fans
NORDIC SAS USER GROUP

Visual Analytics
FANS Nätverksmöte #6

2020-09-02

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sas

Agenda från föregående möte

2020-02-20

- Introduktion till dagen/välkommen
- Data Prep för VA – tema för dagen, kort introduktion
- Exempel från verkligheten:
  - Finansinspektionen (Bosse Sjöberg)
  - Region Stockholm (Per Haglund och Gunnar Temnell)
  - Agria (Jan Mikael Yousif)

Swedish Fika

- Data Prep för VA – några nyheter i Viya 3.5 och tips & tricks
- Bestämma tema för nästa nätverksträff

Lunch

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Dagens Tema:
Rapport och Data Design

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Idag har vi ytterligare en kundpresentation…

Lönelänken 3.0

Presentatör: Carl-Olow Magnusson

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Dagens Agenda

- Välkomna till höstens träffar!
- Tips för att skapa en framgångsrik dashboard
- Att jobba med olika datastrukturer i VA: Normaliserat data vs Analystabeller vs Långa/tunna tabeller vs vilken struktur som helst.

Paus, 15 minuter

- Kundpresentation - Lönelänken 3.0
- Visual Analytics 8.5.1
- Bestämma tema för nästa nätverksträff

PDF tillgängliga efter mötet

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The path to successful visualizations/ dashboards

Carl-Olow Magnusson
Senior Visualization Advisor

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Why is information quality important?

Bad information quality, such as poorly designed dashboards, can ***jeopardize*** all efforts you have done to ensure high ***data quality***.

And, it can also ***jeopardize your trustworthiness*** !!!

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Report design is very similar to designing a shop window

Your path to success…

01 VALUE

What value is expected to be delivered. What kind of questions does the report need to be able to answer and who is the audience.

02 REPORT

The report needs to serve a clear and defined purpose, have a consistent look and feel, and a structure that supports discovering insights.

03 PAGE

The page needs to stand on it's own, have a visual framework that supports understanding the content, and be visually appealing.

04 CHART

The chart type needs to suit the presentation type (Comparison, Composition, Distribution, Relationhip), reflect extent of variables and data points, be free of chart junk, and no high contrast elements.

05 PERFORMANCE

Each system has it's own performance characteristics. By using the strengths and minimizing weak points end users get better user experience.

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VALUE

The Hunt for Value

- Who is the audience? That is a good start ☺

- Make sure you understand what value is expected by the audience

  No value → Non-successful visualization, dashboard or report

- Often starts with a soft value,
  i.e. “I want an overview of…”

  Soft value, this is often the main purpose of the report

- The soft value is built on multiple hard values,
  i.e. revenue, sales, costs, … etc.

REPORT

The 1-4-4 rule

This is a good start!

1 Report

4 Pages/sections

4 visualizations per page/section

The number of pages in your report influence your audience's perception of the report before viewing it.

Small ≈ quick and easy-to-understand

Large ≈ complex report that requires several study sessions

Please Note: **This a guidance**, not a law ☺ Some use-cases will require more than 4 visualizations and/or 4 pages

However, it doesn't hurt to guide the audience to better visualizations.

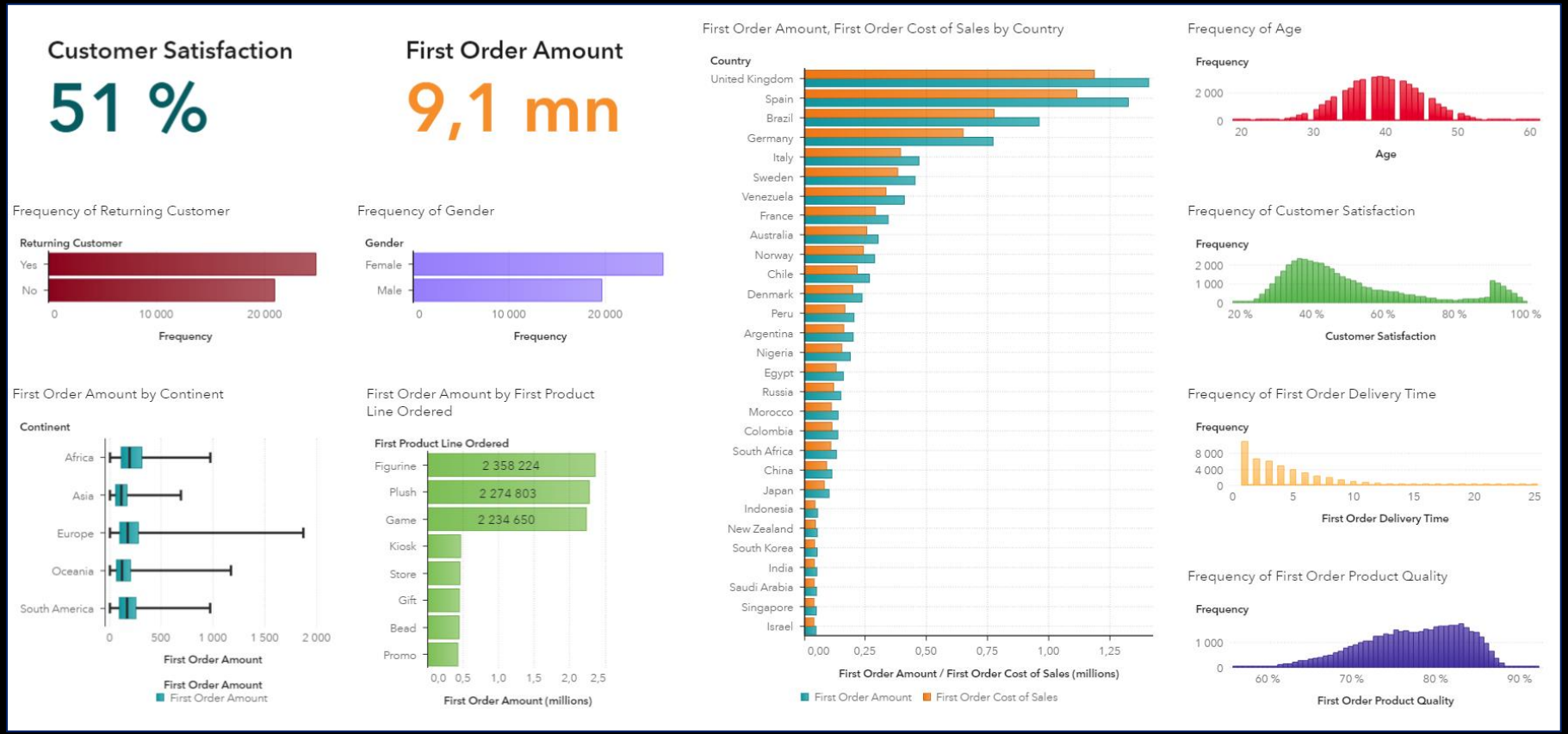
Keep coloring simple and consistent

Focus first on what you can tone down then what you should brighten up.

Black + Grey + Blue

Practical Rules for Using Color in Charts Stephen Few, Perceptual Edge Visual Business Intelligence Newsletter February 2008

Do not distract your audience



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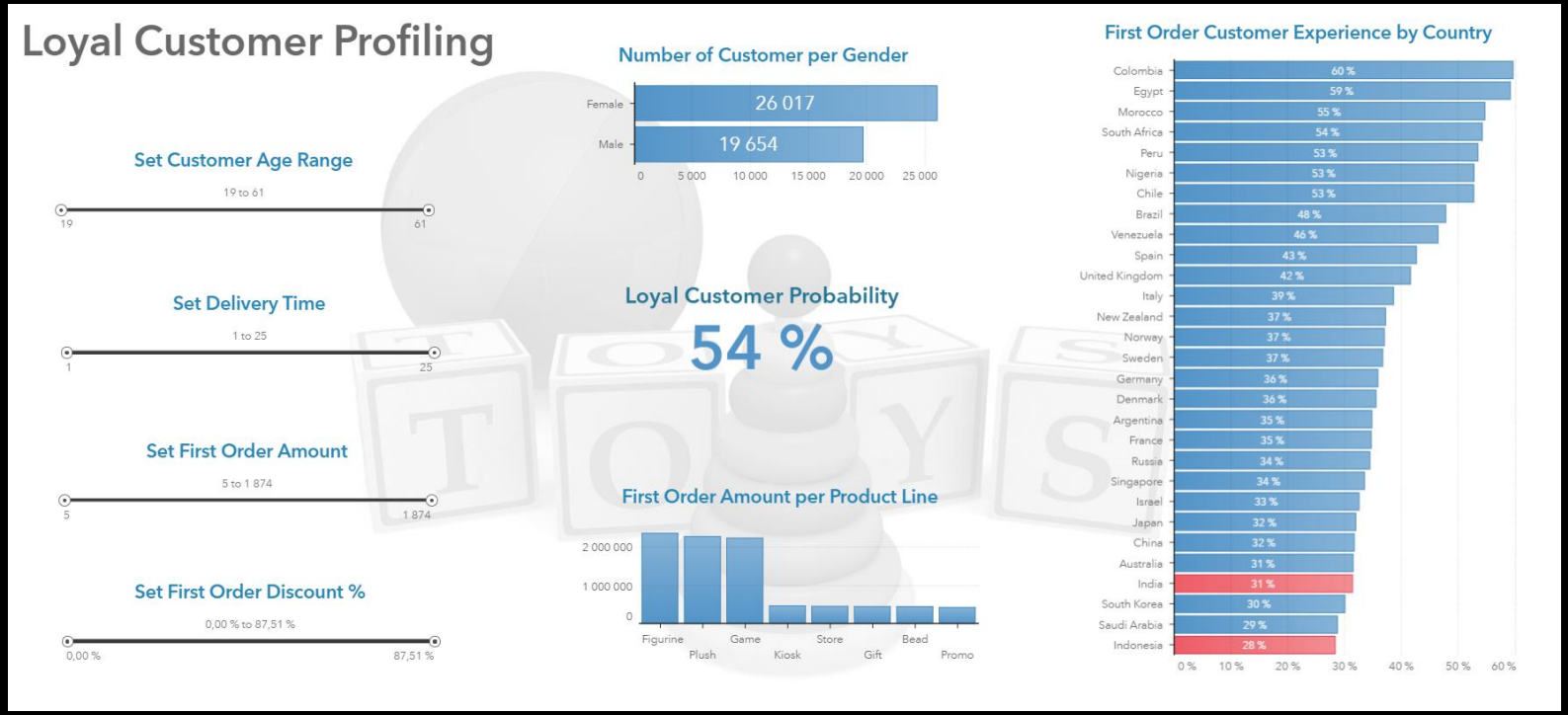
This is much better ☺



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PAGE

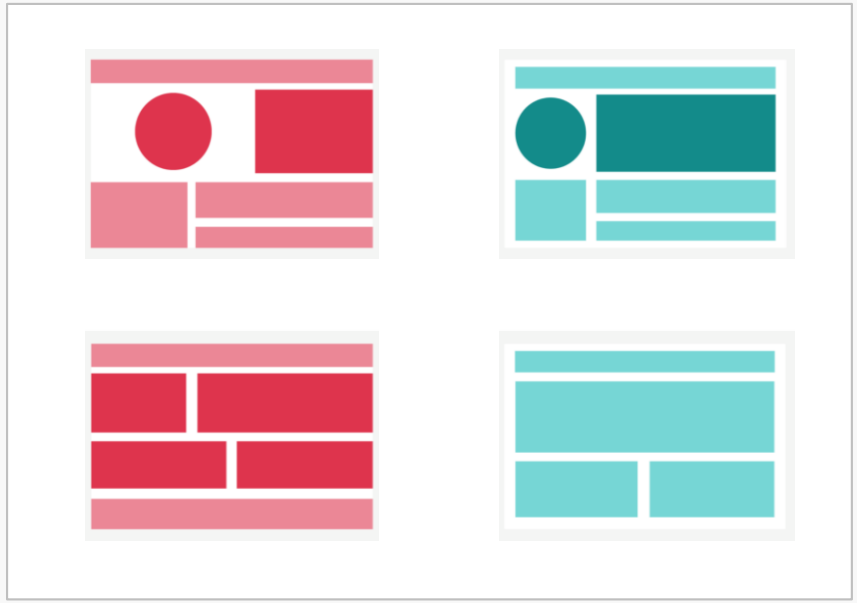
Align to Grid

Keep all the report objects well arranged.

By aligning the elements of your contents, your report page will look organized and attractive.

Alignment creates a sharper design, making report objects visually connected.

And it makes the page easier on the eye.



Create a Focal Point

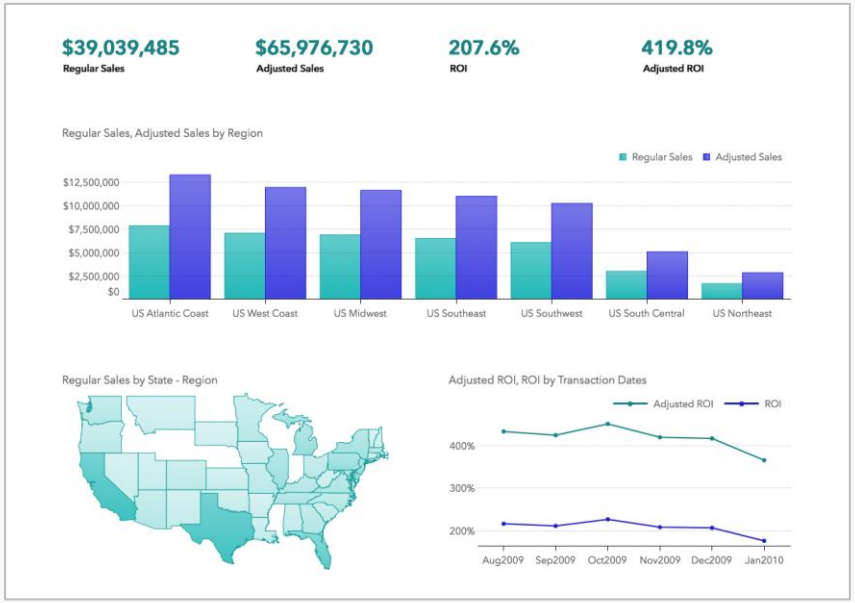
The focal point is the object that grabs the viewers' attention.

It provides a starting point for viewers as they take in the content of the page.

Position it at either the top of the page or the left side.

Should be the largest object on the page

If there is an object that drives interactions, then that object should be the focal point.



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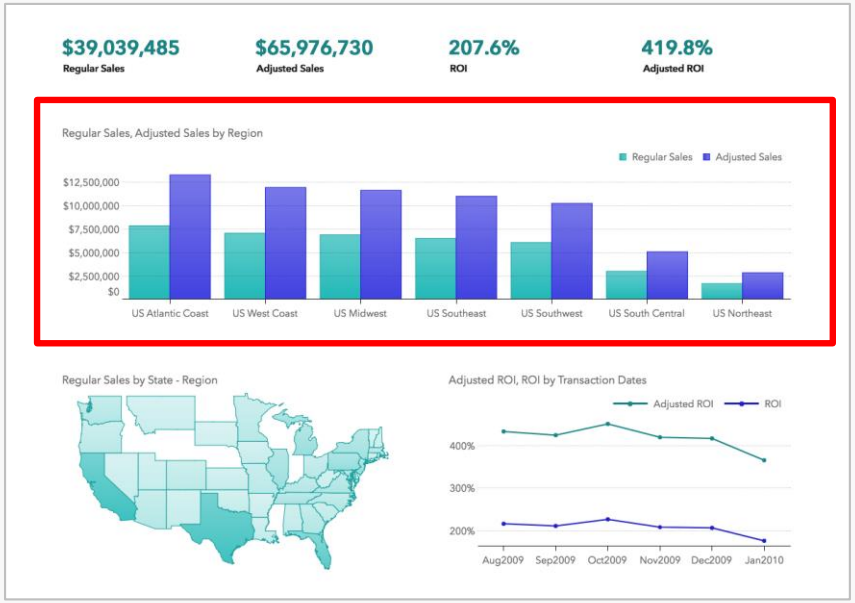
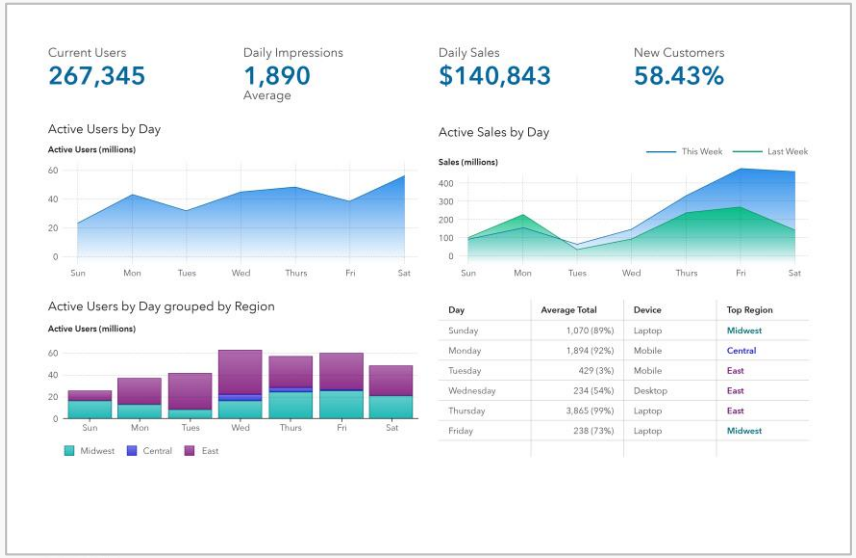




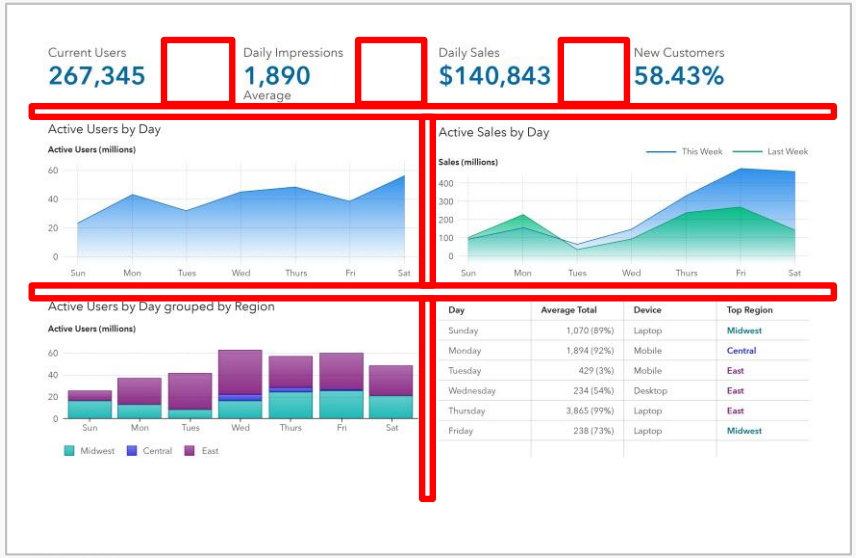
Use White Space

White space, or negative space, is the area in your report that doesn't contain content.

It establishes a visual framework that enables the viewer to easily understand the content and organization of the report.

Closely-spaced content requires additional time and effort from the viewer to understand.

A report that is free of clutter and has ample white space is more visually appealing and elegant.



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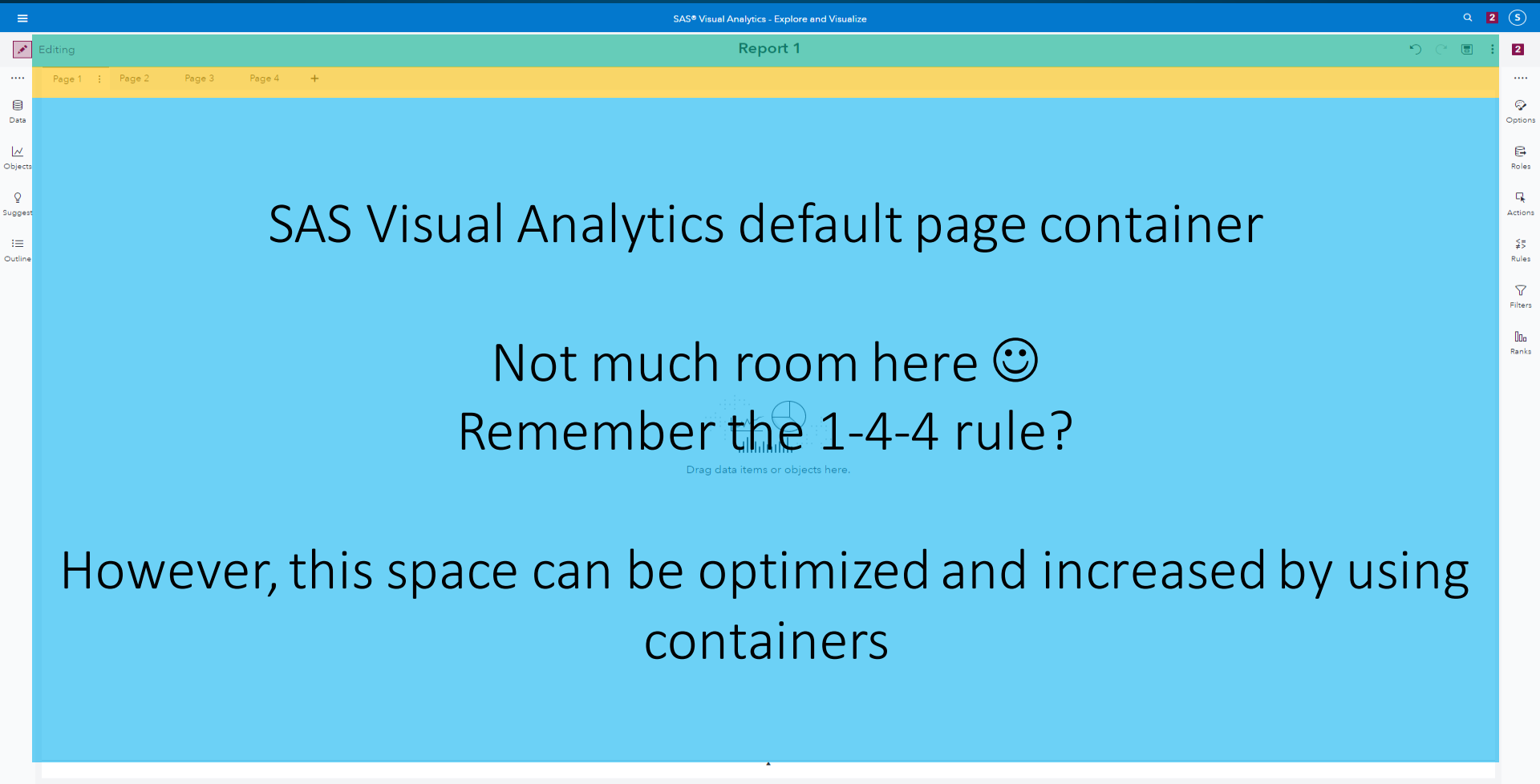
Note: In SAS VA white space is called "padding" (available in the right option menu)

Default report structure in SAS Visual Analytics



White Space and how to get more space in VA

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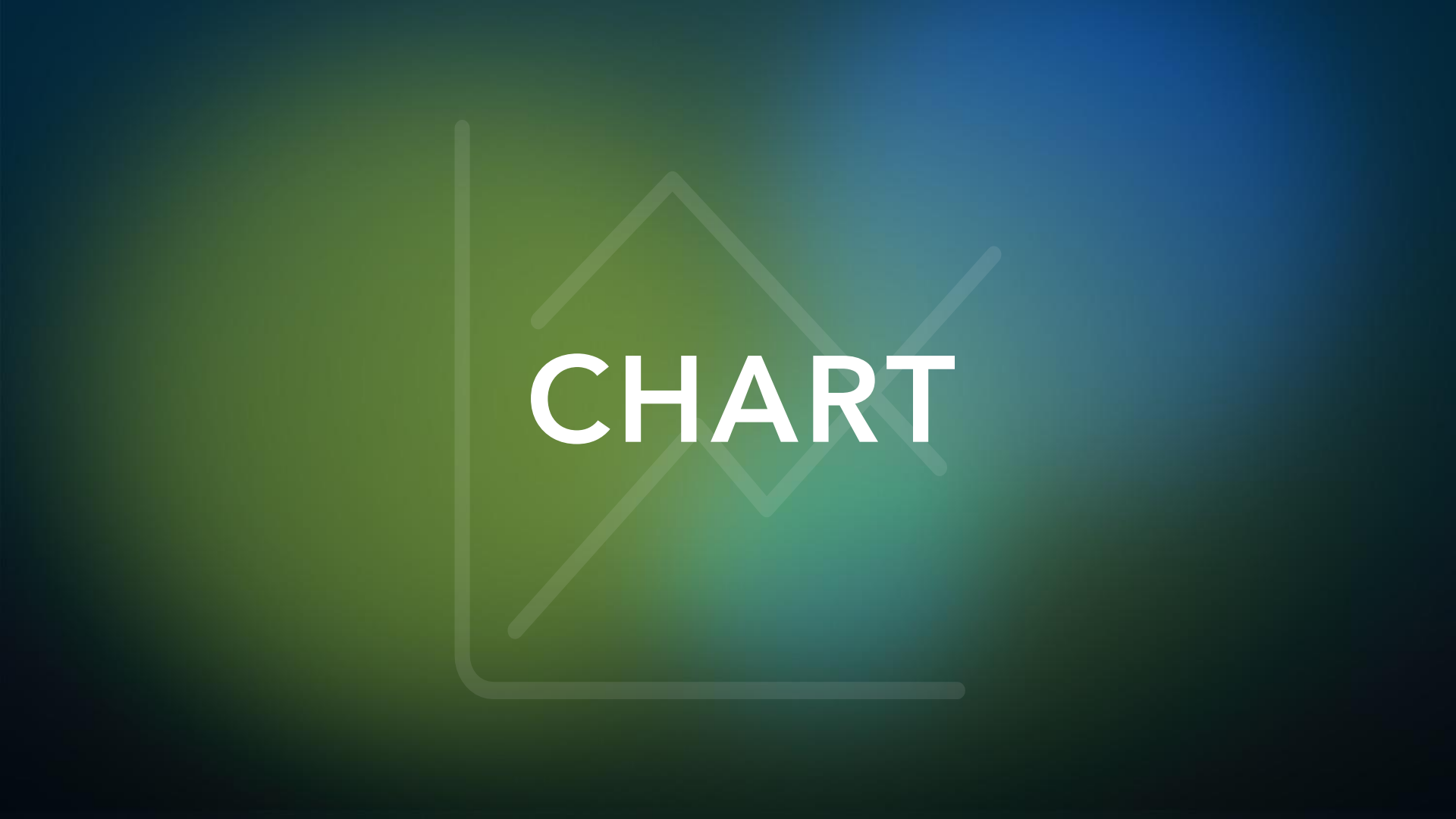


CHART

Chart Selection

Use common chart objects that everyone understands: single value KPIs, bar and line charts.

Many chart selection guides available online.

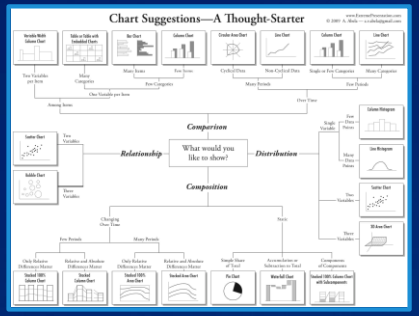


Chart design

Remove all the chart clutter to reduce “visual noise”.

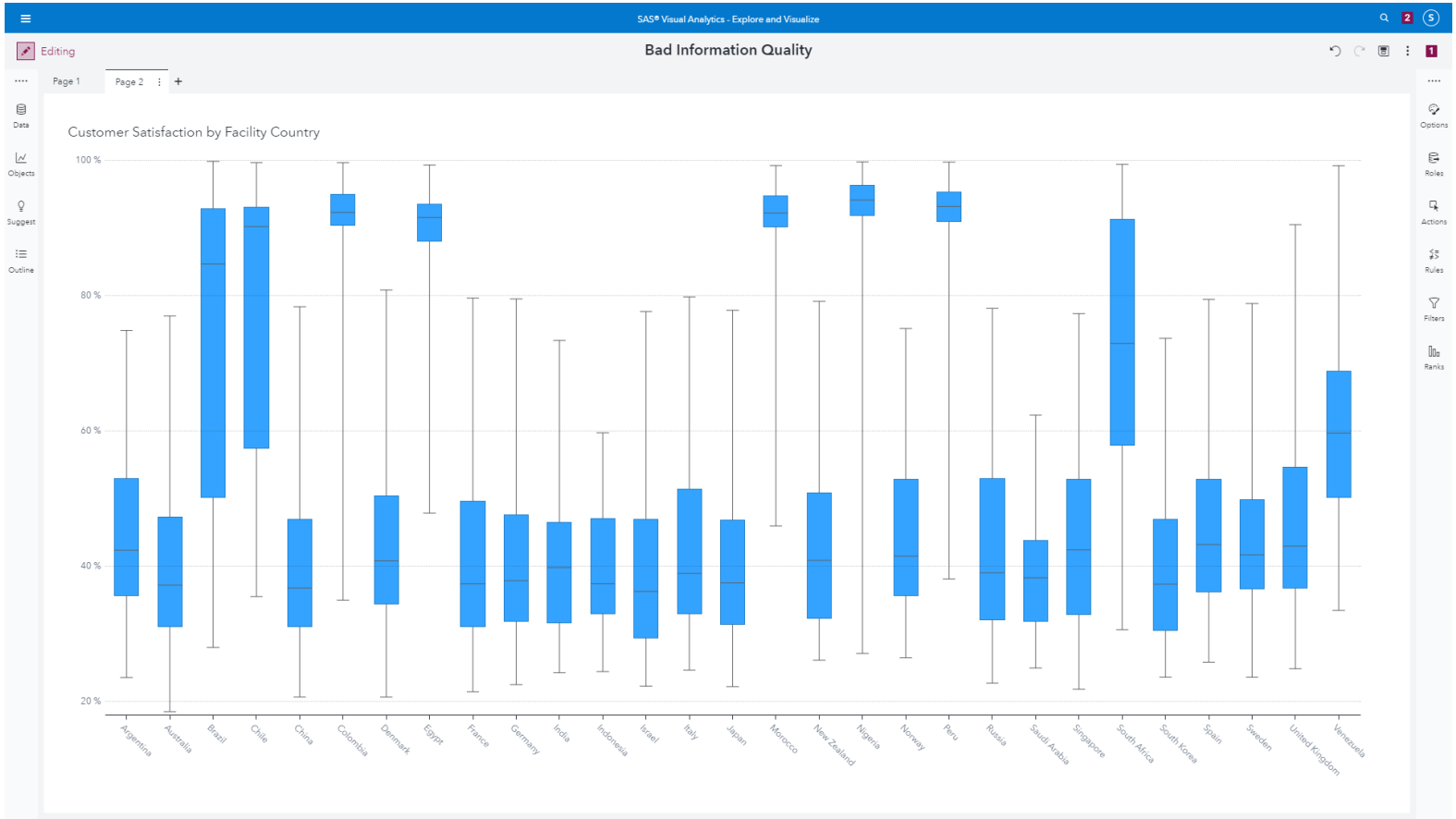
Use consistent design approach.

Bar chart: Consider horizontal layout if text categories.

Line chart: Don’t plot more than four lines.

Pie chart: Don’t use for comparison. If more than two categories then consider stacked bar chart.

THE BOX PLOT, PROBABLY THE BEST VISUALIZATION IN THE WORLD



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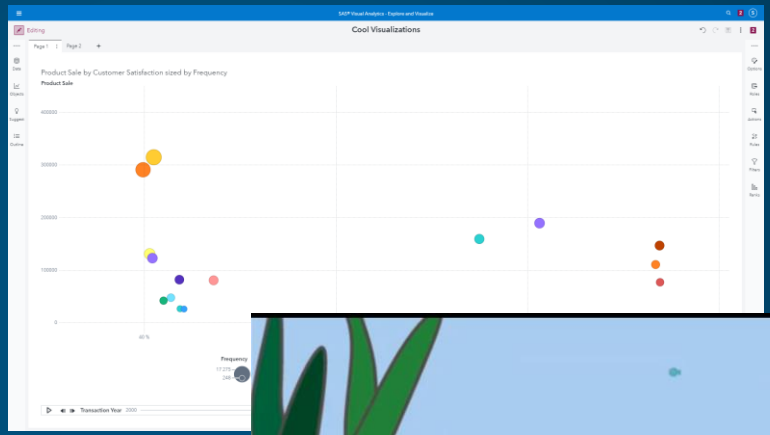
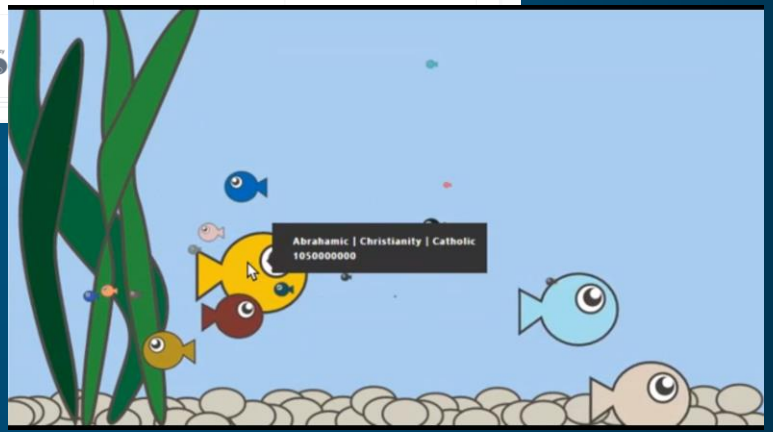
SOME ARE SO COOL…

SOME ARE SO COOL…

Cool Visualizations

DEMO





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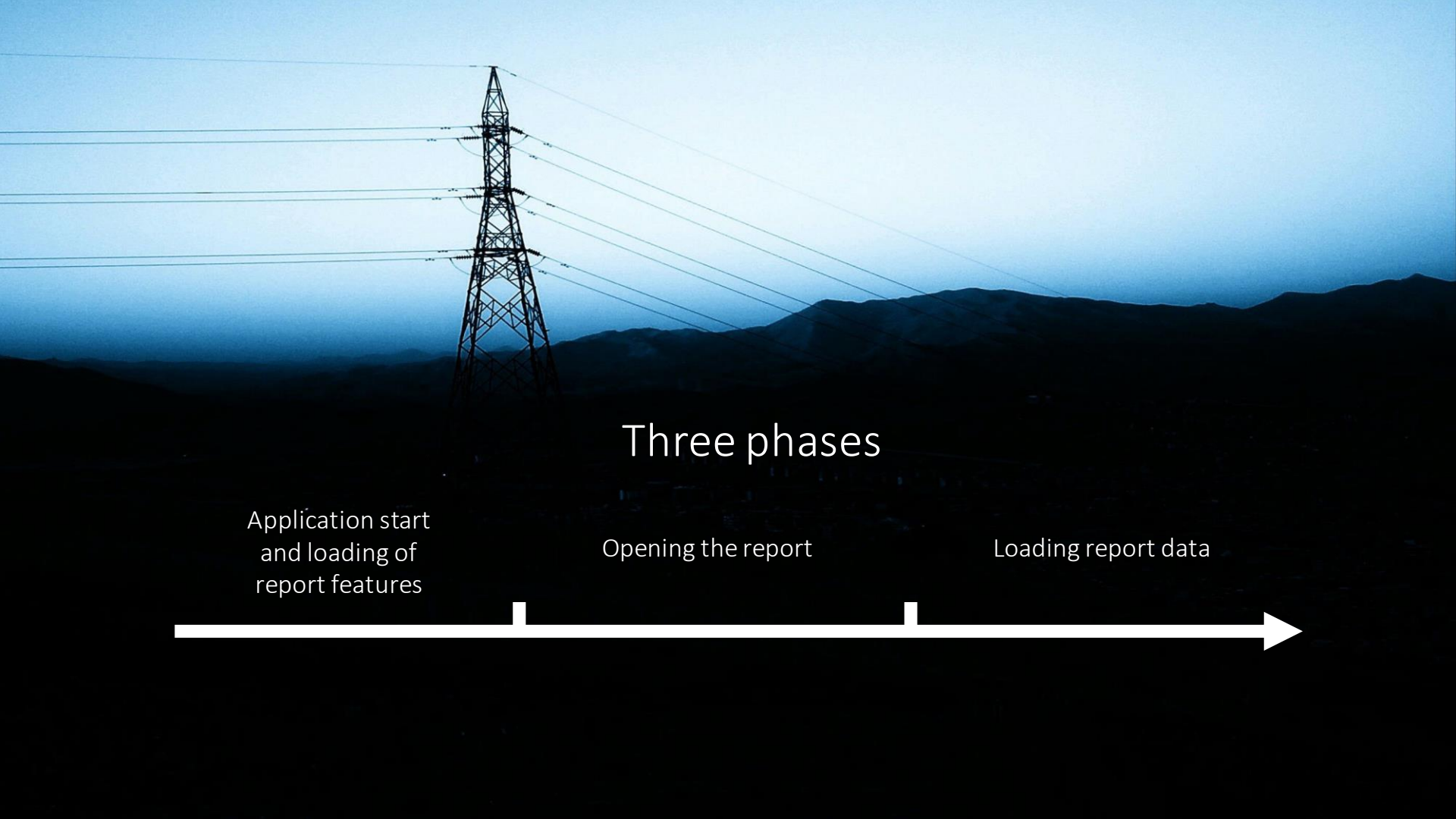
Do not try to fool your audience

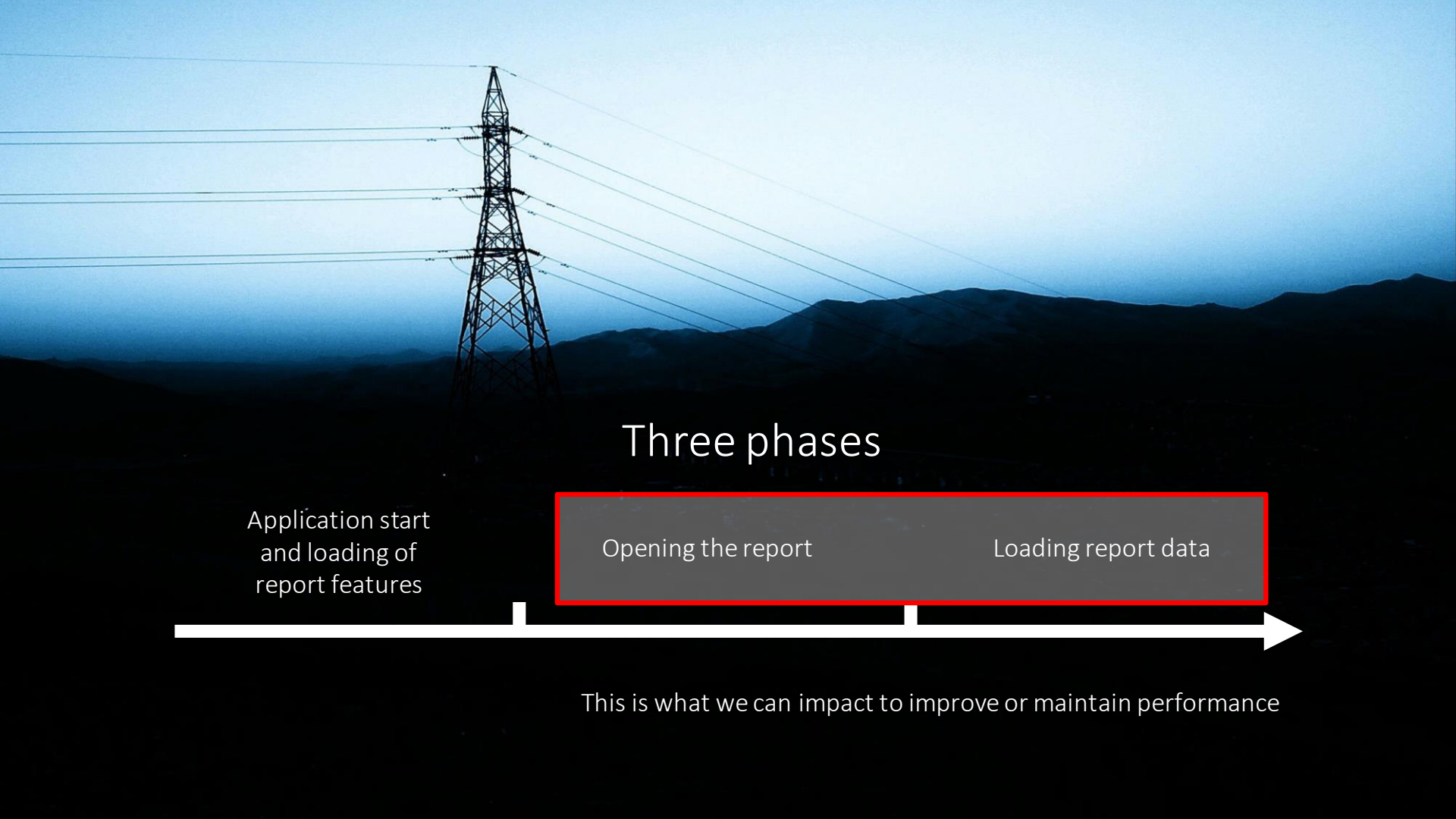
Bad visualization discipline can lead to…

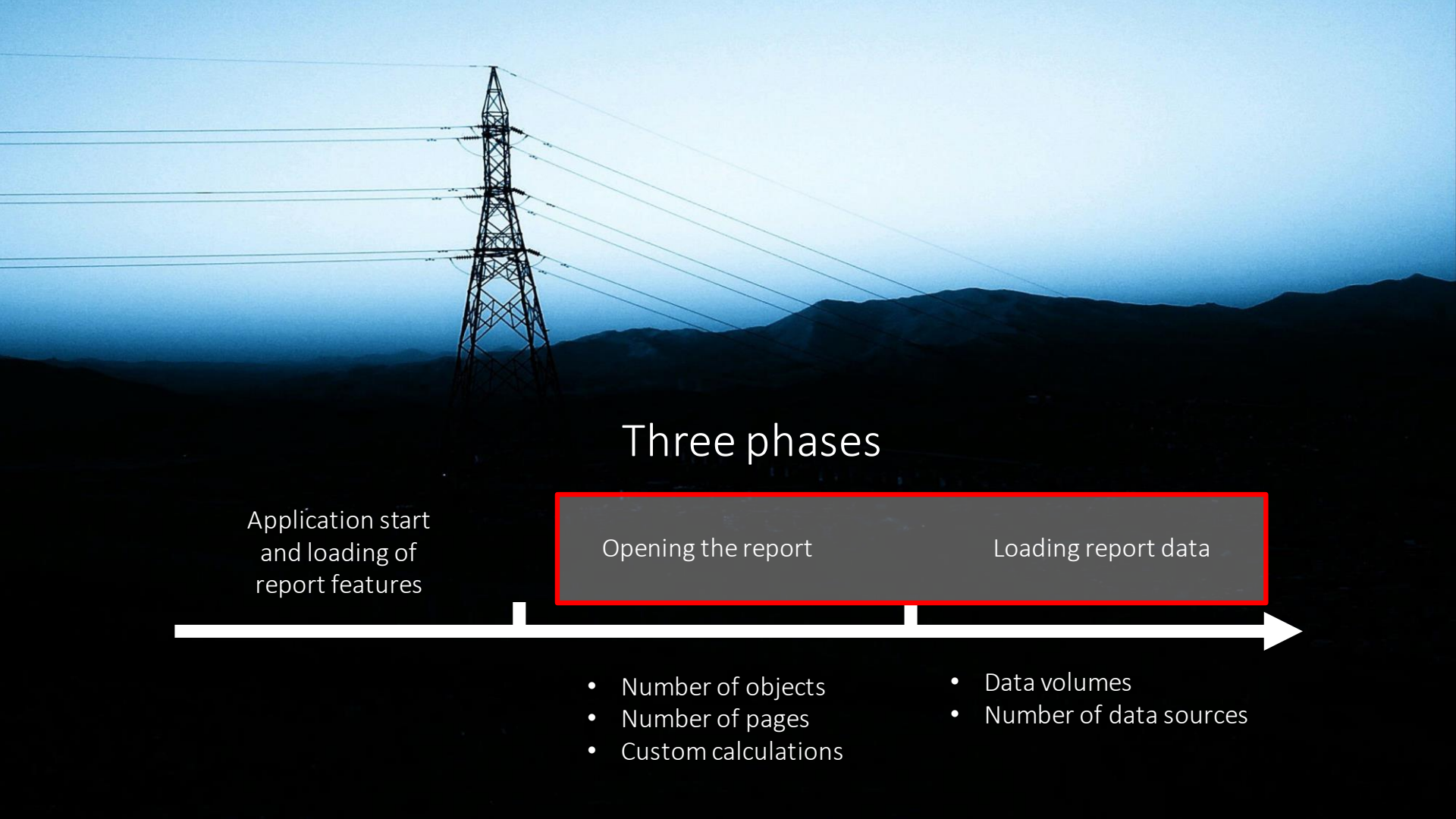
- Misleading information
- Bad or poor interpretation
- Reduced trustworthiness

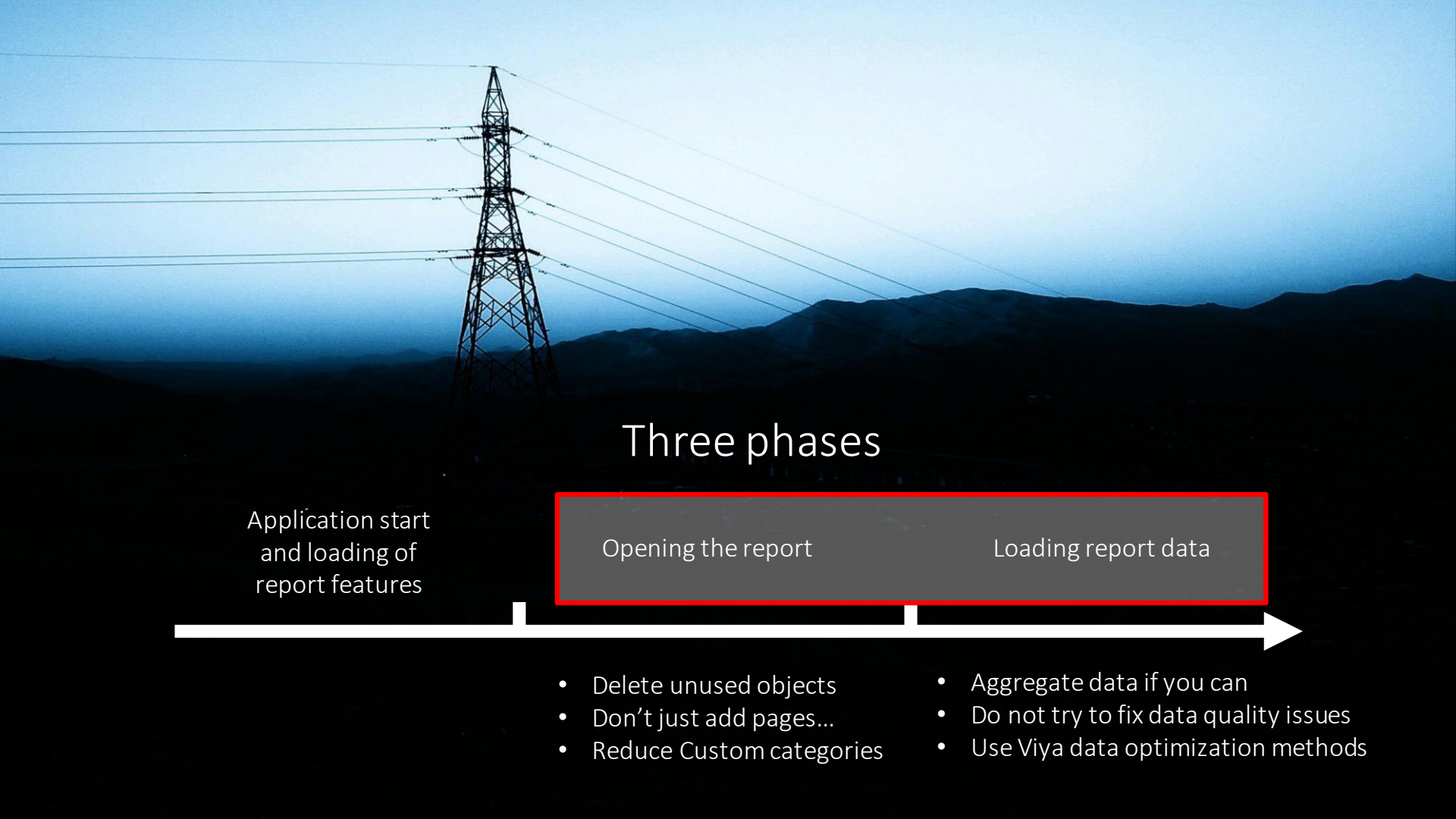
PERFORMANCE

Remember: Everything you do will impact performance.


Three phases
Application start and loading of report features
Opening the report
Loading report data


Three phases
Application start and loading of report features
Opening the report
Loading report data
This is what we can impact to improve or maintain performance


Three phases
Application start and loading of report features
Opening the report
Loading report data
• Number of objects
• Number of pages
• Custom calculations
• Data volumes
• Number of data sources



Three phases

Application start and loading of report features

Opening the report

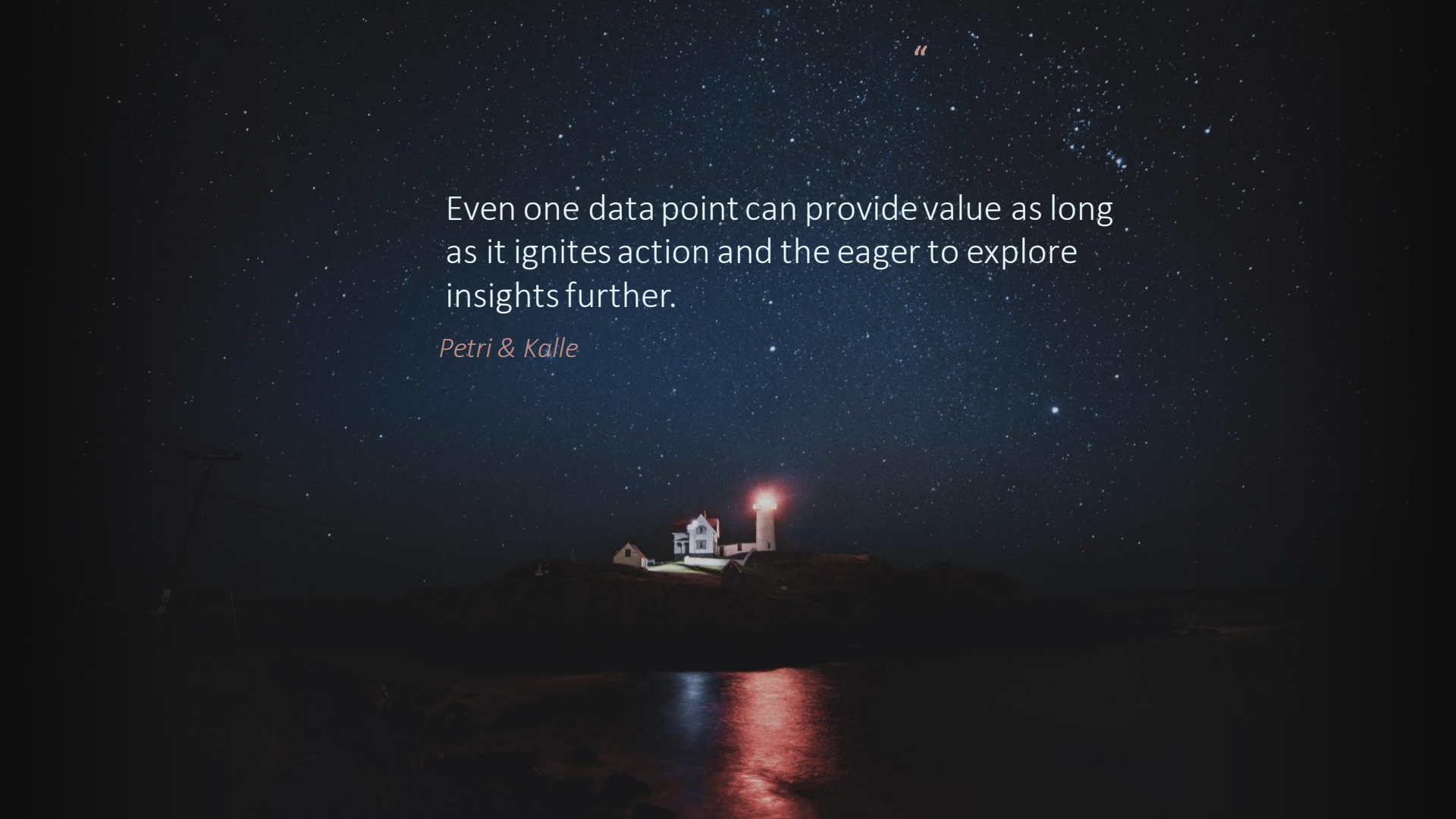
Loading report data

- Delete unused objects
- Don’t just add pages…
- Reduce Custom categories

- Aggregate data if you can
- Do not try to fix data quality issues
- Use Viya data optimization methods

Do not…

- … fix data quality issues in your report
- … fix data structure issues in your report
- … use detailed data if you do not need it
- … ignore report performance impact


“
Even one data point can provide value as long as it ignites action and the eager to explore insights further.
Petri & Kalle

Q & A

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Att jobba med olika datastrukturer i Visual Analytics

SAS Visual Analytics kräver ingen specifik datastruktur för att fungera…

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SAS Visual Analytics kräver ingen specifik datastruktur för att fungera…

…självklart har datastrukturen betydelse beroende på vad du ska göra i SAS Visual Analytics ☺

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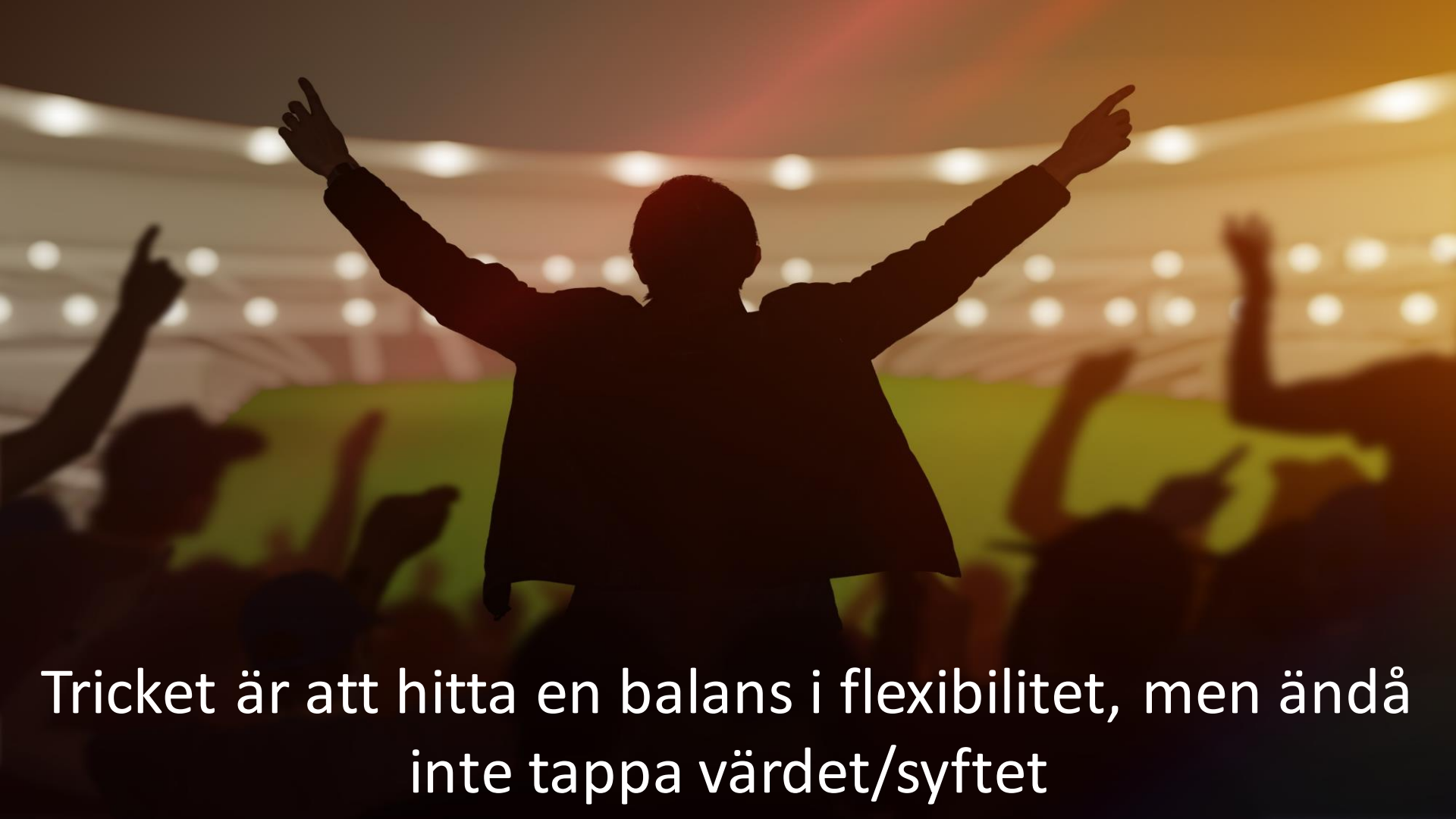
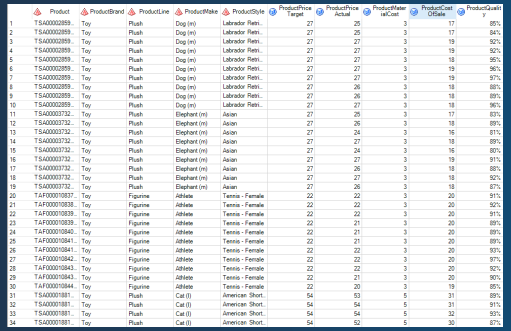


Tricket är att hitta en balans i flexibilitet, men ändå inte tappa värdet/syftet

Låt oss titta på några exempel: 3 vanliga datastrukturer

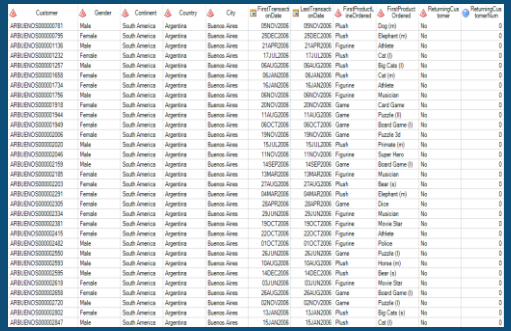
Klassisk rapportstruktur ”Normaliserad”



	Product	ProductBrand	ProductLine	ProductMake	ProductStyle	ProductPrice Target	ProductPrice Actual	ProductMaterialCost	ProductCost OfSale	ProductQuantity
1	TSA0000289...	Toy	Plush	Dog (m)	Labrador Retri..	27	25	3	17	85%
2	TSA0000289...	Toy	Plush	Dog (m)	Labrador Retri..	27	25	3	17	84%
3	TSA0000289...	Toy	Plush	Dog (m)	Labrador Retri..	27	27	3	19	92%
4	TSA0000289...	Toy	Plush	Dog (m)	Labrador Retri..	27	27	3	19	92%
5	TSA0000289...	Toy	Plush	Dog (m)	Labrador Retri..	27	27	3	18	95%
6	TSA0000289...	Toy	Plush	Dog (m)	Labrador Retri..	27	27	3	19	96%
7	TSA0000289...	Toy	Plush	Dog (m)	Labrador Retri..	27	27	3	19	97%
8	TSA0000289...	Toy	Plush	Dog (m)	Labrador Retri..	27	26	3	18	88%
9	TSA0000289...	Toy	Plush	Dog (m)	Labrador Retri..	27	26	3	18	89%
10	TSA0000289...	Toy	Plush	Dog (m)	Labrador Retri..	27	27	3	18	96%
11	TSA0000273...	Toy	Plush	Elephant (m)	Asian	27	25	3	17	83%
12	TSA0000273...	Toy	Plush	Elephant (m)	Asian	27	26	3	18	89%
13	TSA0000273...	Toy	Plush	Elephant (m)	Asian	27	24	3	16	81%
14	TSA0000273...	Toy	Plush	Elephant (m)	Asian	27	27	3	18	89%
15	TSA0000273...	Toy	Plush	Elephant (m)	Asian	27	24	3	16	80%
16	TSA0000273...	Toy	Plush	Elephant (m)	Asian	27	27	3	19	91%
17	TSA0000273...	Toy	Plush	Elephant (m)	Asian	27	26	3	18	88%
18	TSA0000273...	Toy	Plush	Elephant (m)	Asian	27	27	3	18	92%
19	TSA0000273...	Toy	Plush	Elephant (m)	Asian	27	26	3	18	87%
20	TAF0000108...	Toy	Figurine	Athlete	Tennis - Female	22	22	3	20	91%
21	TAF0000108...	Toy	Figurine	Athlete	Tennis - Female	22	22	3	20	92%
22	TAF0000108...	Toy	Figurine	Athlete	Tennis - Female	22	22	3	20	91%
23	TAF0000108...	Toy	Figurine	Athlete	Tennis - Female	22	21	3	20	89%
24	TAF0000108...	Toy	Figurine	Athlete	Tennis - Female	22	21	3	20	89%
25	TAF0000108...	Toy	Figurine	Athlete	Tennis - Female	22	21	3	20	89%
26	TAF0000108...	Toy	Figurine	Athlete	Tennis - Female	22	22	3	20	93%
27	TAF0000108...	Toy	Figurine	Athlete	Tennis - Female	22	22	3	20	97%
28	TAF0000108...	Toy	Figurine	Athlete	Tennis - Female	22	22	3	20	92%
29	TAF0000108...	Toy	Figurine	Athlete	Tennis - Female	22	21	3	20	90%
30	TAF0000108...	Toy	Figurine	Athlete	Tennis - Female	22	20	3	19	85%
31	TSA0000188...	Toy	Plush	Cat (l)	American Short..	54	53	5	31	89%
32	TSA0000188...	Toy	Plush	Cat (l)	American Short..	54	54	5	31	91%
33	TSA0000188...	Toy	Plush	Cat (l)	American Short..	54	54	5	32	93%
34	TSA0000188...	Toy	Plush	Cat (l)	American Short..	54	52	5	30	87%

- Rapportvänlig struktur
- Hög flexibilitet
- Besvarar många frågor
- Många dimensioner
- Oftast stor volym
- Kan vara kunskapskrävande

Analysstruktur ABT – Analytical Base Table



	Customer	Gender	Continent	Country	City	FirstTransactionDate	LastTransactionDate	FirstProductEverOrdered	FirstProductOrdered	ReturningCustomer	ReturningCustomerNum
1	ARBUENOS0000000781	Male	South America	Argentina	Buenos Aires	05NOV2006	05NOV2006	Plush	Dog (m)	No	0
2	ARBUENOS0000000795	Female	South America	Argentina	Buenos Aires	25DEC2006	25DEC2006	Plush	Elephant (m)	No	0
3	ARBUENOS0000001136	Male	South America	Argentina	Buenos Aires	21APR2006	21APR2006	Figurine	Athlete	No	0
4	ARBUENOS0000001232	Female	South America	Argentina	Buenos Aires	17JUL2006	17JUL2006	Plush	Cat (l)	No	0
5	ARBUENOS0000001257	Male	South America	Argentina	Buenos Aires	06AUG2006	06AUG2006	Plush	Big Cats (l)	No	0
6	ARBUENOS0000001658	Male	South America	Argentina	Buenos Aires	06JAN2006	06JAN2006	Plush	Cat (m)	No	0
7	ARBUENOS0000001734	Female	South America	Argentina	Buenos Aires	16JAN2006	16JAN2006	Figurine	Athlete	No	0
8	ARBUENOS0000001756	Male	South America	Argentina	Buenos Aires	09NOV2006	09NOV2006	Figurine	Musician	No	0
9	ARBUENOS0000001918	Female	South America	Argentina	Buenos Aires	20NOV2006	20NOV2006	Game	Card Game	No	0
10	ARBUENOS0000001944	Female	South America	Argentina	Buenos Aires	11AUG2006	11AUG2006	Game	Puzzle (l)	No	0
11	ARBUENOS0000001949	Female	South America	Argentina	Buenos Aires	06OCT2006	06OCT2006	Game	Board Game (l)	No	0
12	ARBUENOS0000002006	Female	South America	Argentina	Buenos Aires	19NOV2006	19NOV2006	Game	Puzzle 3d	No	0
13	ARBUENOS0000002020	Male	South America	Argentina	Buenos Aires	15JUL2006	15JUL2006	Plush	Primate (w)	No	0
14	ARBUENOS0000002046	Male	South America	Argentina	Buenos Aires	11NOV2006	11NOV2006	Figurine	Super Hero	No	0
15	ARBUENOS0000002159	Male	South America	Argentina	Buenos Aires	14SEP2006	14SEP2006	Game	Board Game (l)	No	0
16	ARBUENOS0000002185	Female	South America	Argentina	Buenos Aires	13MAR2006	13MAR2006	Figurine	Musician	No	0
17	ARBUENOS0000002203	Female	South America	Argentina	Buenos Aires	27AUG2006	27AUG2006	Plush	Bear (s)	No	0
18	ARBUENOS0000002291	Female	South America	Argentina	Buenos Aires	04MAR2006	04MAR2006	Plush	Elephant (m)	No	0
19	ARBUENOS0000002305	Female	South America	Argentina	Buenos Aires	28APR2006	28APR2006	Game	Dice	No	0
20	ARBUENOS0000002334	Female	South America	Argentina	Buenos Aires	29JUN2006	29JUN2006	Figurine	Musician	No	0
21	ARBUENOS0000002381	Female	South America	Argentina	Buenos Aires	19OCT2006	19OCT2006	Figurine	Movie Star	No	0
22	ARBUENOS0000002415	Female	South America	Argentina	Buenos Aires	22OCT2006	22OCT2006	Figurine	Athlete	No	0
23	ARBUENOS0000002482	Male	South America	Argentina	Buenos Aires	01OCT2006	01OCT2006	Figurine	Police	No	0
24	ARBUENOS0000002550	Male	South America	Argentina	Buenos Aires	26JUN2006	26JUN2006	Game	Puzzle (l)	No	0
25	ARBUENOS0000002583	Male	South America	Argentina	Buenos Aires	15AUG2006	15AUG2006	Plush	Horse (m)	No	0
26	ARBUENOS0000002595	Male	South America	Argentina	Buenos Aires	14DEC2006	14DEC2006	Plush	Bear (s)	No	0
27	ARBUENOS0000002618	Female	South America	Argentina	Buenos Aires	03JUN2006	03JUN2006	Figurine	Movie Star	No	0
28	ARBUENOS0000002648	Female	South America	Argentina	Buenos Aires	26AUG2006	26AUG2006	Game	Board Game (l)	No	0
29	ARBUENOS0000002720	Male	South America	Argentina	Buenos Aires	02NOV2006	02NOV2006	Game	Puzzle (l)	No	0
30	ARBUENOS0000002802	Female	South America	Argentina	Buenos Aires	13JAN2006	13JAN2006	Plush	Big Cats (s)	No	0
31	ARBUENOS0000002847	Male	South America	Argentina	Buenos Aires	15JAN2006	15JAN2006	Plush	Cat (l)	No	0

- Analysvänlig struktur
- Lägre flexibilitet
- En tabell för ett eller få analyser
- Inga (få) dimensioner
- En rad per analysobjekt
- Oftast små datamängder

Lång ”tunn” tabell Transaktionsdata

ProductBrand	ProductLine	ProductMake	ProductStyle	Product	ValueLabel	Value
Toy	Figurine	Soldier	Marine	TAF0000158180	Product Sale	32.273115459
Toy	Figurine	Soldier	Marine	TAF0000158180	Product Price (target)	34.649403586
Toy	Figurine	Soldier	Marine	TAF0000158180	Product Material Cost	5.4139693104
Toy	Figurine	Soldier	Marine	TAF0000158180	Product Cost of Sale	29.216145233
Toy	Figurine	Soldier	Marine	TAF0000158180	Customer Satisfaction	0.270325666
Toy	Figurine	Soldier	Marine	TAF0000158193	Product Sale	34.649403586
Toy	Figurine	Soldier	Marine	TAF0000158193	Product Price (target)	34.649403586
Toy	Figurine	Soldier	Marine	TAF0000158193	Product Material Cost	5.4139693104
Toy	Figurine	Soldier	Marine	TAF0000158193	Product Cost of Sale	31.382282618
Toy	Figurine	Soldier	Marine	TAF0000158193	Customer Satisfaction	0.270325666
Toy	Figurine	Soldier	Marine	TAF0000158207	Product Sale	33.009015884
Toy	Figurine	Soldier	Marine	TAF0000158207	Product Price (target)	34.649403586
Toy	Figurine	Soldier	Marine	TAF0000158207	Product Material Cost	5.4139693104
Toy	Figurine	Soldier	Marine	TAF0000158207	Product Cost of Sale	30.818675007
Toy	Figurine	Soldier	Marine	TAF0000158207	Customer Satisfaction	0.270325666
Toy	Figurine	Soldier	Marine	TAF0000158216	Product Sale	33.406024225
Toy	Figurine	Soldier	Marine	TAF0000158216	Product Price (target)	34.649403586
Toy	Figurine	Soldier	Marine	TAF0000158216	Product Material Cost	5.4139693104
Toy	Figurine	Soldier	Marine	TAF0000158216	Product Cost of Sale	30.245604632
Toy	Figurine	Soldier	Marine	TAF0000158216	Customer Satisfaction	0.270325666
Toy	Figurine	Soldier	Marine	TAF0000158223	Product Sale	34.649403586
Toy	Figurine	Soldier	Marine	TAF0000158223	Product Price (target)	34.649403586
Toy	Figurine	Soldier	Marine	TAF0000158223	Product Material Cost	5.4139693104
Toy	Figurine	Soldier	Marine	TAF0000158223	Product Cost of Sale	32.523653319

- Transaktionsvänlig struktur
- Låg flexibilitet
- Har dimensioner
- Låååång tabell
- Kan vara svårtolkad

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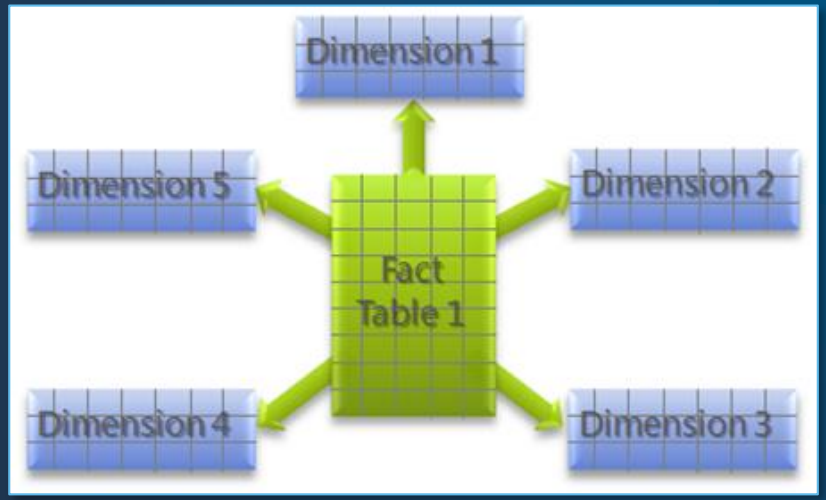
Klassisk rapportstruktur ”Normaliserad”

Flera fakta (mått) och dimensioner (kategorier)

Enkelt att jobba med hierarkier, bra för att vrida och vända på data, enkelt att aggregera data etc. Typiskt data warehouse format

Exempel på mått: Försäljning, budget, kundnöjdhet
Exempel på en dimension: Produkt = Produktportfölj, produktgrupp och produkt



	Product	ProductBrand	ProductLine	ProductMake	ProductStyle	ProductPrice Target	ProductPrice Actual	ProductMaterialCost	ProductCost OfSale	ProductQuality
1	TSA00002859...	Toy	Plush	Dog (m)	Labrador Retri...	27	25	3	17	85%
2	TSA00002859...	Toy	Plush	Dog (m)	Labrador Retri...	27	25	3	17	84%
3	TSA00002859...	Toy	Plush	Dog (m)	Labrador Retri...	27	27	3	19	92%
4	TSA00002859...	Toy	Plush	Dog (m)	Labrador Retri...	27	27	3	19	92%
5	TSA00002859...	Toy	Plush	Dog (m)	Labrador Retri...	27	27	3	18	95%
6	TSA00002859...	Toy	Plush	Dog (m)	Labrador Retri...	27	27	3	19	96%
7	TSA00002859...	Toy	Plush	Dog (m)	Labrador Retri...	27	27	3	19	97%
8	TSA00002859...	Toy	Plush	Dog (m)	Labrador Retri...	27	26	3	18	88%
9	TSA00002859...	Toy	Plush	Dog (m)	Labrador Retri...	27	26	3	18	89%
10	TSA00002859...	Toy	Plush	Dog (m)	Labrador Retri...	27	27	3	18	96%
11	TSA00003732...	Toy	Plush	Elephant (m)	Asian	27	25	3	17	83%
12	TSA00003732...	Toy	Plush	Elephant (m)	Asian	27	26	3	18	89%
13	TSA00003732...	Toy	Plush	Elephant (m)	Asian	27	24	3	16	81%
14	TSA00003732...	Toy	Plush	Elephant (m)	Asian	27	27	3	18	89%
15	TSA00003732...	Toy	Plush	Elephant (m)	Asian	27	24	3	16	80%
16	TSA00003732...	Toy	Plush	Elephant (m)	Asian	27	27	3	19	91%
17	TSA00003732...	Toy	Plush	Elephant (m)	Asian	27	26	3	18	88%
18	TSA00003732...	Toy	Plush	Elephant (m)	Asian	27	27	3	18	92%
19	TSA00003732...	Toy	Plush	Elephant (m)	Asian	27	26	3	18	87%
20	TAF000010837...	Toy	Figurine	Athlete	Tennis - Female	22	22	3	20	91%
21	TAF000010838...	Toy	Figurine	Athlete	Tennis - Female	22	22	3	20	92%
22	TAF000010839...	Toy	Figurine	Athlete	Tennis - Female	22	22	3	20	91%
23	TAF000010839...	Toy	Figurine	Athlete	Tennis - Female	22	21	3	20	89%
24	TAF000010840...	Toy	Figurine	Athlete	Tennis - Female	22	21	3	20	89%
25	TAF000010841...	Toy	Figurine	Athlete	Tennis - Female	22	21	3	20	89%
26	TAF000010841...	Toy	Figurine	Athlete	Tennis - Female	22	22	3	20	93%
27	TAF000010842...	Toy	Figurine	Athlete	Tennis - Female	22	22	3	20	97%
28	TAF000010843...	Toy	Figurine	Athlete	Tennis - Female	22	22	3	20	92%
29	TAF000010843...	Toy	Figurine	Athlete	Tennis - Female	22	21	3	20	90%
30	TAF000010844...	Toy	Figurine	Athlete	Tennis - Female	22	20	3	19	85%
31	TSA00001881...	Toy	Plush	Cat (l)	American Short...	54	53	5	31	89%
32	TSA00001881...	Toy	Plush	Cat (l)	American Short...	54	54	5	31	91%
33	TSA00001881...	Toy	Plush	Cat (l)	American Short...	54	54	5	32	93%
34	TSA00001881...	Toy	Plush	Cat (l)	American Short...	54	52	5	30	87%

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Analysstruktur ABT – Analytical Base Table

Ett objekt per rad, tex. analyserar måltider som beskrivs av ett x antal kolumner

- Perfekt struktur för analys, en rad per objekt förenklar analys (frekvens = antal måltider)
- Oftast har man en ABT per use-case
- Självklart kan det finnas dimensioner, men du måste ha koll på dimensionerna och ta hänsyn till dessa

Objekt

Måltid	Dricks	Belopp	Antal Gäster	Betalarens Kön	Betalarens Ålder	Stamgäst	Antal Rätter	Sittning	Champagne	Gästernas Medelålder
1	40	272	1	M	27	Ja	1	1	Nej	25
2	136	864	4	K	32	Nej	3	2	Ja	37
3	88	512	2	M	55	Nej	2	1	Nej	54
4	64	704	3	M	41	Nej	3	1	Nej	49
5	112	792	2	K	39	Ja	3	2	Ja	41
6	40	408	2	M	24	Nej	2	3	Ja	21

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Analysstruktur ABT – Analytical Base Table

Use-case:

Här analyserar vi dricks (Respons) med hjälp av x antal effektvariabler (förklaringsvariabler) per måltid för att prediktera vilken dricks vi kan få vid nästa måltid.

Objekt	Respons	Effektvariabler								
Måltid	Dricks	Belopp	Antal Gäster	Betalarens Kön	Betalarens Ålder	Stamgäst	Antal Rätter	Sittning	Champagne	Gästernas Medelålder
1	40	272	1	M	27	Ja	1	1	Nej	25
2	136	864	4	K	32	Nej	3	2	Ja	37
3	88	512	2	M	55	Nej	2	1	Nej	54
4	64	704	3	M	41	Nej	3	1	Nej	49
5	112	792	2	K	39	Ja	3	2	Ja	41
6	40	408	2	M	24	Nej	2	3	Ja	21

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Lång ”tunn” tabell (Transaktionsdata)

Princip: En kolumn för värdet och en/flera kolumner för att identifiera värdet

Perfekt för att hantera transaktioner (lägga till/uppdatera värden), sämre för att rapportering

Nackdelen (rapporteringsperspektiv) är att jag måste hålla reda på vilka värden jag vill hantera
Risk för att hamna i en ”Äpplen och Päron” situation, tex. hålla reda på totaler och icke-totaler

KolumnID	Värde
A561233212	128854993
A346642993	2020-09-01
A877612109	34
A452885688	Man
B123394533	Speldosa
B182309763	Byggmodell
A766120063	235994,98
A923881828	2114566
C561120956	Sverige
C239984488	Danmark

Customer ▲	Facility Country	Transaction Date	Value Label	Value
DKCOPENH000000082	Denmark	08/16/2000	Product Sale	267,92406752
DKCOPENH000000082	Denmark	08/16/2000	Customer Satisfaction	2,1626053279
DKCOPENH000000082	Denmark	08/16/2000	Product Material Cost	43,311754483
DKCOPENH000000082	Denmark	08/16/2000	Product Cost of Sale	248,08895774
DKCOPENH000000082	Denmark	08/16/2000	Product Price (target)	277,19522869
DKCOPENH000000160	Denmark	07/05/2000	Product Material Cost	10,827938621
DKCOPENH000000160	Denmark	07/05/2000	Product Cost of Sale	66,137084155
DKCOPENH000000160	Denmark	07/05/2000	Customer Satisfaction	1,5989668335
DKCOPENH000000160	Denmark	07/05/2000	Product Sale	85,802427206
DKCOPENH000000160	Denmark	07/05/2000	Product Price (target)	86,623508966

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Vad ska man tänka på, vad styr datastrukturen?

Värdet till slutanvändaren är centralt

- Vad är syftet, vad ska vi göra
- Vilket data behövs
- Navigering i data
- Vilket flexibilitet vill vi ha

Visualiseringstyp

- Drillbarhet i grafer
- Vissa typer kräver s.k. strukturer, tex. path analysis
- Animeringar kräver datum/tid

Prestanda

- Hur mycket data behöver vi
- Undvik att strukturera om data i visualiseringsverktyget

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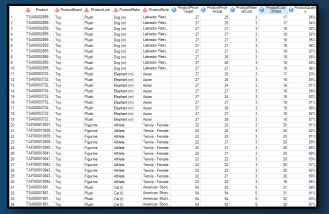
Tricket är att hitta en balans i flexibilitet, men ändå inte tappa värdet/syftet



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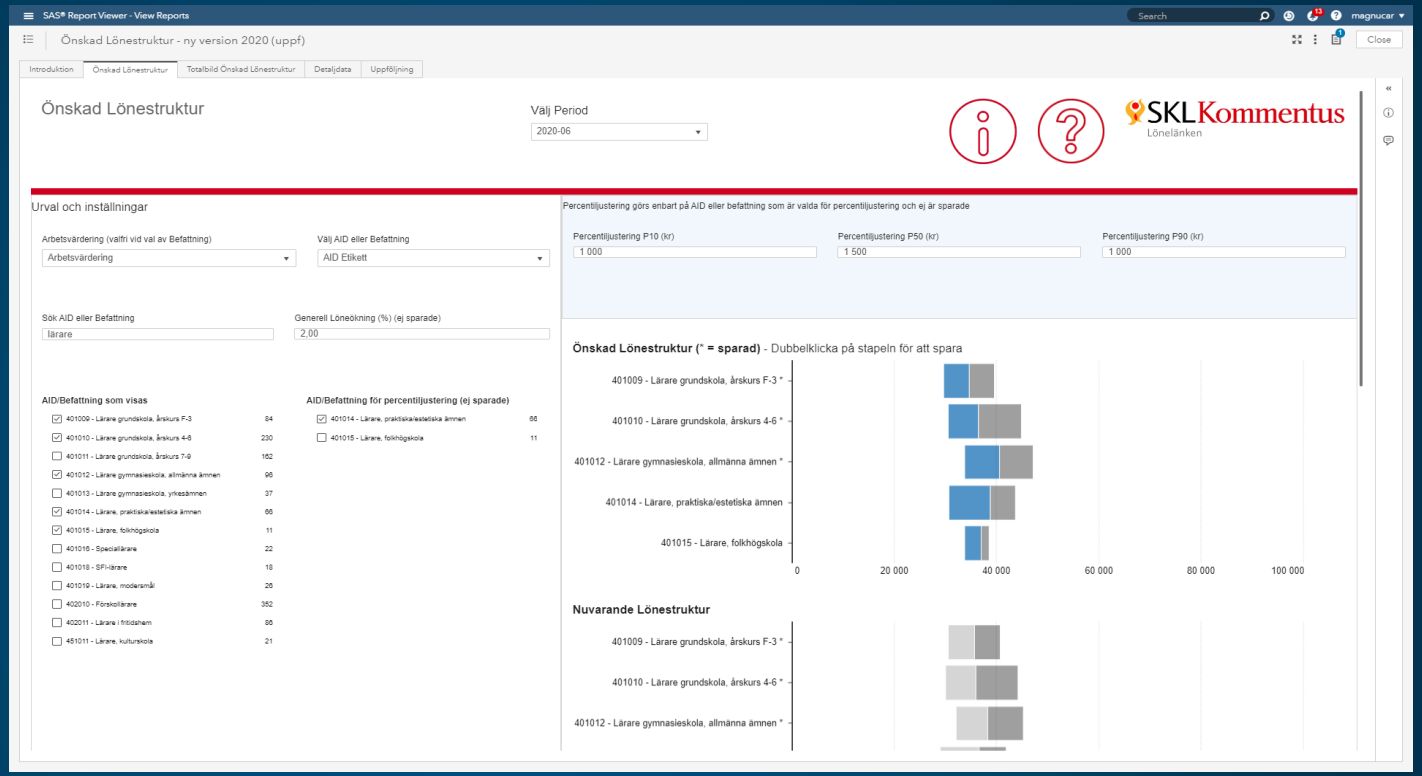

LÖNELÄNKEN 3.0

Carl-Olow Magnusson
Peter Nordwall

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Vad är Lönelänken 3.0?

“Lönelänken är ett löneanalyssytem för alla Regioner och kommuner i Sverige och huvudsyftet är att kunna sätta rättvisa och balanserade lönenivåer. Regioner och kommuner betalar för denna tjänst. Lönelänken drivs av vår partner Tieto (MASP avtal).

MASP Affärsmodell = SAS avtal med Tieto, vi tar betalt för varje kund (Region eller Kommun)

Lönelänken i ett nötskal

- Ersätta Lönelänken 2.0 (Qlik)
- SaaS/RaaS Hybrid
- Central Administration Portal (byggt av Tieto)
- Möjlighet att ladda upp eget data
- Paket av SAS Visual Analytics rapporter
- What-if Analys (simulering för önskad lönestruktur)
- SAS Viya version 3.4
- En fin bekräftelse att VA fungerar på riktigt ☺

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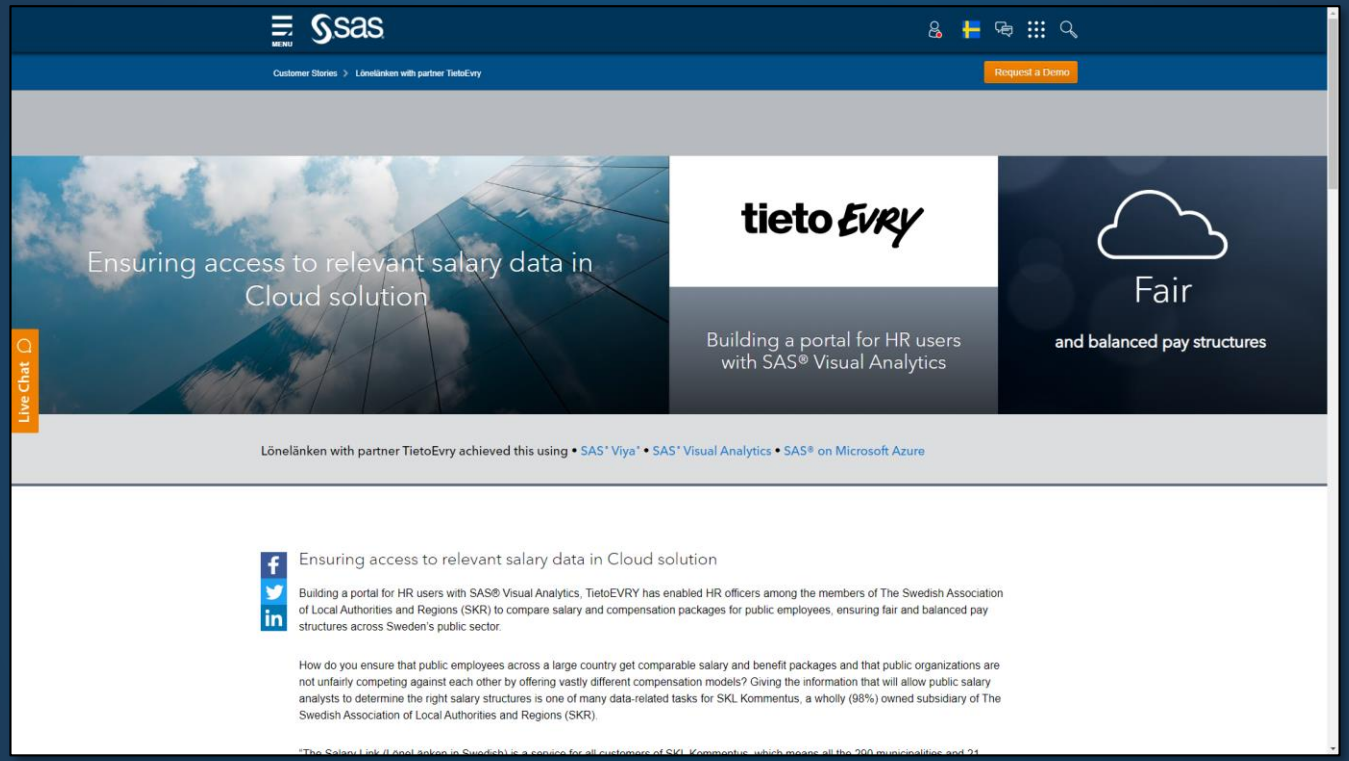
Officiell Referens



https://www.sas.com/sv_se/customers/lonelanken.html

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Lönelänken 3.0 – Hur fungerar det?

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Lönelänken 3.0 – how it works (very simple)

A customer want to have access to Lönelänken 3.0

Users are created and linked to roles (admin portal) and will be added to LDAP

Creates a subscription using the admin portal

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Lönelänken 3.0 – how it works (very simple)

A customer want to have access to Lönelänken 3.0

Creates a subscription using the admin portal

Users are created and linked to roles (admin portal) and will be added to LDAP

Now, a lot of things will happen in LDAP & SAS

Integration job runs every 15 min

- Customer CASLIB's and Folders are created
- Correct authorization is set
- Row-level security for common data is updated
- Access to report package are set
- …

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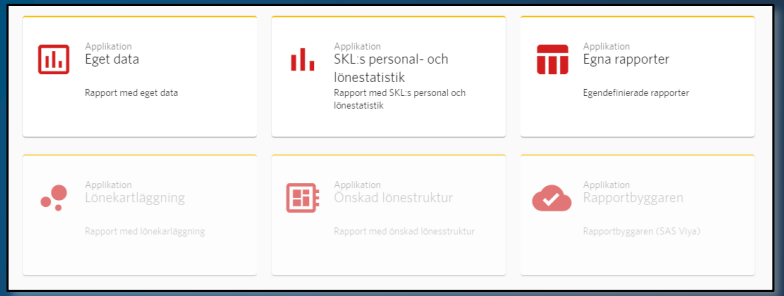
Lönelänken 3.0 – how it works (end-user perspective)

End-users are using the admin portal to access VA reports



Depending on role, different reports are active

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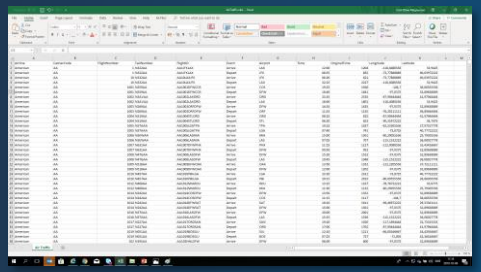
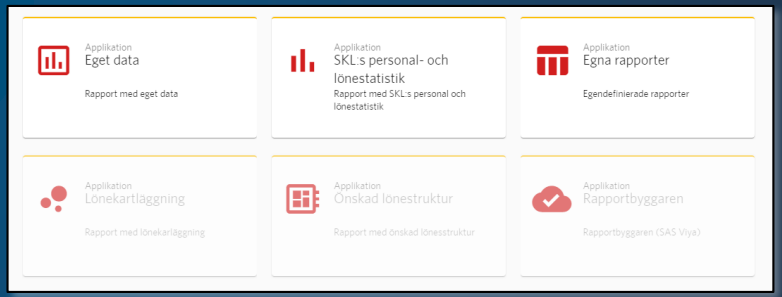
Lönelänken 3.0 – how it works (end-user perspective)

Data can be uploaded using a pre-defined excel template



End-users are using the admin portal to access VA reports



Depending on role, different reports are active

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Lönelänken 3.0 – how it works (end-user perspective)

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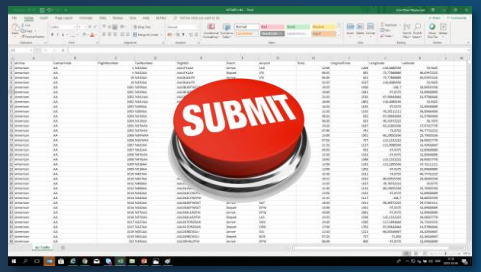
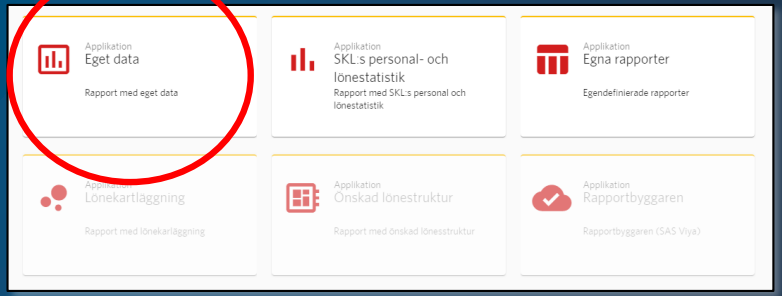


After approx. 15 minutes, new uploaded data is available in Eget Data VA report

End-users are using the admin portal to access VA reports



- Initially data is uploaded into a POSTGRES database
- SAS “sniffs” POSTGRES to check if new data is available
- New data is loaded into CAS

Depending on role, different reports are active

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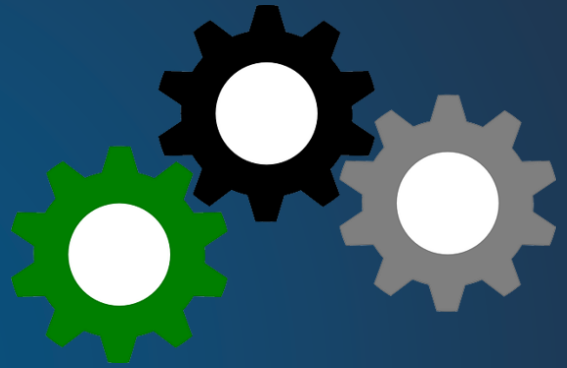
Lönelänken 3.0 – how the integration works behind

Lots of SAS code behind

Calls to services in the Admin Portal to fetch data

Rest API calls to:
- Create customer folders
- Set access to folders
- Create customer specific reports



All this are included in a SAS Job Execution job

And the job is scheduled to run every 15 minutes

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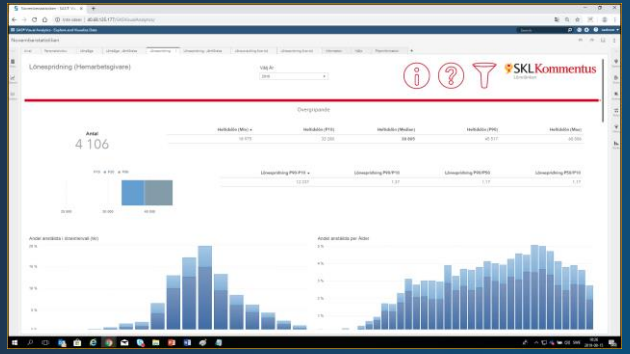
VA Reports in Lönelänken 3.0

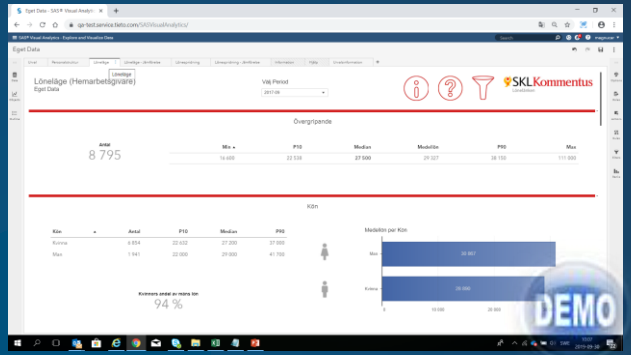
SKL's personal- och lönestatistik

The main report, all salary statistics



Eget Data

Almost the same as the main report, based on own uploaded data

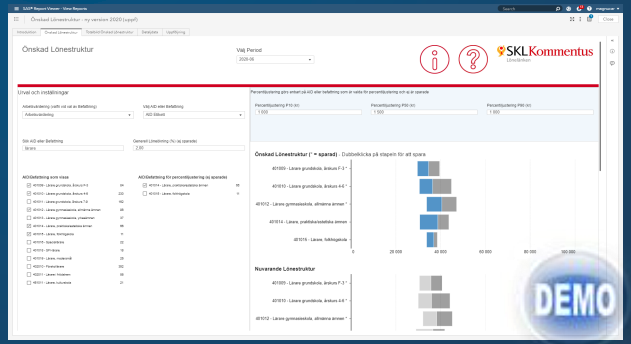


Lönekartläggning

Report for reviewing salary structure mapped to different job definitions, purpose to set future salaries that are equal and gender neutral

Önskad Lönestruktur

Report to simulate salary structures by adjusting general salary changes and by adjusting 10th, 50th and 90th percentiles. What-If simulation



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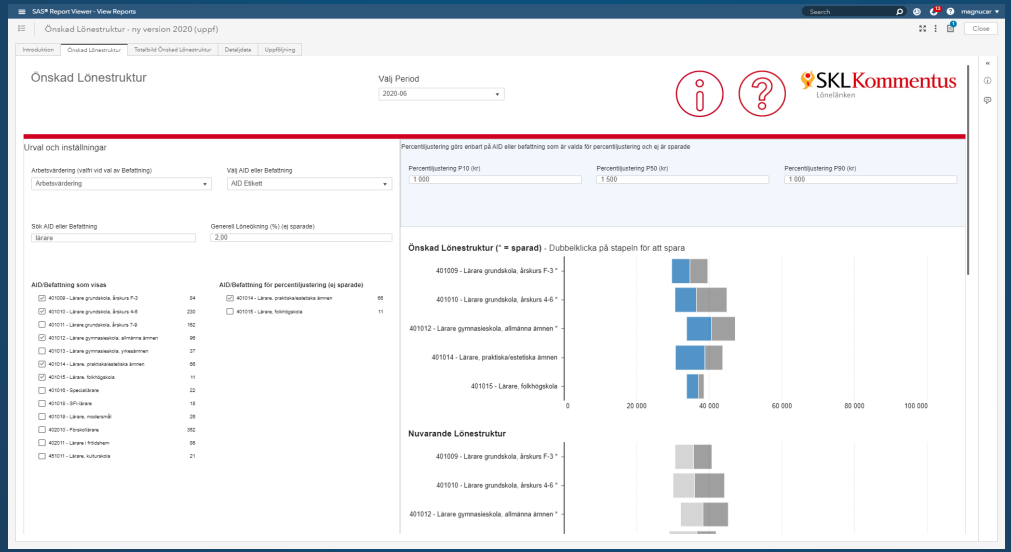
Önskad Lönestruktur
(Desired Salary Structure)

Report to simulate salary structures by adjusting general salary changes and by adjusting 10th, 50th and 90th percentiles. What-If simulation



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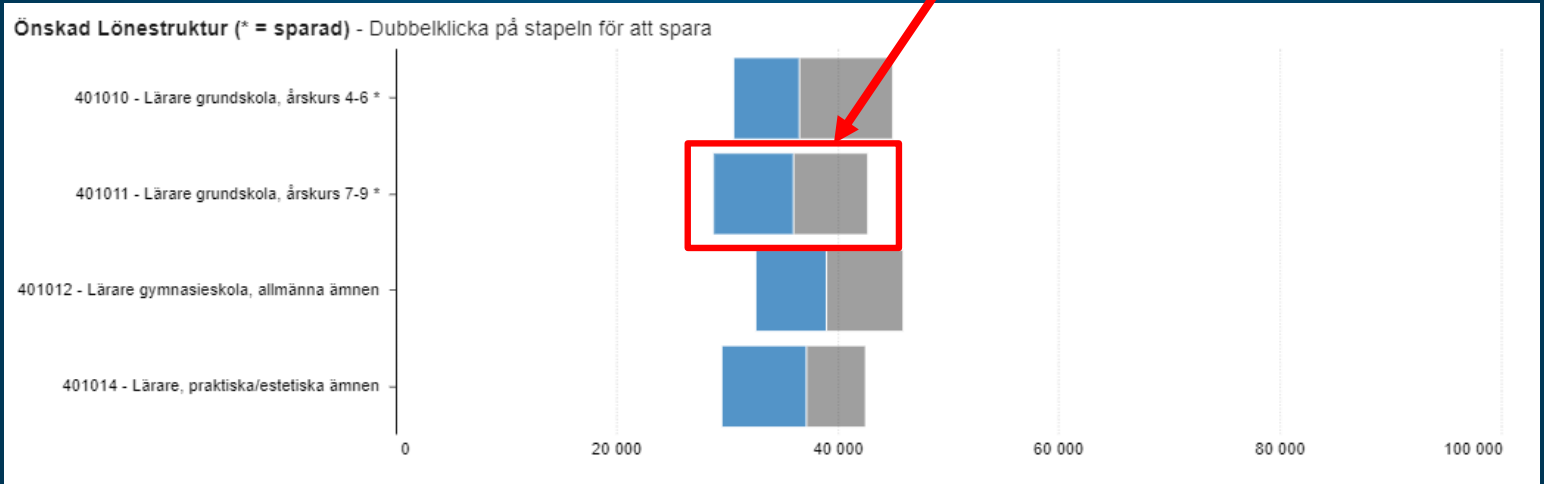
Salary Structure Simulation

Salary Structure



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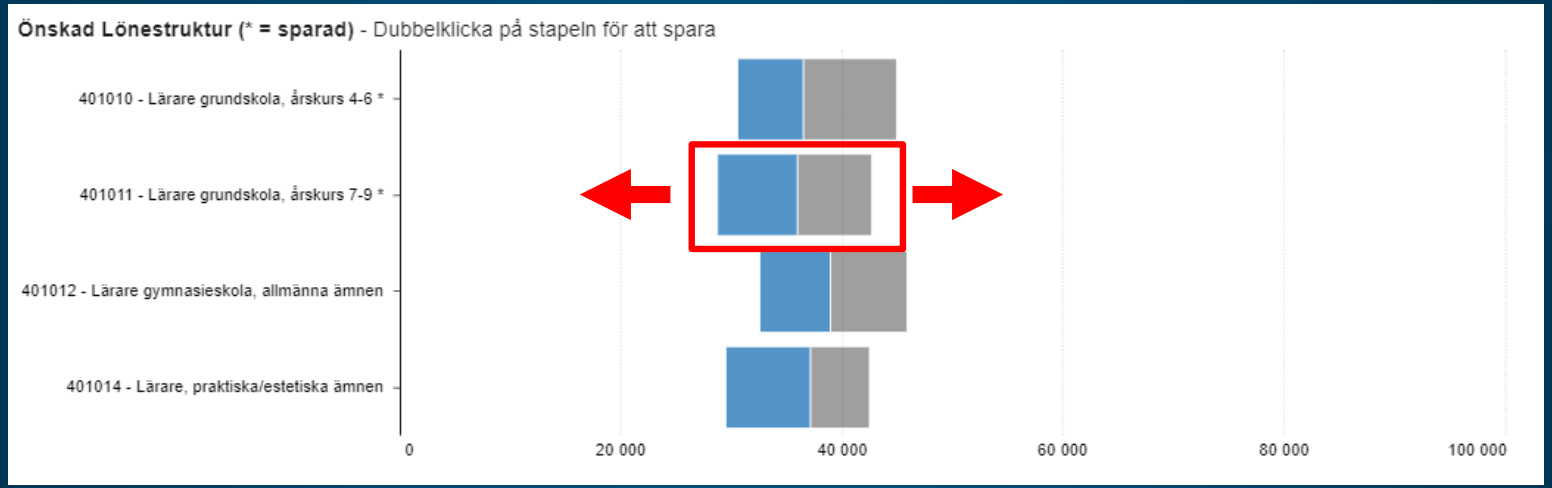
Salary Structure Simulation

Salary Structure Simulation



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Probably the best/coolest VA report we ever built

Why?

Business Value

A solid salary structure simulation generates fair salary levels and increased salary cost control

Technology

- Design meets purpose
- Process meets technology
- What-if simulation
- Use of containers
- A lot of Parameters
- A lot of calculations
- Interactions
- Write-back
- SAS Job Execution
- Row level security
- Rest API's

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WHAT'S NEW IN SAS VISUAL ANALYTICS 8.5.1

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VA 8.5.1 – worth updating?

VA 8.5.1 – Faster reports & improved UI responsiveness

Faster Reports

We've worked with customers worldwide to implement improvements that deliver faster real-world report performance. Reports load faster, and interactions like page navigation are more responsive than before.

UI Responsiveness

SAS® Visual Analytics 8.5.1 improves UI responsiveness. The application menu, object toolbars, various application dialogs, the roles pane, color pickers, text editing, and other interface elements feel snappier.

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