheets. Those differences have big implications for what you can do, how easily you work, how long each step takes, and ultimately, your outputs and outcomes.

Because self-service analytics platforms liberate you from the time-consuming manual steps that spreadsheets require, you have more time for creative, higher-level work.

With self-service analytics like the Alteryx Platform, you can do advanced analysis that's simply beyond the reach of spreadsheets. Alteryx can work hand in hand with spreadsheets to deliver output from Alteryx back to spreadsheets for further reporting or analysis, format the output to deliver data into multiple tabs in a spreadsheet, and feed output to a specific table where it can append or replace records in the table. ■





“Some days at work I don’t even feel like I’m working. I’m just solving puzzles, and when they click together, BAM!”

HelloPrint™

alteryx | The Thrill  
of Solving

Frits Kosovsky  
Business Analyst, Helloprint





***The benefits of switching from worksheets to workflows are far-reaching. You get repeatability, transparency, drag-and-drop flexibility, and so much more.***

We get it: You've invested hours, probably years, perfecting your spreadsheet game. But this isn't like telling a baseball player to switch to football. It's giving you a commercial mixer to process 20 cakes instead of a large spoon. A Ferrari for a road trip instead of an Astro van. The latest HDTV to watch your favorite team instead of an old black-and-white.

Ultimately, the power to accelerate your analytics and take back your career comes down to your own mindset. You've already got the skills and background knowledge to get started. Are you up for the challenge? When the stakes are as high as loving or hating your job, what do you have to lose? Check out the following resources and reengage with your career. You're on your way to data analytics mastery.

# DATA ANALYTICS MASTERY

→ **For Spreadsheet Users**



## NEXT STEPS

Try data blending  
in Alteryx

TRY NOW

Test out on-demand  
training designed for  
spreadsheet users

GET TRAINING

Link up with other  
analysts who embrace  
self-service analytics

CONNECT

Save a spot for  
an upcoming live  
training

REGISTER TODAY