



Storytelling & interactive reporting

With Power BI Bookmarks & Drill through

Marc Lelijveld, Conf. Room 2, 2.30 pm

#SS2020
#PowerBier



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/// Marc Lelijveld

Data & AI Consultant
Data Platform MVP



Data Platform MVP, Power BI enthusiastic, public speaker and passionated for everything which transforms data into action! Working at Macaw in the Netherlands as a Data & AI consultant.

- ✉ Marc.Lelijveld@outlook.com
- 🐦 @MarcLelijveld
- linkedin.com/in/MarcLelijveld
- 🌐 Data-Marc.com



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/// Sponsor

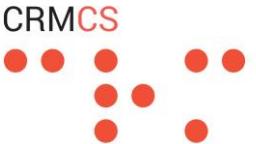
CloudCall 

 Incremental

 MAXIMUS®

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POWERING INNOVATION. SIMPLIFYING TECHNOLOGY.

 SKYLINES
ACADEMY

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Multilingual SharePoint

 data8

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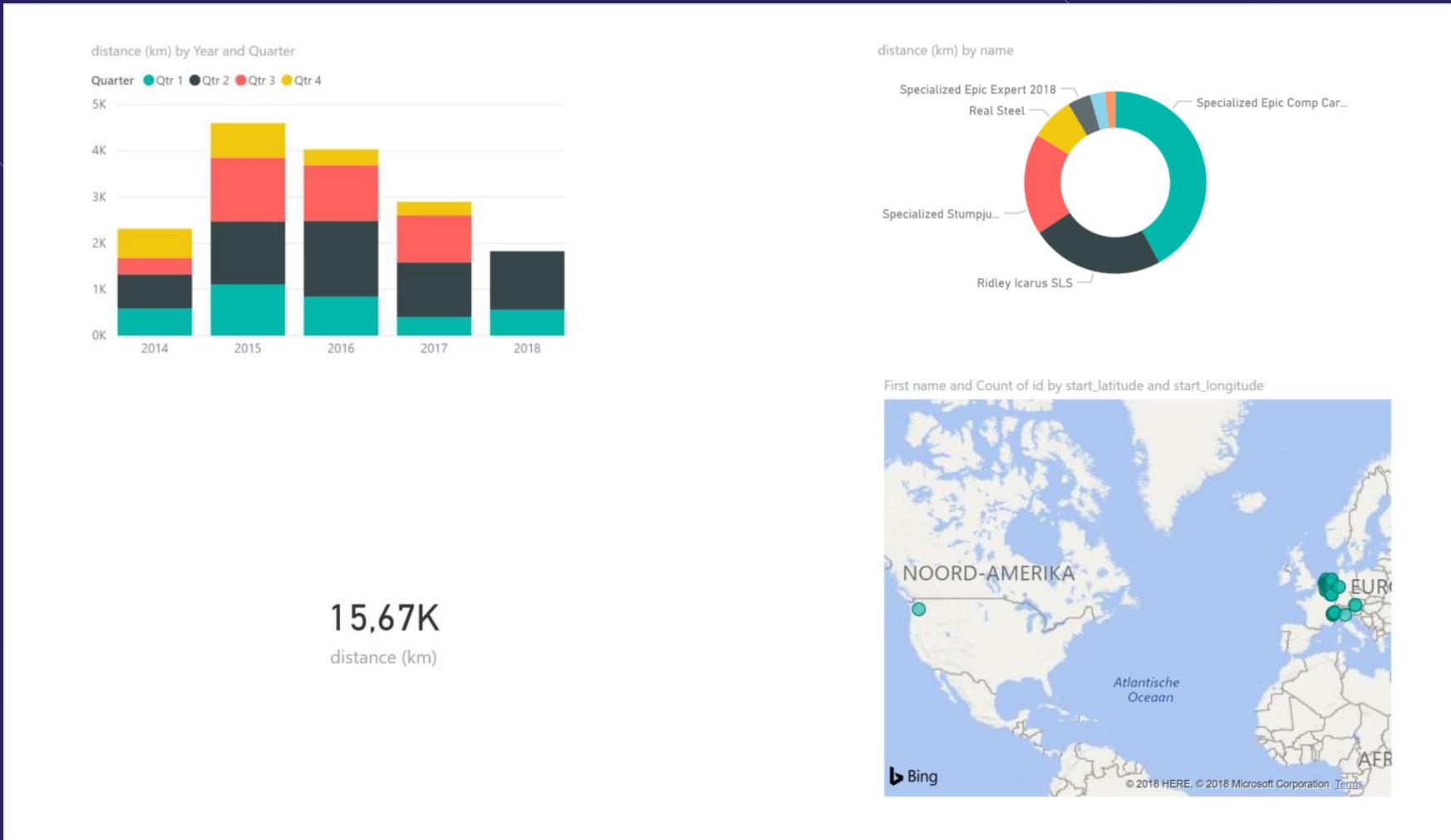
Agenda

- Why storytelling
- Practical use & tips
- Storytelling features
- Demos!

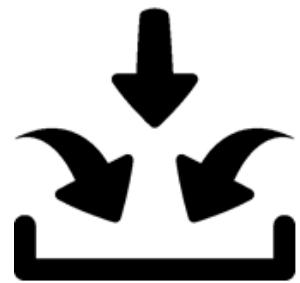


Why storytelling?

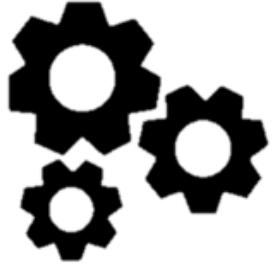
/// Classic reports



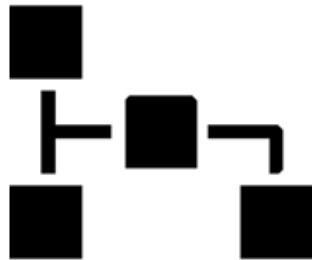
/// What we used to do



Collect



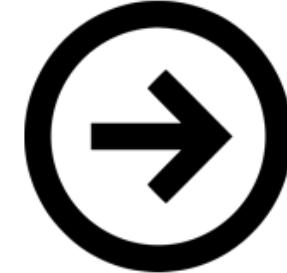
Transform



Model



Analyze



Define

/// Storytelling, how and why?

```
("input")?"val": "html": e+="Text", r.resetText)]n.data("resetText",n[i]()),n[i](r[e])||this.op  
(e=="loadingText")n.addClass(t).attr(t,n.removeClass(),0),t.prototype.to  
.closest('[data-toggle="buttons-radio"]');&e.find(".active").removeClass("active"),this.$  
n.e.fn.button;e.fn.button=function(a){return this.each(function(){var r=e(this),i=r.data("$  
data(button",i=new t(this,s)),n=="toggle"?i.toggle():n&i.setState(n))),e.fn.button.defa  
button.Constructor=t,e.fn.button.noConflict=function(){return e.fn.button.on(this),e(document  
,"[data-toggle=button]",function(t){var n=e(t.target);n.hasClass("btn")||n.closest(".btn"  
,"[Function(e){use strict";var t=function(t,n){this.$element=t, this.$indicators=this.$el  
.options=n, this.options.pause=="hover"&&!this.$element.on("mouseenter",e.proxy(this.pause,th  
is)));t.prototype={cycle:function(t){return t||!(this.paused=1)},this.interval&clearInter  
.interval&&this.paused&(this.interval.setInterval(e.proxy(this.next,this),this.options.in  
(return this._active=this.$element.find(".item-active"),this.$items=this._active.parent().c  
.$active),to:function(t){var n=this.getActiveIndex(),r=this;if(t>this.$items.length-1)t<0  
this.$element.one("slide",function(){if(r.tof()):n=t?this.pause():this.slide(t+1,"next");  
t){return t||(this.paused=0),this.$element.find(".next,.prev").length&e.support.transit  
.support.transition.end},this.cycle(),clearInterval(this.interval),this.interval=null,th  
return;return this.slide("next")},prev:function(){if(this.sliding)return;return this.slide(  
r>this.$element.find(".item-active"),i=1,length>i>this.$element.find(".item")[u]),!e.Event("sl  
id",{i.hasClass("active"))return;this.$indicators.length&&(this.$indicators.find(".active").r  
("slide",function(){var t=e(this.$indicators.children()[a.getActiveIndex()]);#At.addClass("act  
$element.hasClass("slide"))this.$element.trigger(f);if(f.isDefaultPrevented())return;i.ad  
,i.addClass(o),this.$element.one(e.support.transition.end,function(){i.removeClass(t,o).jo  
.removeClass("active",o).join(" "),a.sliding=1,setTimeout(function(){a.$element.trigger("f");if(f.  
isDefaultPrevented())return;r.removeClass("active"),i.addClass("active"),this.slide()  
return s&this.cycle(),this);var n=e.fn.carousel,f=e.fn.carousel=function(n){return this.e  
("carousel"),s=e.extend({},e.fn.carousel.defaults,{typeof n=="object"||n,o=typeof n=="string"  
t(this,s),typeof n=="number"?i.to(n):i[o].is.interval&i.pause().cycle()}),e.fn.carousel  
pause:"hover"},e.fn.carousel.Constructor=t,e.fn.carousel.noConflict=function(){return e.fn.  
carousel.data-api","[data-slide],[data-slide-to]",function(t){var n=e(this),r,i=e(n.attr()  
.replace(/.*?=(#?\w+)+/, ""),s=e.extend({},i,data),n.data(),o=i.carousel),o.o.n.attr("d  
.pause()),o.t(o).cycle(),o.t.preventDefault()})(window.jQuery),#Function(e){use strict";var t  
options=e.extend({},e.fn.collapse.defaults,n),this.options.parent&&(this.$parent=e(this.op  
).toggle());t.prototype={constructor,dimension:function(){var e=this.$element.hasClass("wid  
show":function(){var t,n,r,i;if(this.transitioning||this.$element.hasClass("in"))return;t=t  
t).join("-"),r=this.$parent&&this.$parent.find(".accordion-group > .in");if(r&r.length)  
.transitioning{return;r.collapse("hide"),i||r.data("collapse",null)}this.$element[t](this.$element[t](n)),hide:function(){var t  
hasClass("in"))return;t=this.dimension(),this.reset(this.$element[t]()),this.transition("re  
this.$element[t](n)),reset:function(e){var t=this.dimension();return this.$element.removeClass(t).offsetWidth,  
this.$element[e==null?"addClass":"removeClass"]("collapse"),this},transition:  
n.tune="chn"||reset().i.transitionIn||n.i.element.trigger(e);this.$element.triggerIn
```



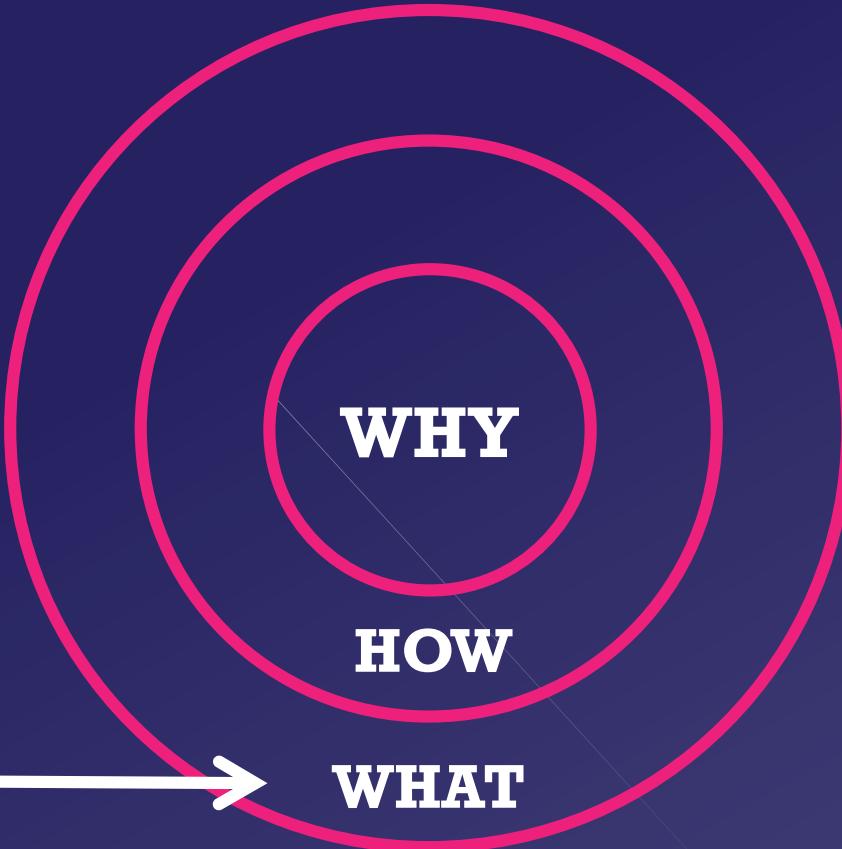
How = Usage of data

Why = Business understanding

/// What as a starting-point

We are good at:

We should do:

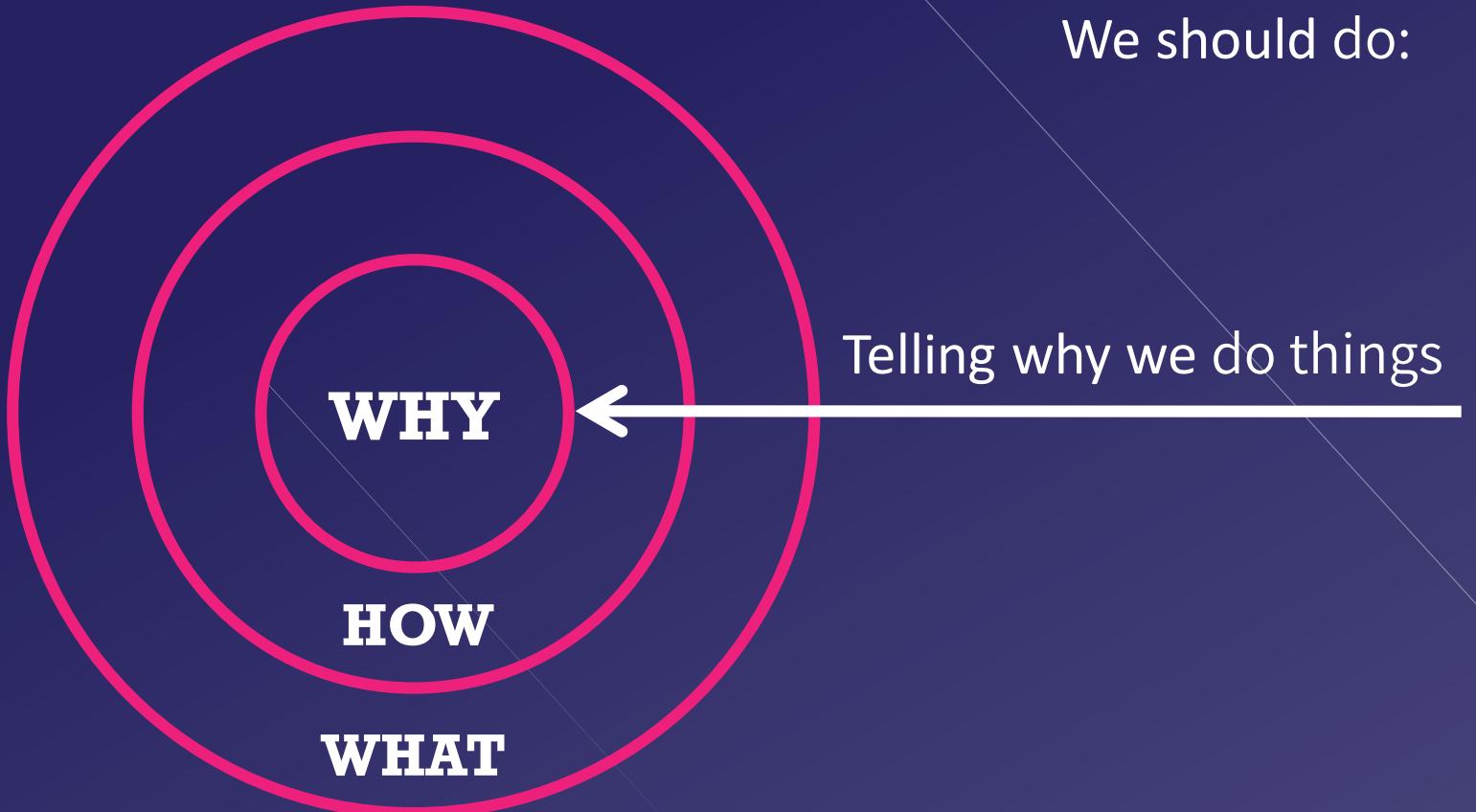


Telling what we do



What as a starting-point

We are good at:



We should do:

/// The definition of storytelling

Data storytelling is the process of translating data analyses into layman's terms in order to influence a **business decision** or **action**.



/// Goals of storytelling

- Transfer of information which is interpreted correctly
- The origin of the question
- Possibility to answer the next question
- Motivation for data-driven decisions
- Connected to business processes



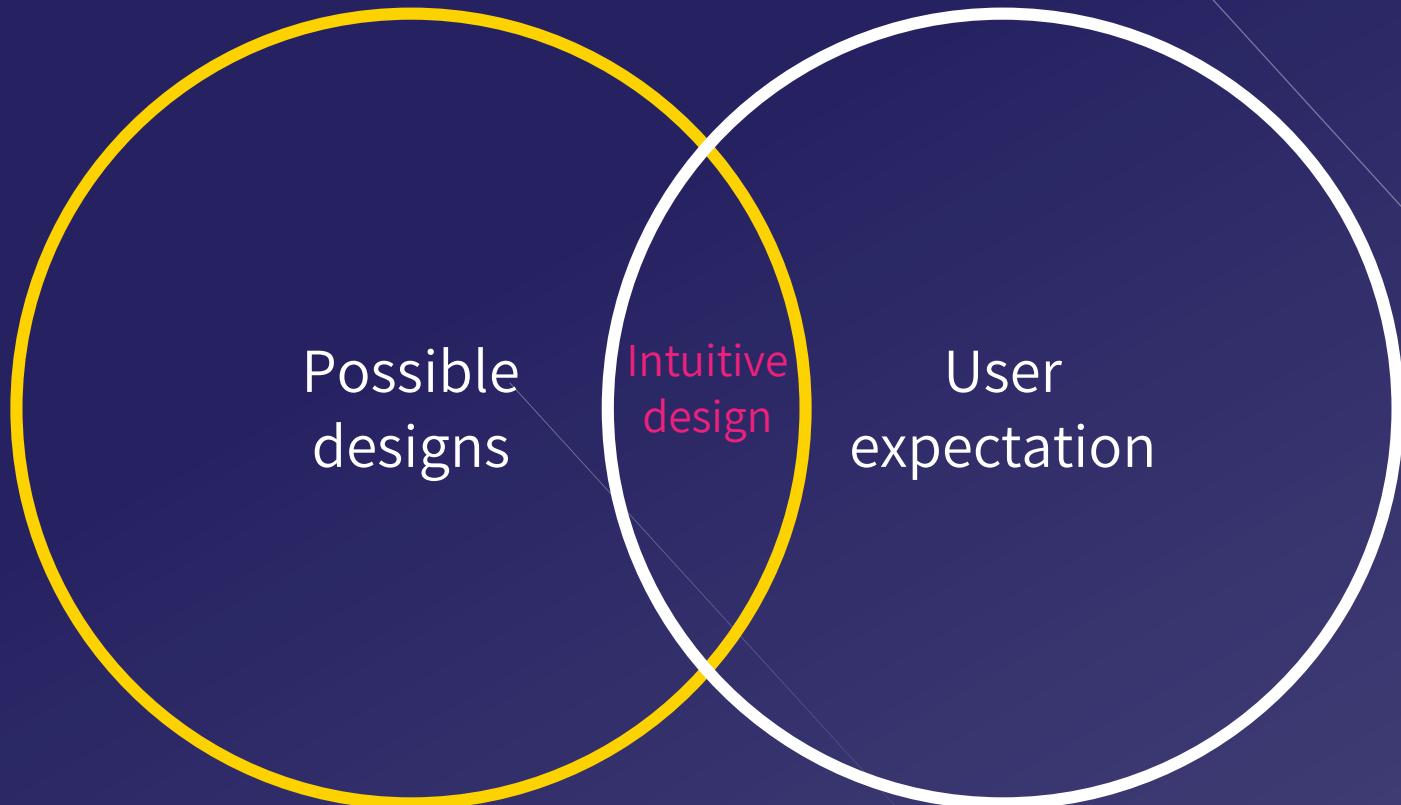


Practical use & some additional features

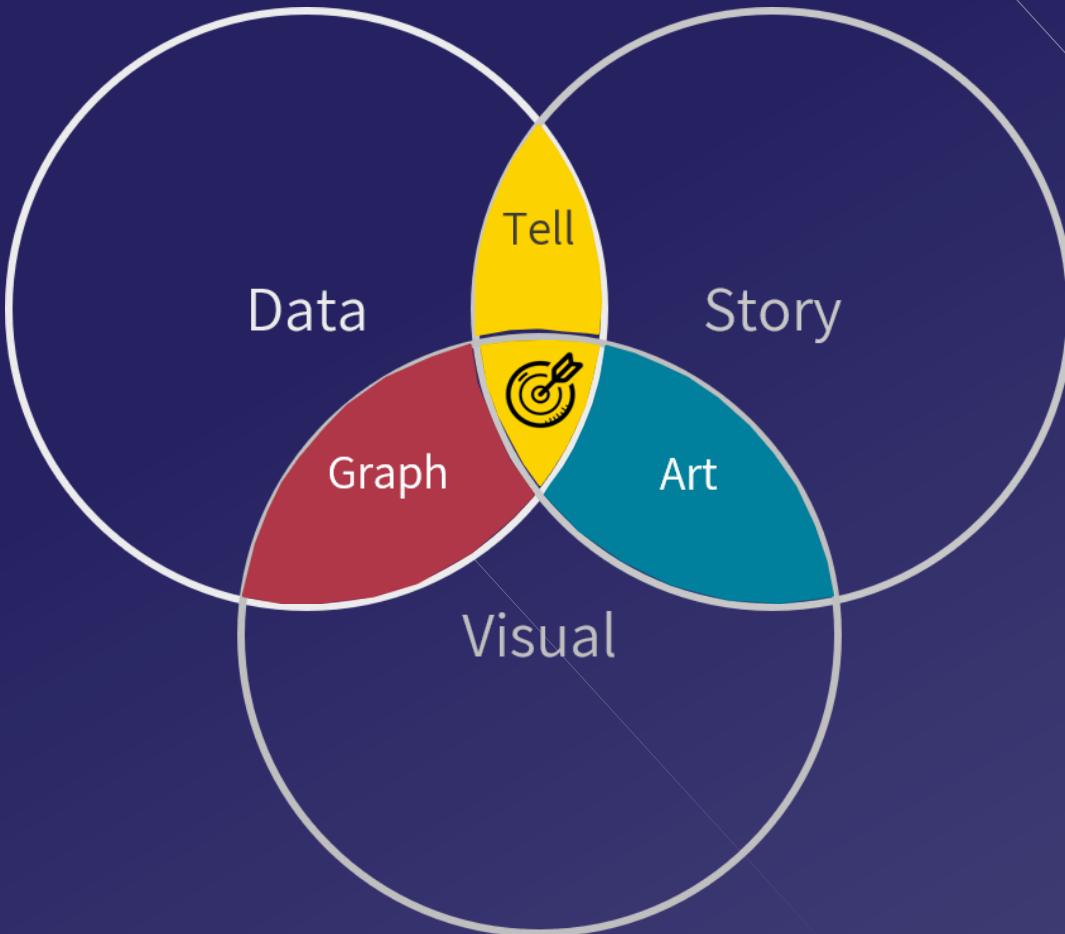
/// Add Context



/// Make it intuitive



/// Find the right balance



/// Define your type of storytelling



Describe



Declare



Explore

/// Define your route (click-path)



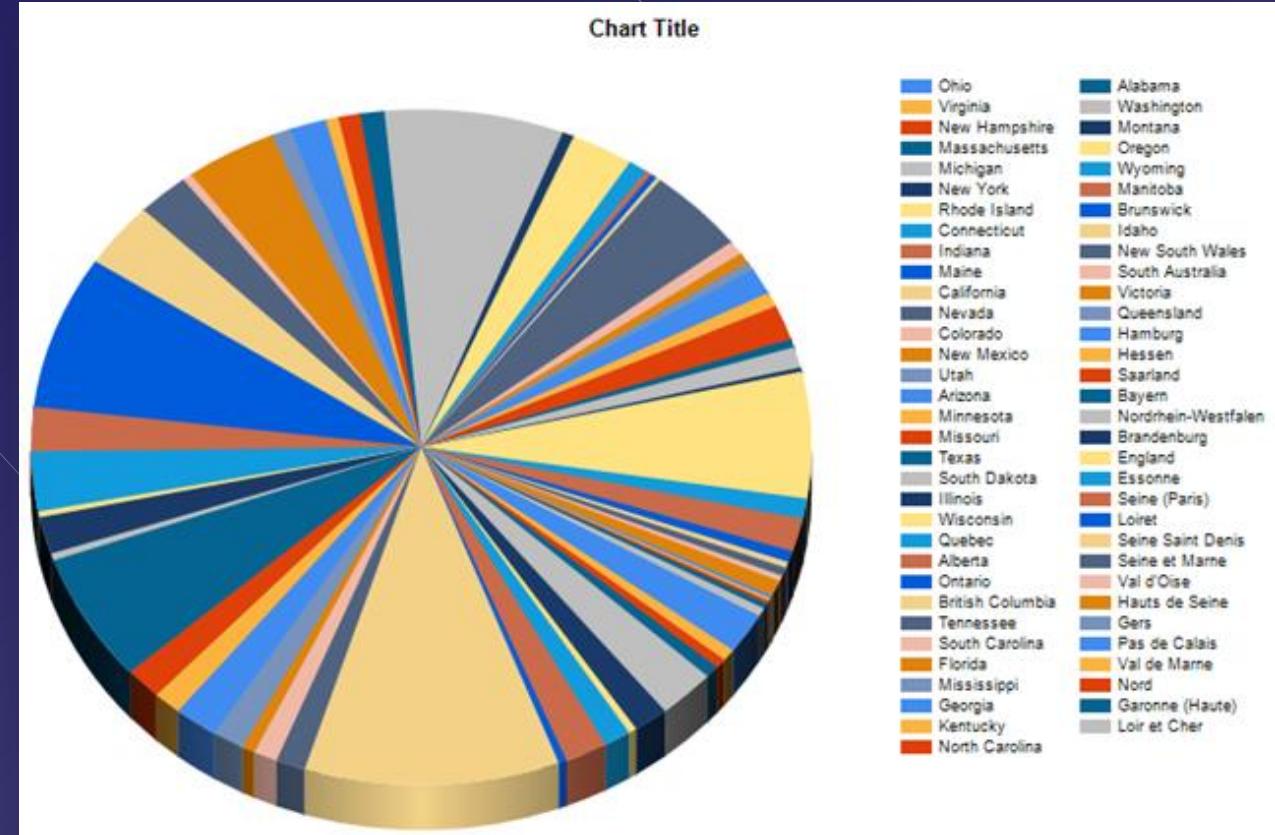
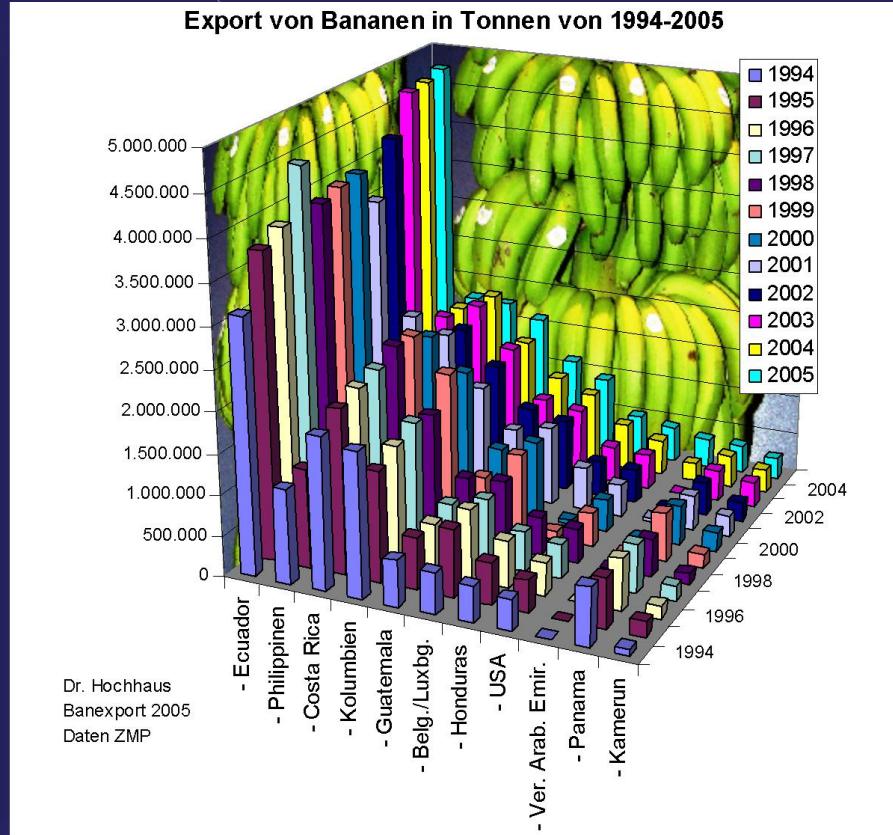
/// Think about your start & end-point



/// Remove all bullshit!

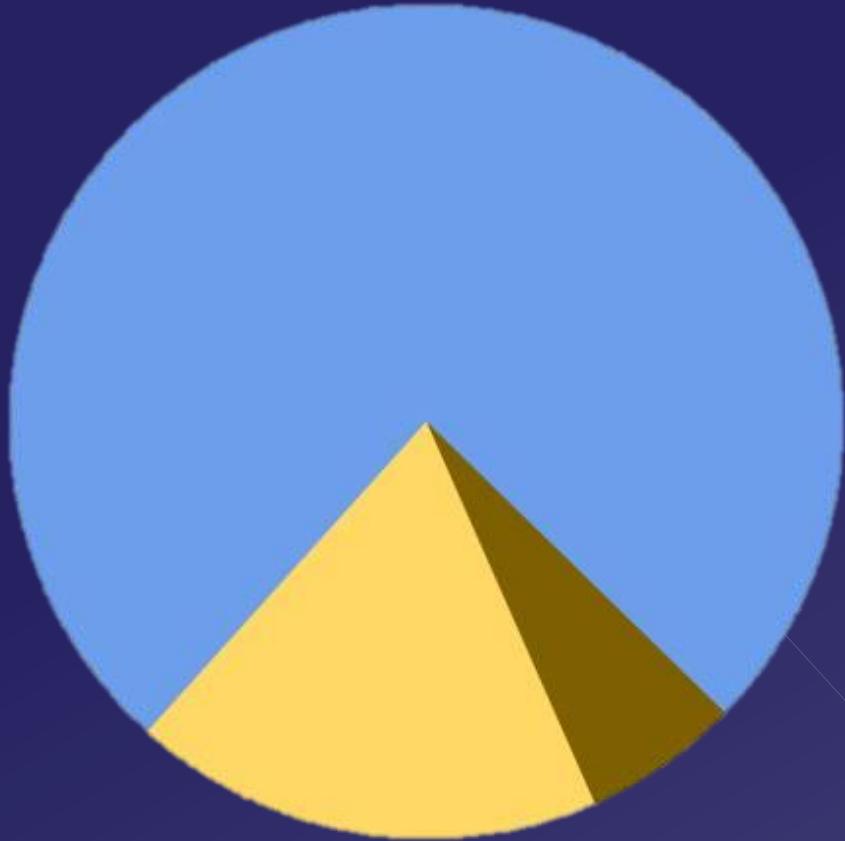


/// Think about your visualizations





Think about your visualizations



Sky

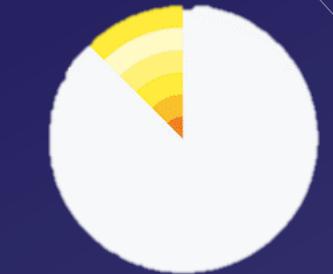


Sunny side of the pyramid



Shady side of the pyramid

/// Color usage



MONOCHROMATIC



COMPLEMENTARY



ANALOGOUS



TRIADIC



MARIOKART

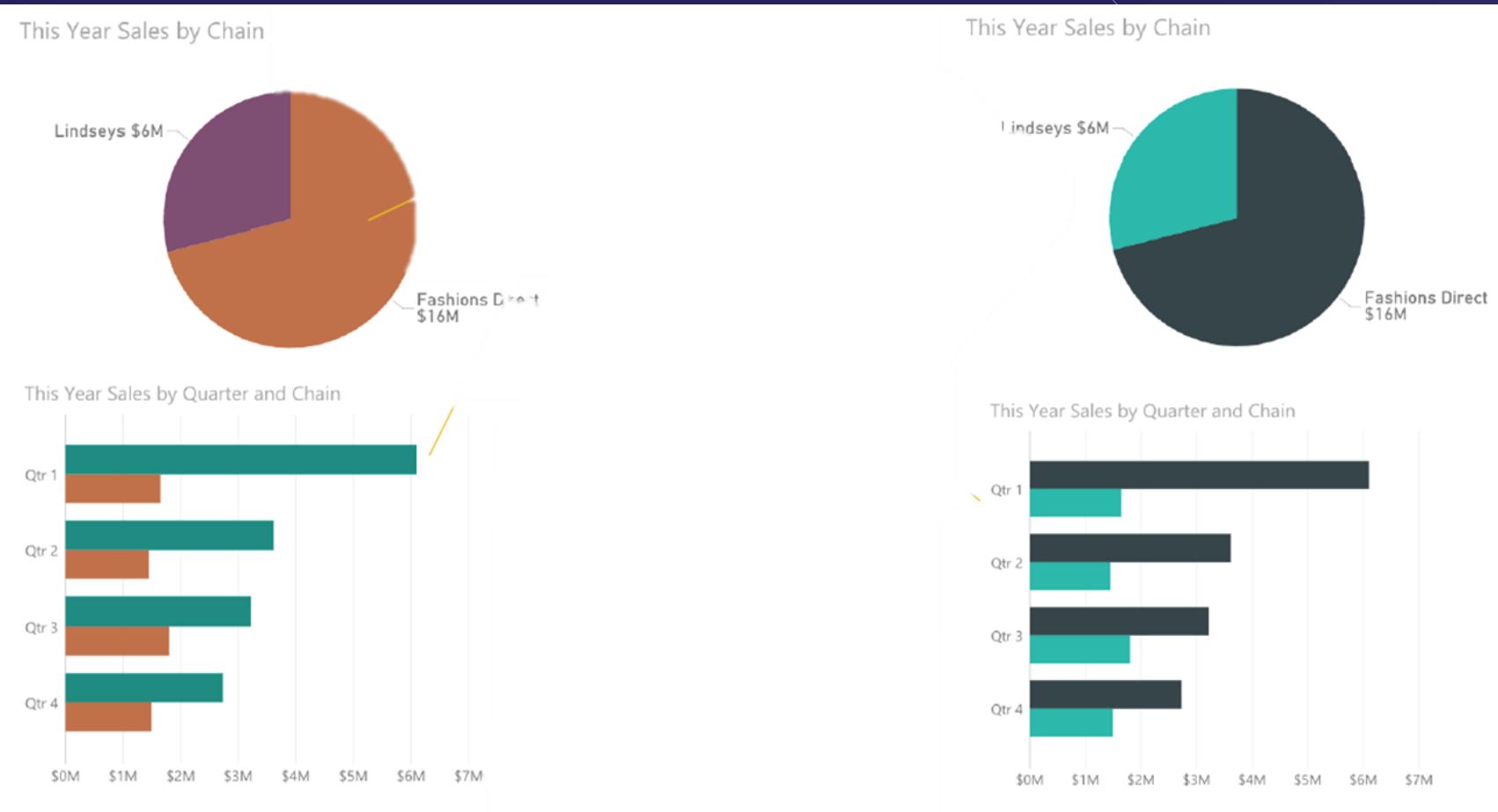
DELUXE

8™



1	King Boo	45
2	Lakitu	32
3	Villager	30
4	Shy Guy	27
5	Iggy	23
6	Ludwig	21
7	Roy	16
8	Peach	15
9	Cat Peach	14
10	Villager	10
11	Luigi	7
12	Mario	6

/// Consistency



Total Volume
IN 2014

50K

Market Share
LAST 12 MONTHS

32.86%

Our Total Volume
IN 2014

16K

Sentiment

68

Sentiment Gap

% Units Market Share vs. % Units Market Share Rolling 12 Months BY MONTH

● Units Market Share ● Units Market Share Rolling 12 Months



Total Units Overall BY SEGMENT



Total Units YTD Variance % BY MONTH, MANUFACTURER

Manufacturer: ● Alqui ● Quibus ● Natura ● Fama ● Barba ● Leo ● Salvus



Total Units YTD BY MANUFACTURER, REGION



Total Units for 2014 BY MONTH, MANUFACTURER

Manufacturer: ● Alqui ● Natura ● Fama ● Barba ● Leo ● Salvus



Industry % Market Share YOY Change BY ROLLING PERIOD, REGION

Region: ● Central ● East ● West

1/2/2015

6/30/2015

Consumer

Corporate

Home Office

Small Business

Furniture

Office Supplies

Technol...

Central

East

South

West

1,898,401

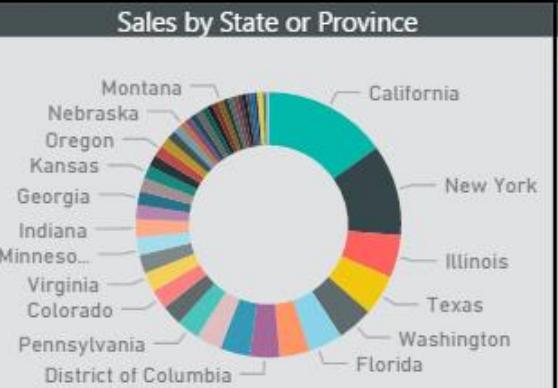
Sales

213,611

Profit

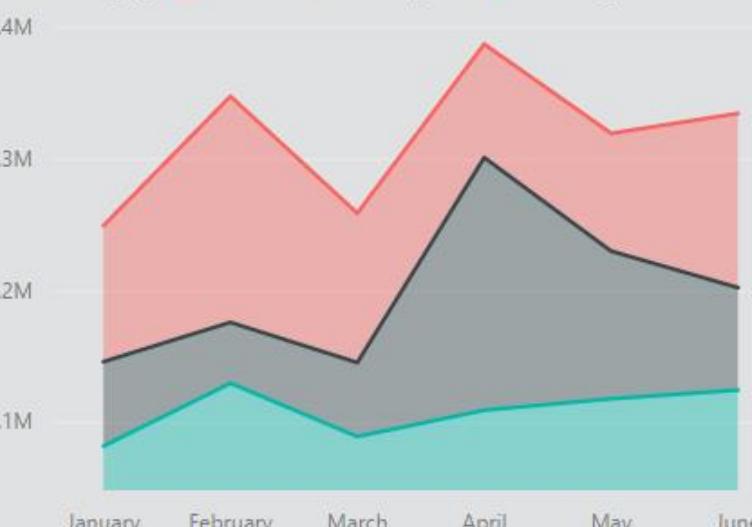
24,879

Quantity ordered new



Sales by Month and Product Category

Product Category ● Furniture ● Office Supplies ● Technology



Sales by Product Sub-Category



Sales and Profit by Product Category



Sales and Profit by Customer Segment



Profit by Month and Product Category

Product Category ● Furniture ● Office Supplies ● Technology





Send your users
on an adventure!



Storytelling features

Provide easy navigation



Published Date

Last ▾ 1 Years ▾

4/18/2017 - 4/17/2018

Source



Reimbursements by Product

● Medicaid Amount Reimbursed ● Non Medicaid Amount Reimbursed



Labeler Name	Medicaid Amount Reimbursed
Purdue Pharma	\$65,537,207
Rhodes Pharmaceuticals	\$13,386,981
Alvogen	\$11,685,277
Kvk-Tech	\$10,564,303
Aurobindo Pharma	\$4,453,260
Amneal Pharmaceuticals	\$3,724,979
Ranbaxy Pharmaceuticals	\$3,554,774
Zydus Pharmaceuticals	\$3,484,614
Epic Pharma	\$1,801,086
Sun Pharmaceutical Industries	\$1,630,451
Mayne Pharma	\$1,007,351
Par Pharmaceutical	\$804,096
Lahigh Valley Technologies	\$470,073



An Osteoarthritis Drug May Be the Answer to America's Opioid Crisis futurism.com • Mar. 2, 2018 A drug developed to treat osteoarthritis pain has shown promise as a method of preventing opioid tolerance and physical dependence. With the opioid epidemic still



A telling anecdote about Trump and the opioid abuse crisis www.vox.com • Mar. 2, 2018 originally from prescription opioids but increasingly now from heroin and fentanyl ? have emerged as an increasingly grave social issue, steadily worsening over



White House To Give Status Update On Opioid Emergency wypr.org • Mar. 2, 2018 ET Since President Trump declared the opioid epidemic a national public health

**here&
Now**

Wyoming Prepares To Grapple With Opioid Crisis www.wbur.org • Mar. 2, 2018 discuss the country's opioid epidemic. Rural coal mining states like West Virginia and



White House to host opioid summit and highlight Trump administration's efforts www.pbs.org • Mar. 2, 2018 The White House is hosting a summit to highlight Trump administration efforts to

WATCH LIVE: White House to highlight administration anti-opioid efforts fox61.com • Mar. 2, 2018

The White House is hosting a summit to highlight Trump administration efforts to combat the opioid crisis. First lady Melania Trump is scheduled to



Be dynamic

KPI BREAKDOWN



REGION

All

COUNTRY

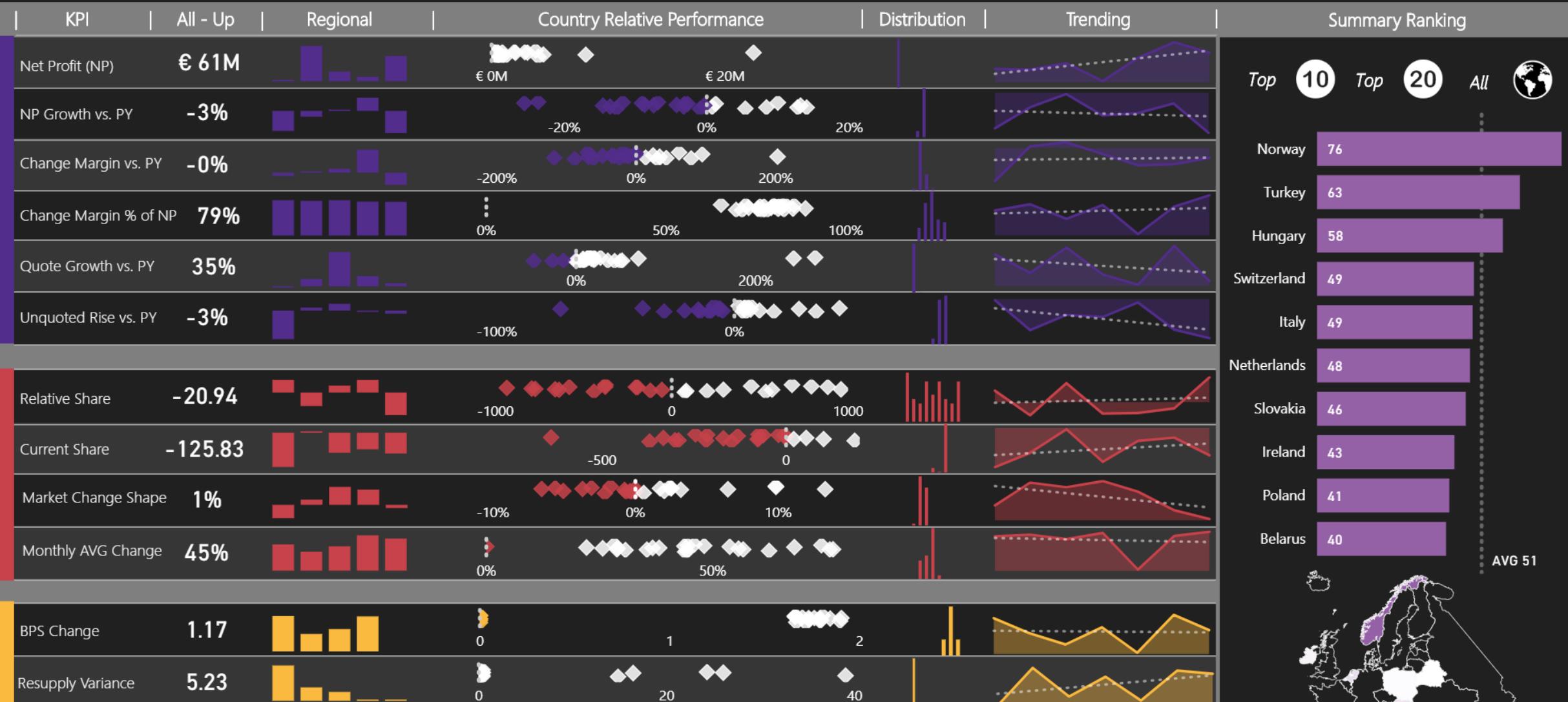
All



Select for FAQ

Decisive Data
insights for decisions

FINANCIAL



SUPPLY

Date

6/1/2017

12/1/2017

Summary Ranking

0

91

NP Growth vs PY

-30%

16%

Quote Growth

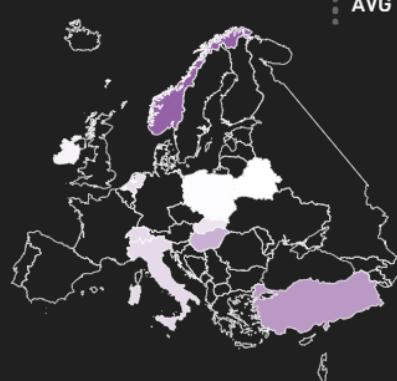
-55%

281%

Market Change Shape

-7%

16%



AVG 51

Filters

A row of beer barrels is arranged horizontally across the frame, creating a sense of depth through perspective. The barrels are light-colored with dark lids and are positioned against a plain, light-colored background.

Have a guided experience

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REIMBURSEMENTS BY STATE

CALLOUT **PAGES**

Opiod Crisis Investigation

Media Discussion

Reimbursements by State

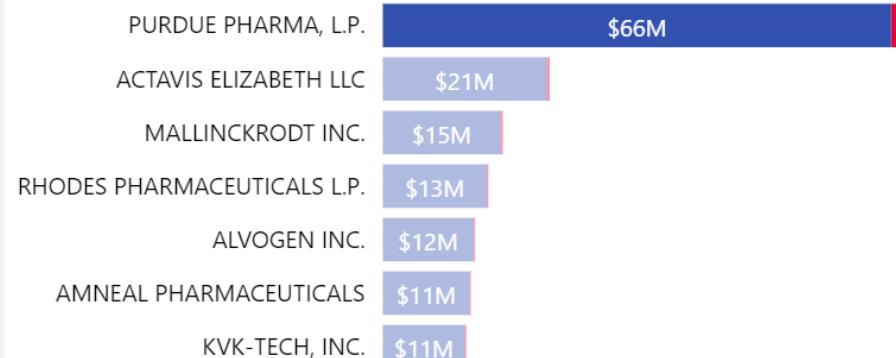
Take Action

Opioid Type

All

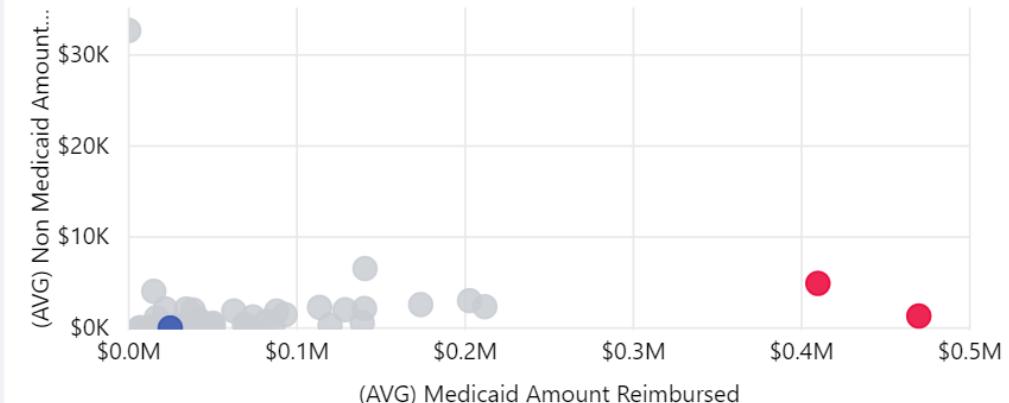
Medicaid Amount Reimbursed and Non Medicaid Amount Reimbursed by Labeler Name

● Medicaid Amount Reimbursed ● Non Medicaid Amount Reimbursed



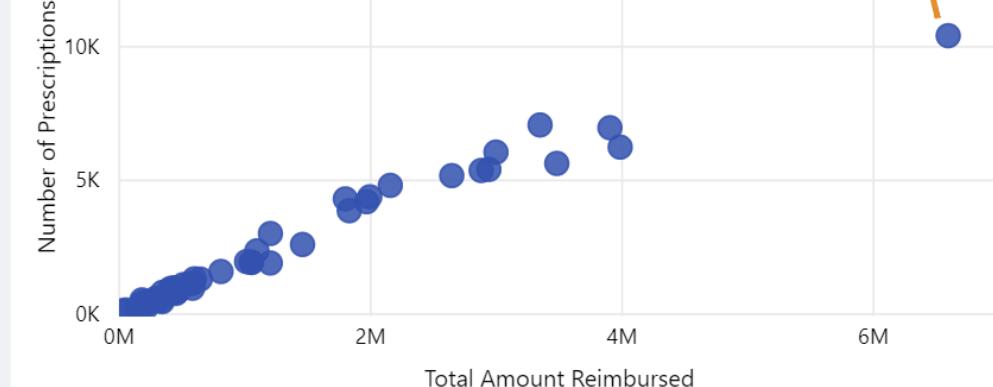
(AVG) Medicaid Amount Reimbursed and (AVG) Non Medicaid Amount Reimbursed by...

● Missouri & North Carolina ● Other ● South Carolina



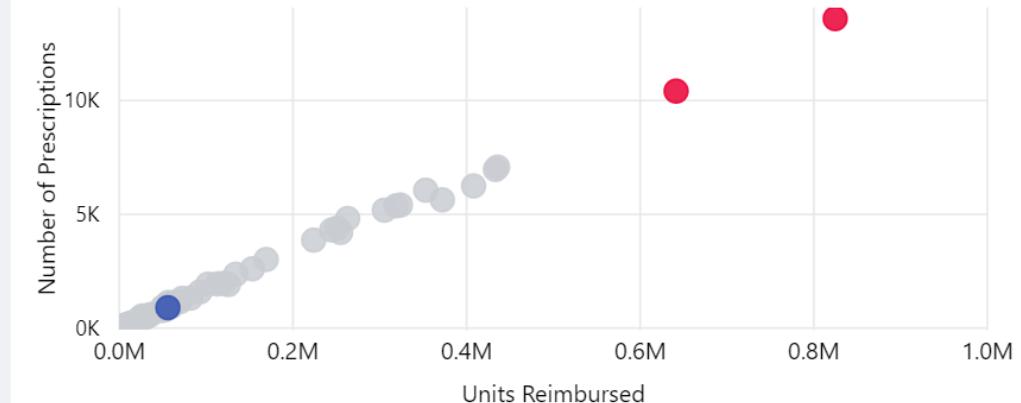
Missouri and North Carolina are at the centre of a lawsuit involving mis-marketing of OxyContin. Purdue settled a lawsuit in 2007 with South Carolina.

Total Amount Reimbursed and Number of Prescriptions by State



Units Reimbursed and Number of Prescriptions by State and State (groups)

● Missouri & North Carolina ● Other ● South Carolina





Have an interactive experience

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Power BI Filters Selection

Report Title



Bar Chart

Item

Slicer 1

- CategoryName
- Beverages
 - Condiments
 - Confections
 - Dairy Products
 - Grains/Cereals
 - Meat/Poultry
 - Produce
 - Seafood

February

March



KPI 1

Slicer 2

- Country
- Argentina
 - Austria
 - Belgium
 - Brazil
 - Canada
 - Denmark
 - Finland
 - France
 - Germany
 - Ireland
 - Italy
 - Mexico
 - Norway
 - Poland
 - Portugal
 - Spain

July

Aug



KPI 2

Slicer 3

- City
- Aachen
 - Albuquerque
 - Anchorage
 - Århus
 - Barcelona
 - Barquisimeto
 - Bergamo
 - Berlin
 - Bern
 - Boise
 - Bräcke
 - Brandenburg
 - Bruxelles
 - Buenos Aires
 - Butte
 - Campinas

December



KPI 3

Item

Item

Item

Item

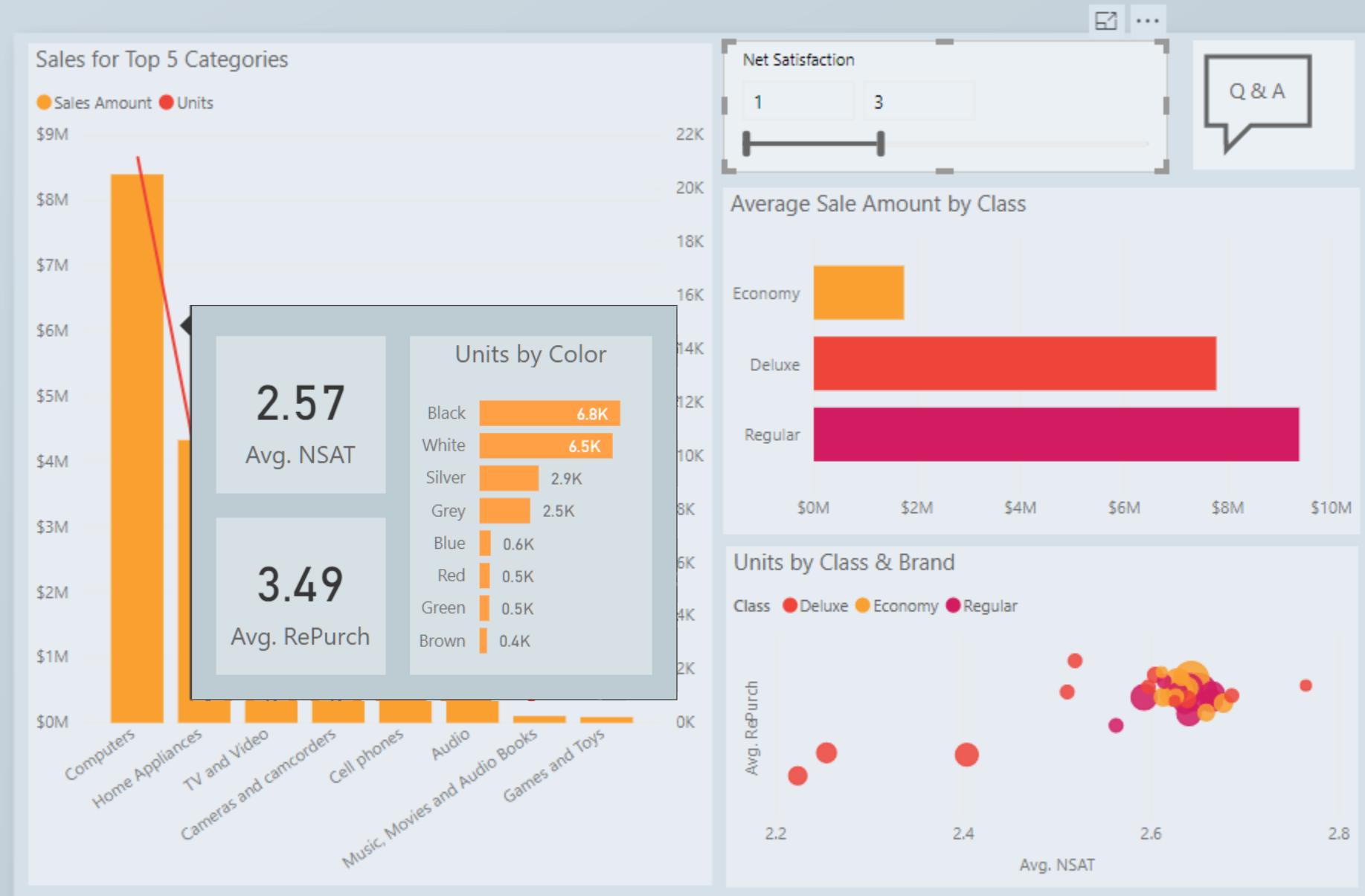




Ensure consistent context



Progressive disclosure





Let them ask questions

SUGGESTED QUESTIONS

sales amount for Germany

sales amount for Germany by year

Add



SalesAmount by OrderDate

\$16K

\$14K

\$12K

\$10K

\$8K

\$6K

\$4K

\$2K

\$0K

Showing sales amount sorted by order date when Germany sales were ordered

Filters (including highlights) from the source page have been applied.

year (Sales > Date Hierarchy > Year)

sale (Sales)

date hierarchy (Sales > Date Hierarchy)

manufacturer (Sales > Manufacturer)

order date (Sales > OrderDate)

sales order ID (Sales > SalesOrderID)

sales channel code (Sales > SalesChannelCode)

prod ID (Sales > ProdID)

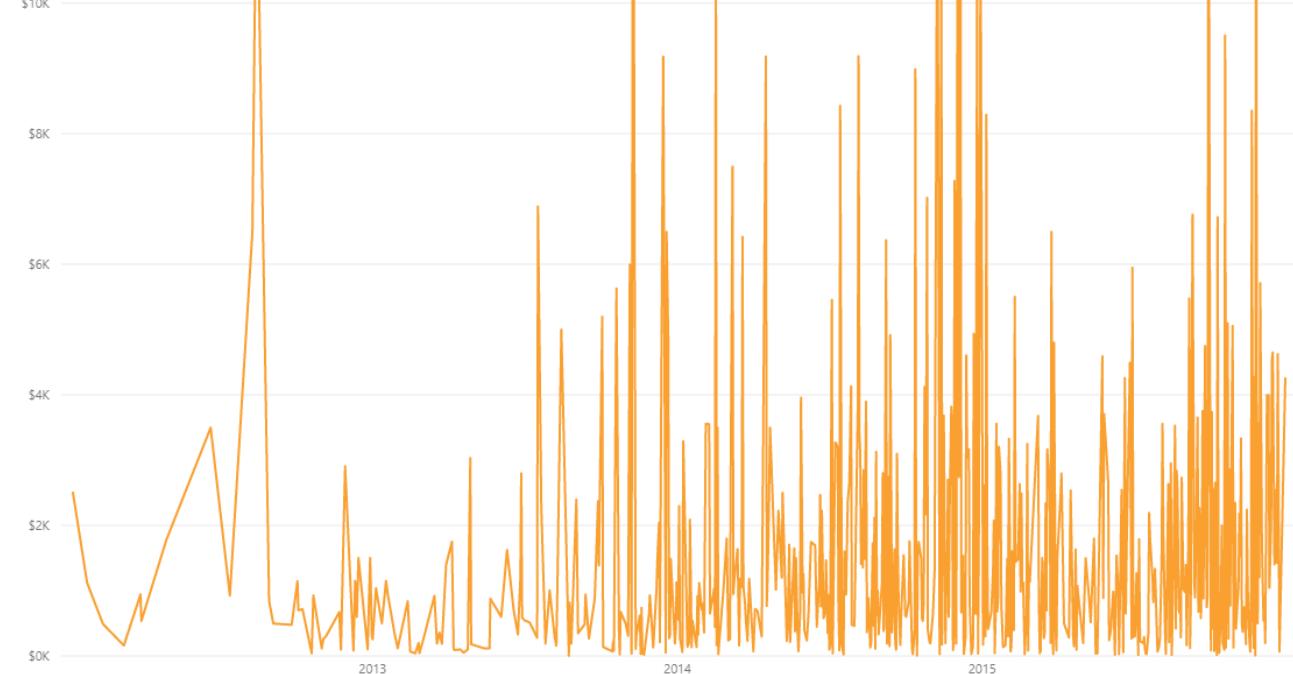
style name (Sales > StyleName)

customer account number (Sales > CustomerAccountNumber)

store key (Sales > StoreKey)

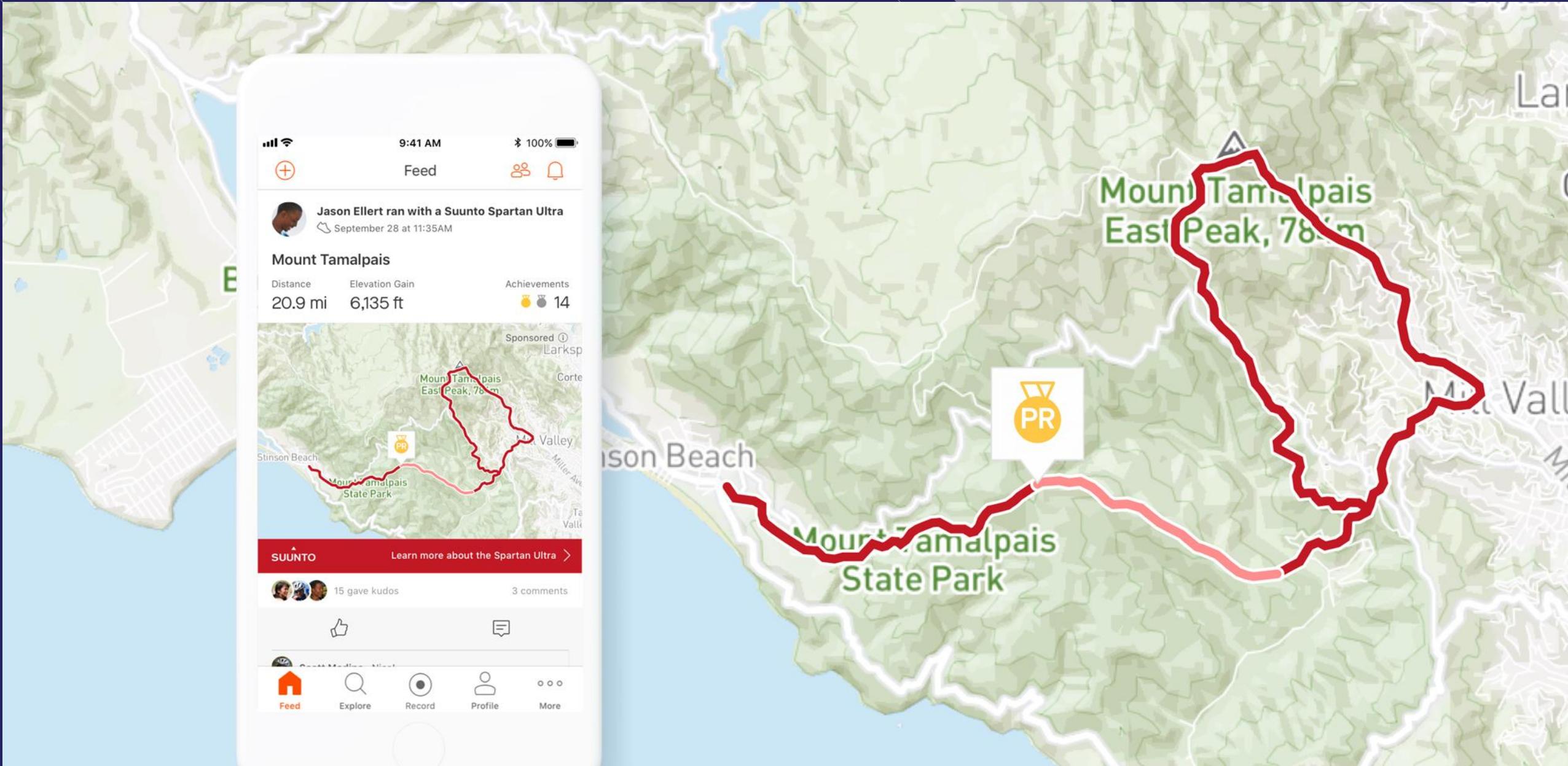
year by style name

YEAR BY CUSTOMER ACCOUNT NUMBER



Save and close

Cancel



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Background, theme and wallpaper



Demo 1

- Choose a lay-out for your report for be consistent in your presentation
- Create background to limit the amount of objects
- Create theme file and apply your corporate identity
- Add a wallpaper for further customizing the lay-out



Conditional formatting



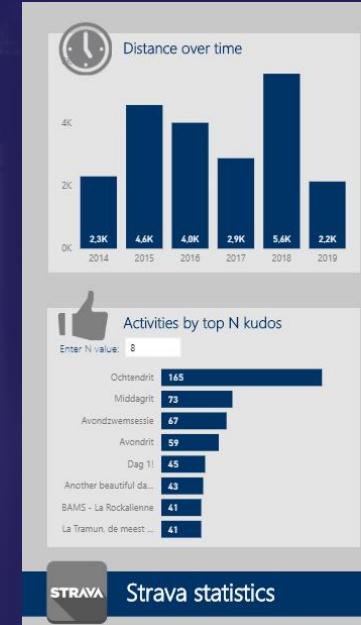
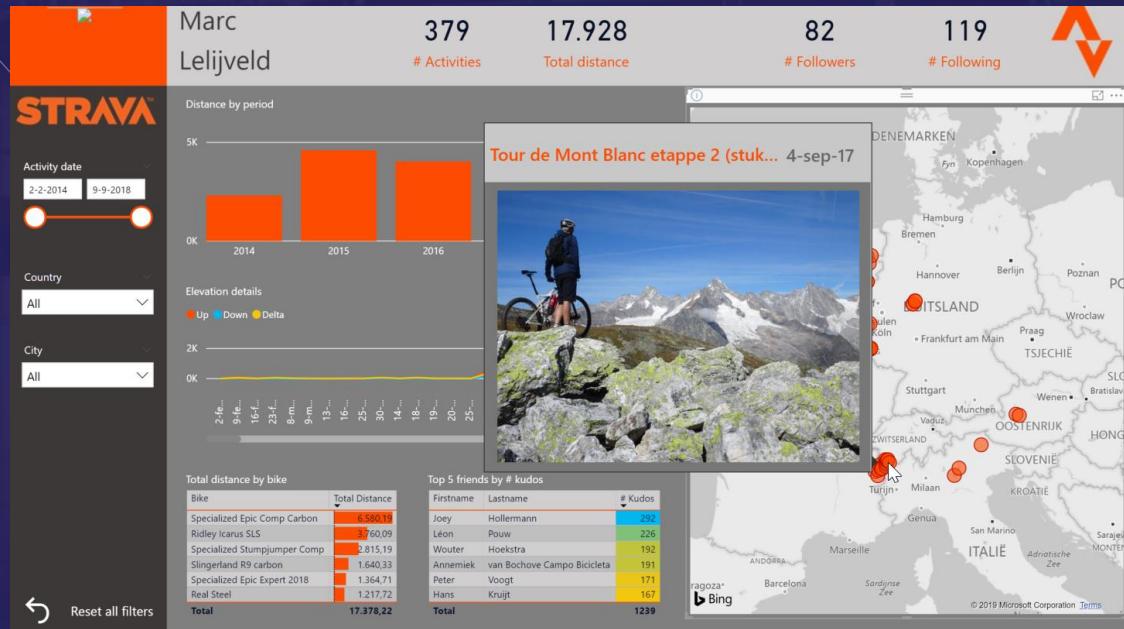
Demo 2

- Tables and matrixes look boring and like classic reports!
- Databars, text color and cell color!
- Based on cell value or other measure.

I'm going to tell you a story



Demo 3



Marc Lelijveld



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Recap

- Storytelling is not a science; it is an **art**!
- **Understand** your end-user. Facilitate them with data.
- Send your users on an adventure and make them part of **your story**!
- Add your **identity** (corporate or your own).
- Power BI is full of great features, **make boring data shine!**

Data – Marc

Blogging about everything related to Data and AI based on Microsoft technology

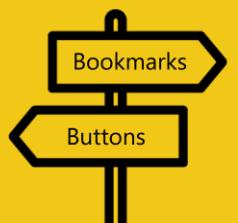
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CATEGORY: STORYTELLING

Blog series:
Storytelling & interactive
reporting with Power BI

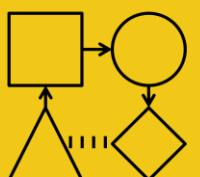
Provide easy
navigation



 Data-Marc.com

Blog series:
Storytelling & interactive
reporting with Power BI

Be Dynamic



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Have a guided
experience



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consistent
context



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Let them ask
questions



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Find all details
on my website!
Data-Marc.com



/// Marc Lelijveld

*Data & AI Consultant
Data Platform MVP*



- Marc.Lelijveld@outlook.com
- [@MarcLelijveld](https://twitter.com/MarcLelijveld)
- linkedin.com/in/MarcLelijveld
- Data-Marc.com

Download for free!

[Https://bit.ly/cheatsheetpbi](https://bit.ly/cheatsheetpbi)

The image shows a yellow and white document titled "Power BI Cheat Sheet". The document is divided into sections: "Power Query", "Data Model", and "Tips & Tricks". The "Power Query" section contains 11 tips, the "Data Model" section contains 10 tips, and the "Tips & Tricks" section contains 16 tips. The document also includes a "Download" button and a "Feedback" link. The footer of the document contains copyright information and links to other resources.

Power BI Cheat Sheet

Power Query

- Give every step an explanatory name and merge steps of the same type, for better manageability
- Some people prefer to not use spaces in the name of a step, for a better M coding experience
- Make sure that each column has the correct data type. Making the model smaller and faster
- Remove columns you are not going to use in your report. Never "Remove Other Columns" above the "Remove Columns" option, for losing risk that structural changes in your data source break the query
- Maximize the use of Query Folding for faster and more efficient queries. With Query Folding, multiple transformations are merged into one query and sent to the source. If a View Native Query is not available, Query Folding is stopped before that step
- In general, prefer "Home" over "DirectQuery". Unless the amount of data is too large to import, or when there are other requirements like real-time insights
- Use Date.FromInt32 of Date/Time/Date to extract a date from another field, and to make sure query folding doesn't break. More info on this blog post: <http://bit.ly/GetDate>
- Turn off "Enable Load" for query tables that you don't need in your data model
- Re-use Power Query code and lower impact on your data source by using Power BI Dataflows
- Turn on the Formula Bar so you get familiar with the Power Query (M) code
- Automatically beautify all column names in a query e.g. "CustomerName" → "Customer Name" by running the Power Query "Format" action (Alex Powers shared his GitHub repo: <http://bit.ly/1gjyPqf>)
- Replace underscores in all column names automatically by running the Power Query "Format" action (Alex Powers shared his GitHub repo: <http://bit.ly/2c9d6tV>)

Data Model

- Always use a separate Date table in your data model. Mark it as a Date Table
- Only use DAX Calculated Columns when it's not possible to create it using Power Query. This makes them clearer and more readable of your reports as transformations are located where you expect them. It also improves query speed of the model and reduces refreshes
- Give measures like YTD, YOY, etc. as a suffix, to keep the base fields together in the sort order
- Use measures like YTD, YOY, etc. as a suffix
- Hide columns that are needed but are irrelevant for the user
- Use calculated columns instead of using the original column. This way the measures will have the same value
- Hide the key at the many side of a many-to-one relation
- For each measure column in your data model, create a DAX Calculated Measure instead of using the "DAX" function. This will make the calculation in the future if adding a filter condition
- Always use the table name when you refer to a column, for example: Product[Category]
- It is easier to reference this measure in other DAX functions
- Use DIVIDE() to prevent division by 0, to improve the speed of your measures
- Use ISNUMBER to get the right currency level in DAX (read all about it in Jasper de Jonge's blog: <http://bit.ly/2kHoupe>)
- In DAX, DAXCOLUMNS takes by pressing Alt + Shift + A or CTRL + I, and Shift + Enter for line breaks
- Use aggregations to keep your model small and performant, and only have all detailed data available
- Use a Tabular Editor to make changes to your Power BI file
- make sure to check out my best-practice analyzer
- Avoid direct cross filtering and make use of measure filters (<http://bit.ly/MeasureFilters>)
- For very large models, group measures or fields in display folders for better readability
- Use DAX Studio to capture all DAX queries executed on your Premium Capacity
- Keep your Power BI desktop file fast and small by using TOX (<http://bit.ly/1m9pZr>)
- Keep your Power BI service file fast and small by publishing (<http://bit.ly/1pRzr>)
- Importing data source in PBIX service after publishing (<http://bit.ly/1pRzr>)

English version - October 2019
<https://bit.ly/cheatsheetpbi> (PDF download)
<https://bit.ly/1pRzr> (contribute to the cheat sheet)

Thank You

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