

The DR logo consists of the letters 'DR' in a bold, white, sans-serif font, enclosed within a white rectangular border. It is positioned in the upper left quadrant of the image, above the main title.

**DR**

The title 'KONCERT HUSET' is rendered in a large, bold, white, sans-serif font. The letters are spaced out and have a slightly distressed or stencil-like appearance. It is centered horizontally and vertically in the upper half of the image, overlapping the dark blue background of the building.

**KONCERT  
HUSET**

## Facts about DR Koncerthuset

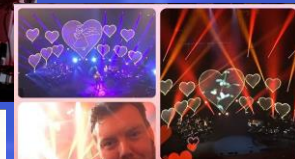
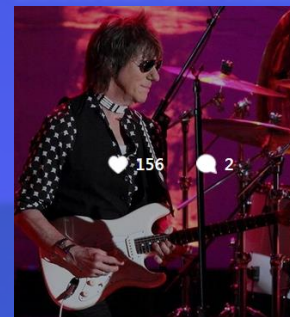
*Celebrating 10 year anniversary next year*

*One Concerthal and four Studios*

*Home to the DR SymfoniOrkestret*

*Part of DR (Danish national broadcast)*

*Increasing number of events and guest every year*



# The journey from a CRM perspective

*From:*

No CRM system

No email system

No tracking

*To:*

Integrated CRM system

Customizing email flows

Tracking

Increase in respons and ROI

So where are we now?

Personalized flows:

Purchase flow

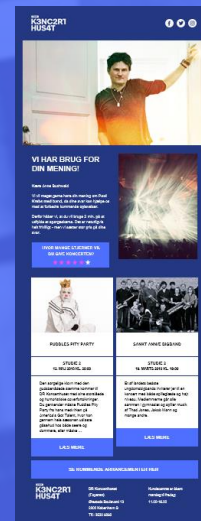
Permissions flow

Subscriptions flow

Segmented newsletters:

Genre specific newsletter

based on transactions and Customer profile



# The future – where do we want to go?

## Challenge:

High variation of events and customers

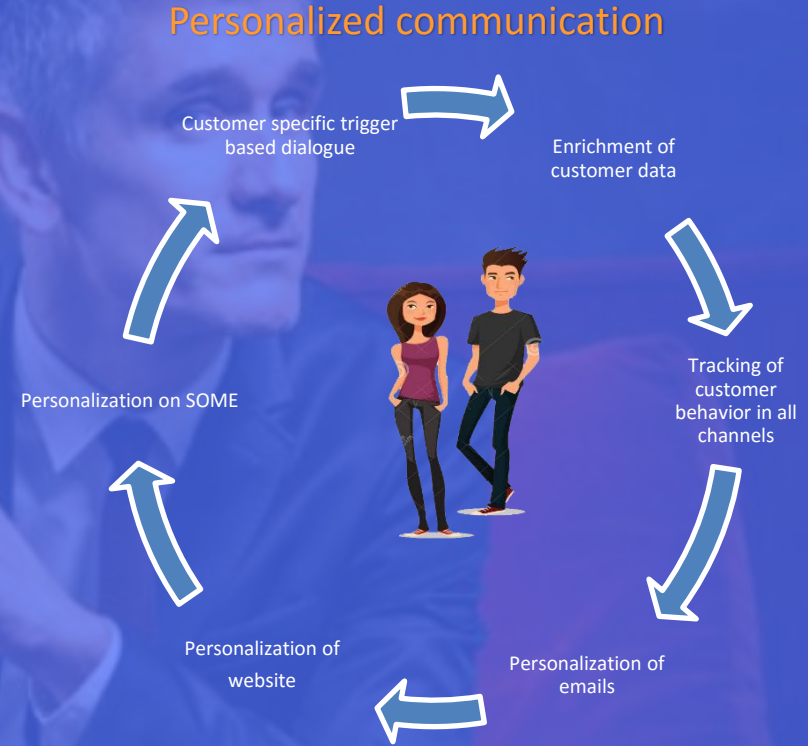
Staying relevant

Keep increasing response and engagement

## Solution:

Increasing development of data insight with

ONE Prediction

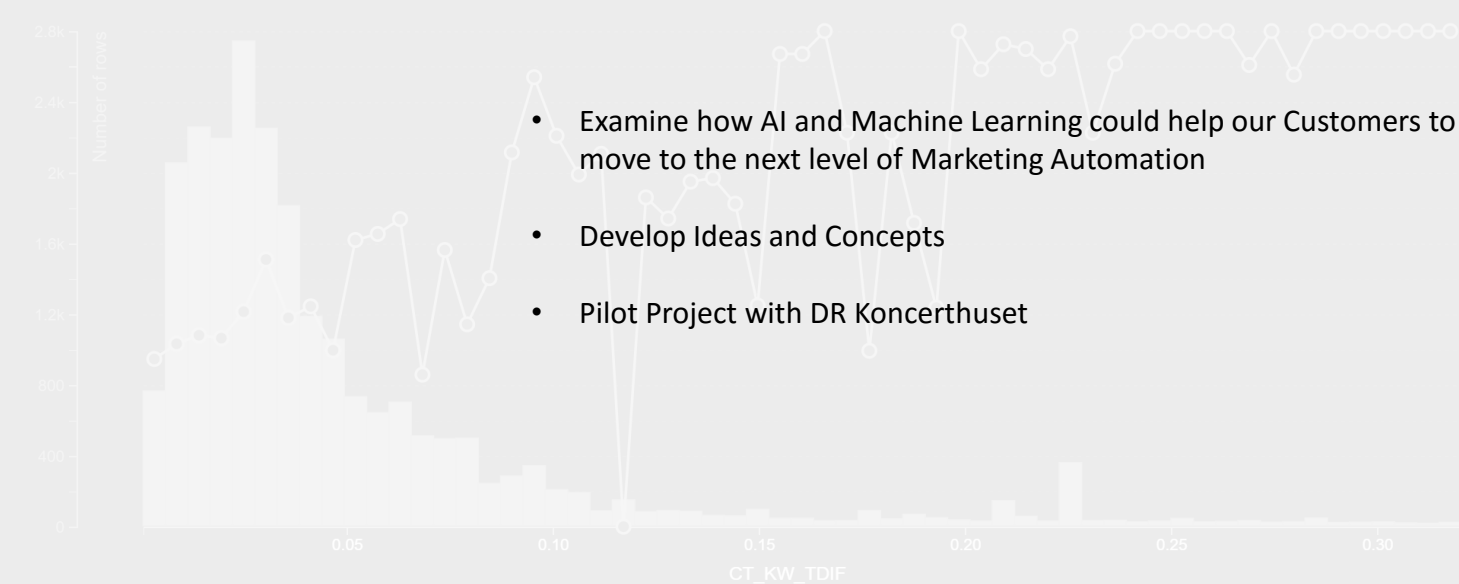


Feature Name	Index	Importance	Var type	Unique	Missing	Mean	Std Dev	Median	Min	Max
CT_KW_TDIF	17		Numeric	13,833	161,356	0.18	0.31	0.04	5.63e-4	1

**ONE PREDICTION**

Var Type Transform

Showing 59 bins Calculate outliers Export



- Examine how AI and Machine Learning could help our Customers to move to the next level of Marketing Automation
- Develop Ideas and Concepts
- Pilot Project with DR Koncerthuset

OF_KW_TDIF	9		Numeric	72,491	62,822	0.05	0.05	0.04	4.62e-4	1
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Workers: 002

Processing (2)

- Nystroem Kernel SVM Classifier (16.00% sample, CV #1) 0% RAM 1.1 CPUs
- Generalized Additive2 Model (BP43) (16.00% sample, CV #1) 0% RAM 2.0 CPUs

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- ExtraTrees Classifier (Gini) (57) (16.00% sample, CV #1)

Errored (2)

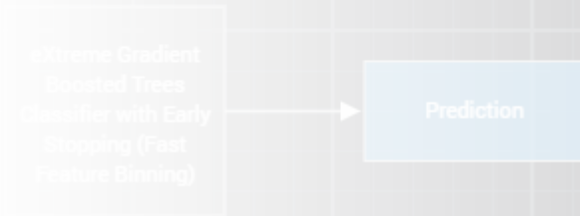
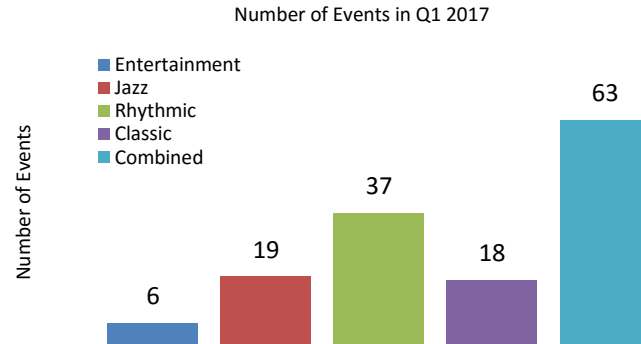
- eXtreme Gradient Boosted Trees ... (6.400% sample)



# Proof - of - Concept

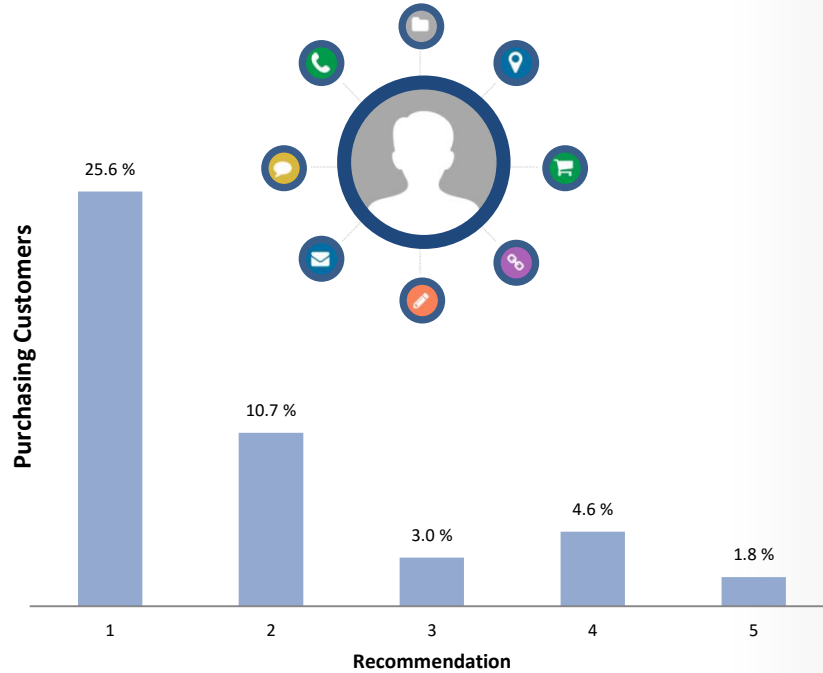
Training Data : Ticketsales until 31th of December 2016

Test Data : Ticket Sales first Quarter 2017





# Modelling with traditional 360° data



Total = **44%** of Sales in Top 5

Distribution

0.5

Density





# Modelling with traditional 360° data

Problem to solve!



=



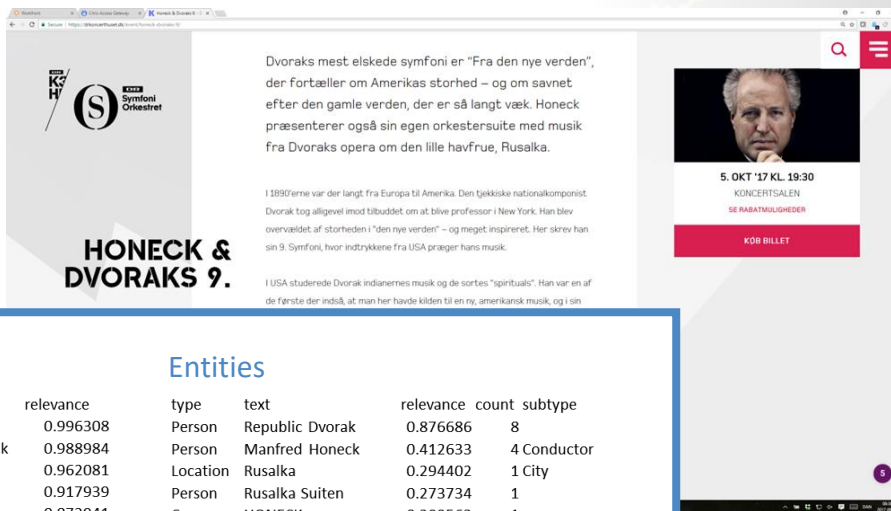
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What is the difference in numbers?

	Var Type	Unique	Missing	Mean
	Numeric	2	0	0.50
	Numeric	101,350	7,565	19.56
	Numeric	72,707	71,116	27.59
	Numeric	81,601	51,388	11.78
	Numeric	54,877	101,722	18.26
	Numeric	105	0	0.00
	Numeric	641	0	61,509
	Numeric	25	0	0.50
	Numeric	19,182	0	189,893
	Numeric	104	0	0.79
	Numeric	13,833	161,356	0.18
	Numeric	2,491	62,822	0.05
	Numeric	15,395	94,332	0.11
	Numeric	0,652	168,539	0.27
	Numeric	20,413	151,275	0.15
	Numeric	15	0	0.13
	Numeric	15,746	161,356	2.64
	Numeric	18	0	0.20
	Numeric	11,342	170,631	4.08
	Numeric	15,998	157,763	0.24

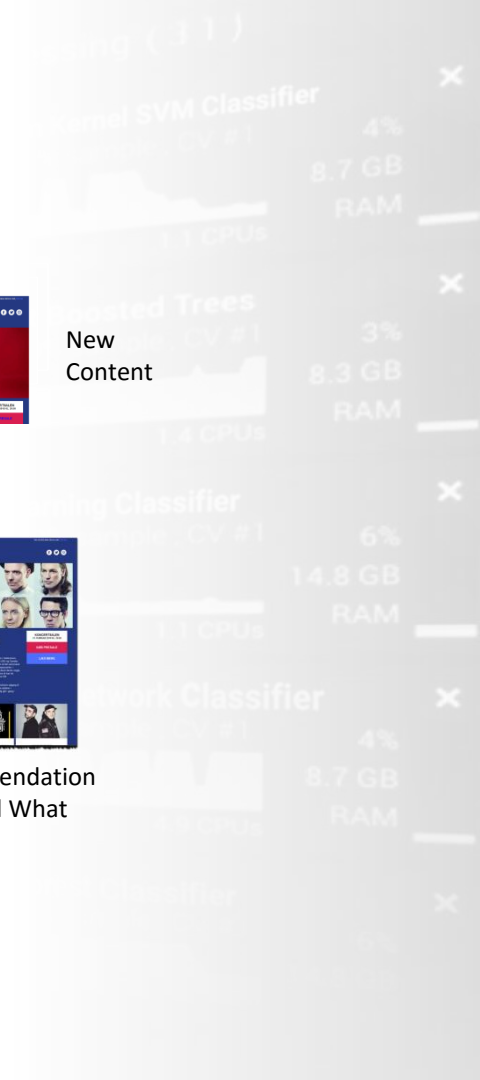
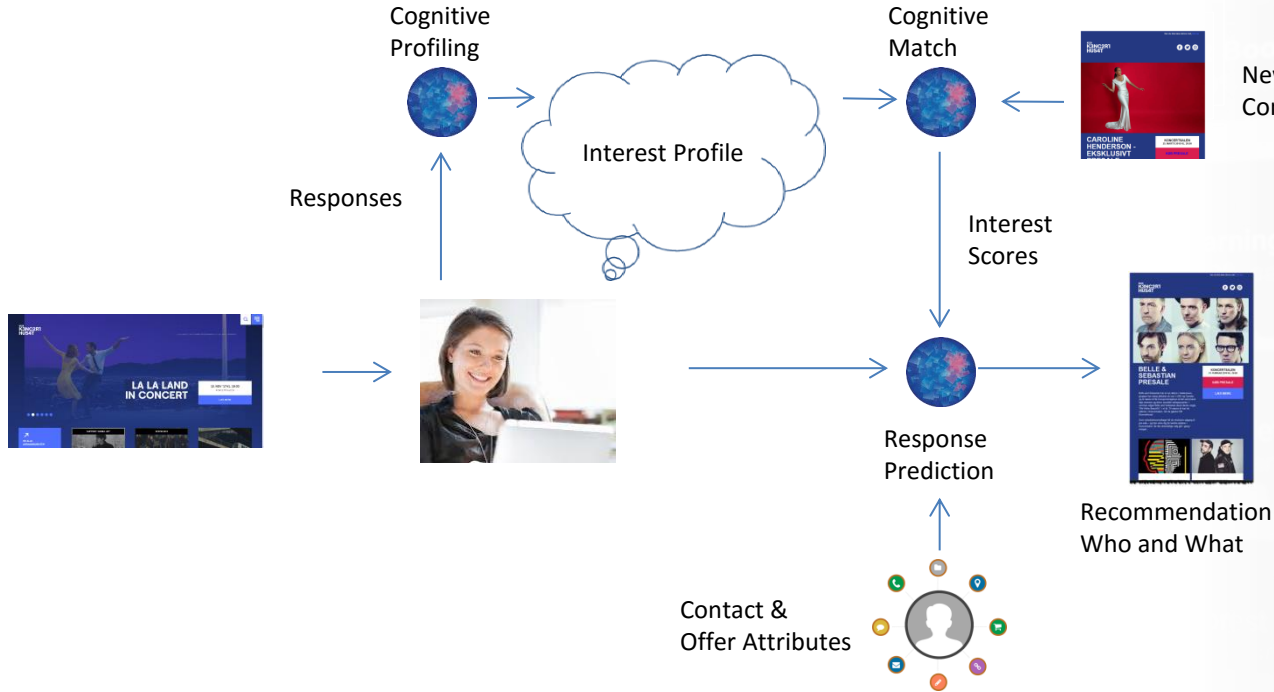
# Converting Concert Descriptions to Model Features



Concept		Keywords		Entities				
text	relevance	text	relevance	type	text	relevance	count	subtype
Antonin Dvorak	0.983279	Dvorak	0.996308	Person	Republic Dvorak	0.876686	8	
Opera	0.839302	national composer Dvorak	0.988984	Person	Manfred Honeck	0.412633	4	Conductor
Ludwig van Beethoven	0.80742	Dvorak Indian music	0.962081	Location	Rusalka	0.294402	1	City
Robert Schumann	0.712243	Czech Republic Dvorak	0.917939	Person	Rusalka Suiten	0.273734	1	
Orchestra	0.680637	New World	0.872941	Company	HONECK	0.209563	1	
Richard Strauss	0.632603	little mermaid	0.72503	Person	Lieder	0.187827	2	
The Little Mermaid	0.626565	Dvorak arr	0.706953	Location	America	0.186761	2	Continent
United States	0.621617	conductor Manfred Honeck	0.665803	Person	Paul Armin Edelmann	0.1852	1	
		orchestra suite	0.653769	Location	New York	0.181561	1	PoliticalDistrict
		Paul Armin Edelmann	0.637542	Location	USA	0.171053	2	Region
		new American music	0.628229	Person	Richard Strauss	0.162737	1	Composer
		Rusalka	0.601916	Person	Schubert	0.15137	1	
		opera Rusalka	0.587098	Location	Europe	0.148789	1	Continent
		Rusalka Suiten	0.575687	JobTitle	professor	0.142384	1	
		Rusalka Suite	0.566171	Person	Rusalkas	0.136238	1	
		symphony	0.522825	Location	Denmark	0.128297	1	Country



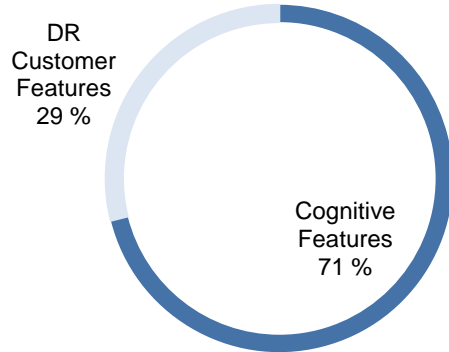
# Cognitive Matching



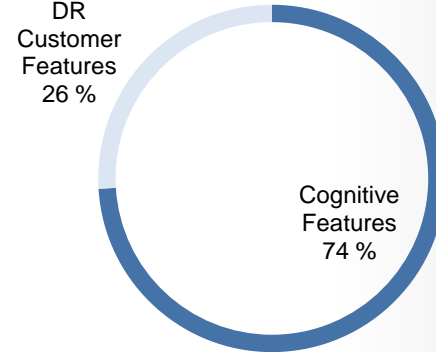


# Cognitive Feature Impact on Models

## Rhythmic Prediction Model



## Classic Prediction Model



REASONS

+++ OF\_TM

+++ OF\_TD

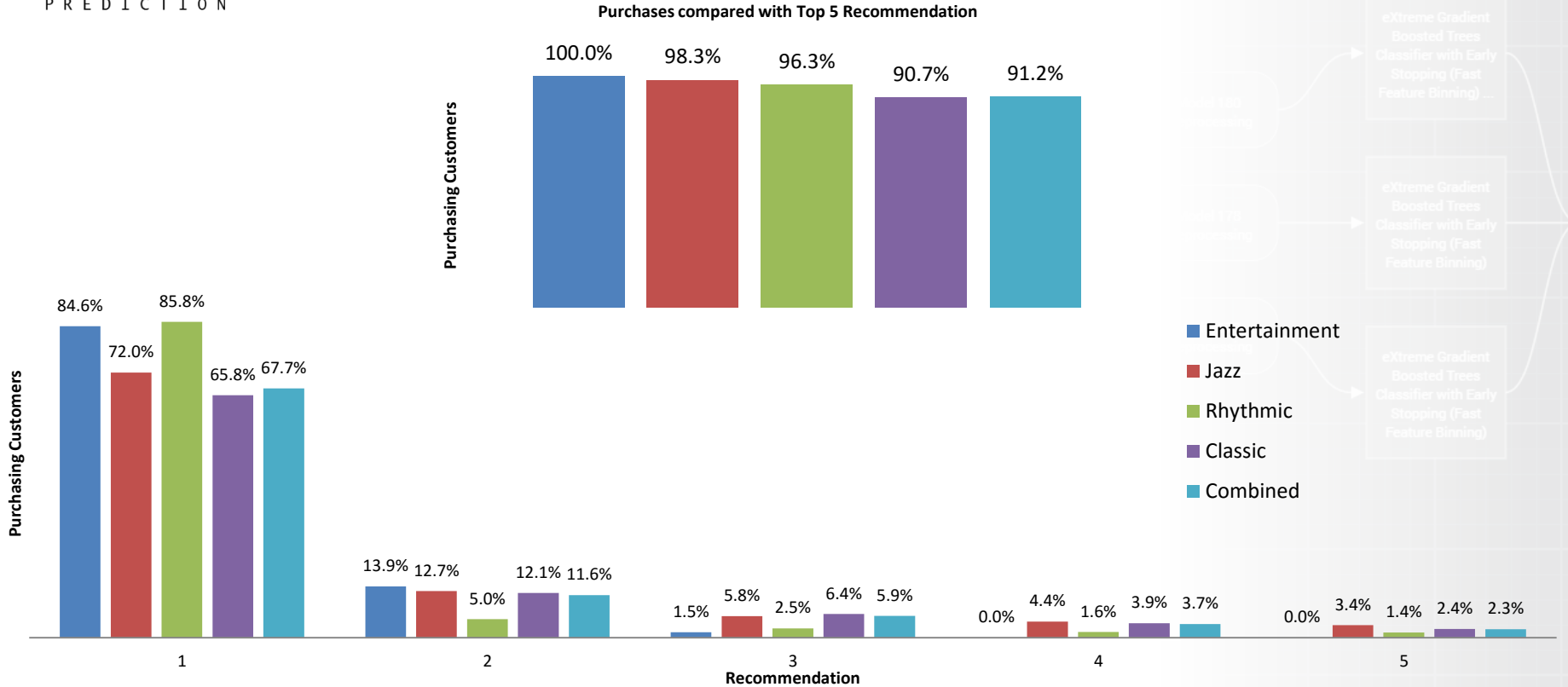
--- OF\_TM

--- OF\_TM

--- OF\_TM



# Including Cognitive Data in Models



# Test Classic Newsletter

Newsletter  
Subscribers  
63.373



51.644

Content  
not relevant  
enough

7.913  
Receivers



4.285  
Receivers



9.816  
Receivers



7.719  
Receivers



6.485  
Receivers

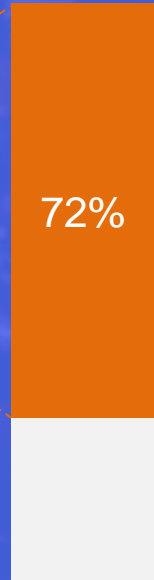


5.661  
Receivers



Combined into  
11.729 e-mails  
In 942 variants

Purchased Tickets



# Test Classic Newsletter – Final Improved Model

Newsletter  
Subscribers

63.373



3.364 e-mails  
5,3% of  
subscribers



95,6% of  
purchasers



96,0% of ticket sales



60.009

Content  
not relevant  
enough



4,4% of  
purchasers



4,0% of ticket sales

# Test Generic versus Personalized e-mails

E-mail OpenRate

**+14%**

Link Tracks

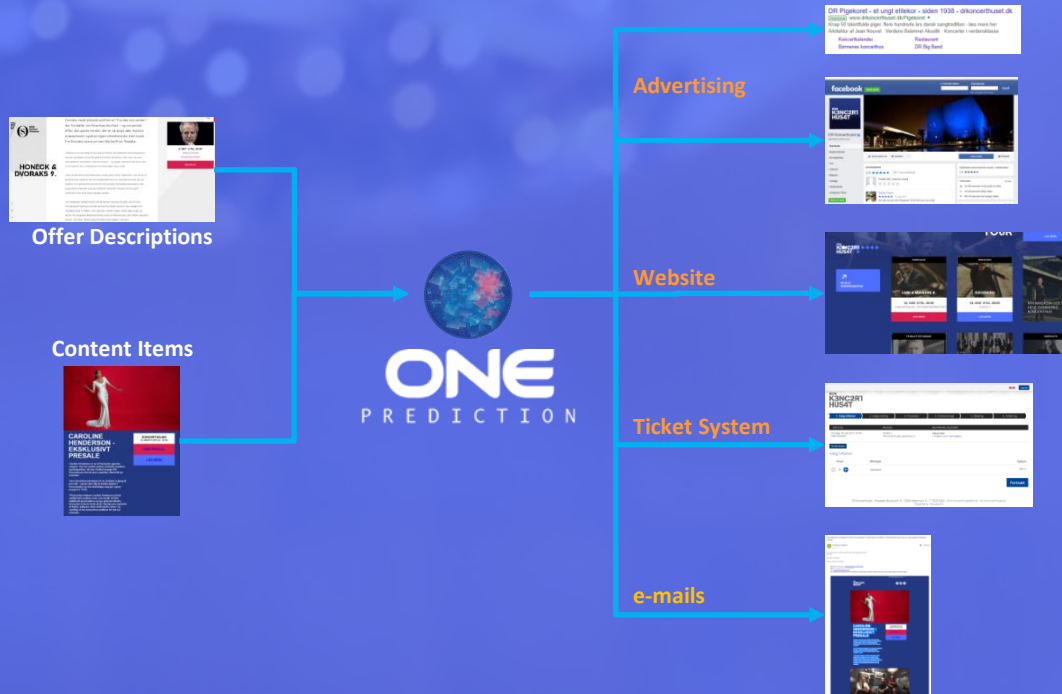
**+24%**

Ticket Sales

**+83%**



# Planned Implementation





## Solution Roadmap

### Automated Content Personalization

Cognitive Profiling  
Cognitive Content Matching  
Response Prediction

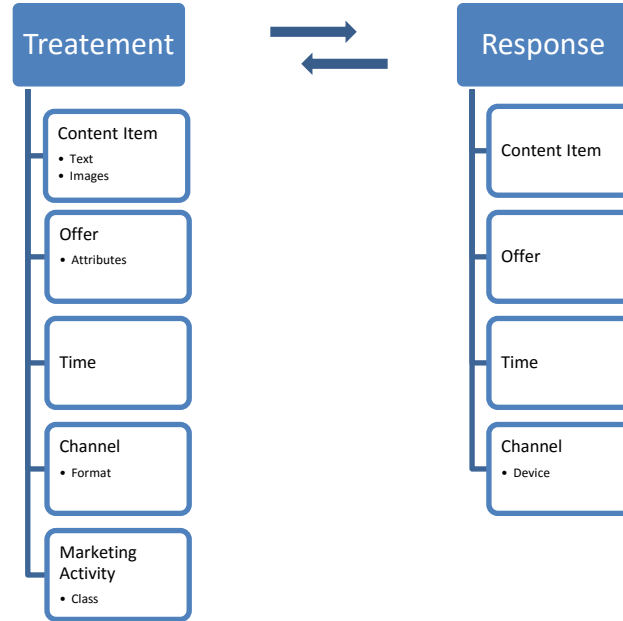


### Automated Treatment Personalization

Response Behaviour Profiling  
Marketing Activity Impact Prediction  
Personal Customer Journey Optimization



# The Right Data is Key to Success



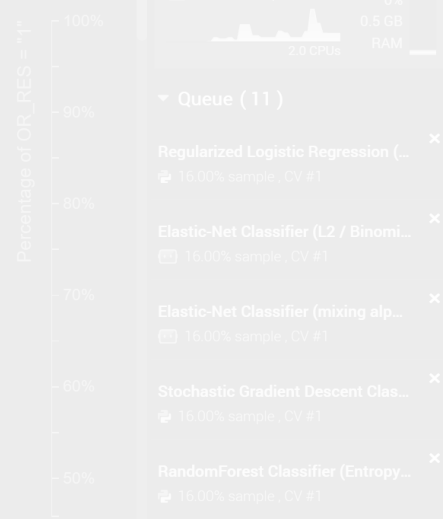
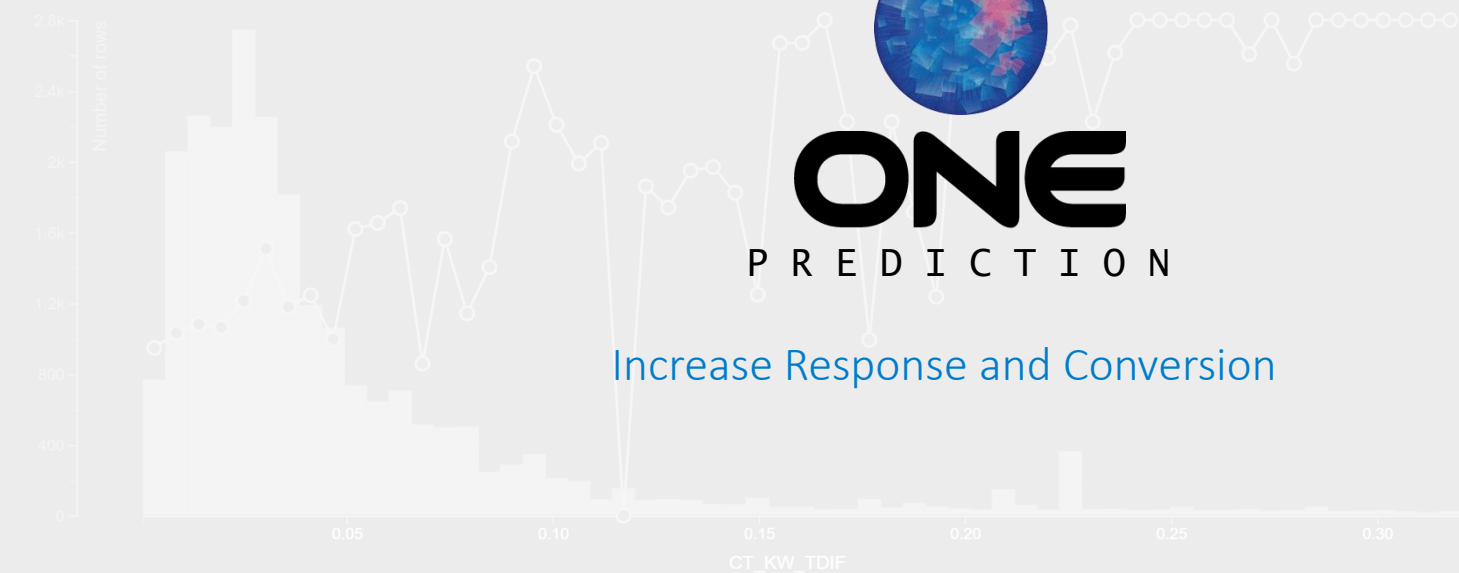


Questions?

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Diagram Frequent Values Table Var Type Transform

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