



ProSiebenSat.1
Media SE

DATA SCIENCE IN THE media

P7S1 AI Products @ German Data Science Days 2022

July 14, 2022

WHO WE ARE



Dr. Anca-Roxana Tudoran
Senior AI Engineer
AI Products



Manuel Jockenhöfer
Head of Product Development
AI Products



FROM MEDIA TO DIGITAL CORPORATION

WE WANT TO CONSISTENTLY CONNECT ENTERTAINMENT, DATING AND OUR DIGITAL CONSUMER BRANDS BUSINESS AND THIS WAY CREATE LONG-TERM VALUE.

DIGITAL CORPORATION WITH THREE STRONG SYNERGISTIC SEGMENTS

ENTERTAINMENT

TV Channels

ProSieben, ProSieben Maxx, SAT.1, SAT.1 Gold, Kabel Eins, Kabel Eins Doku, sixx, ProSieben Fun, SAT.1 emotions, kabel eins classics, PULS4, PULS 24, ATV, ATV II, Puls 8, ProSiebenSat.1 Welt

Digital Channels

Joyn, e-sports, ran.de, Sportdeutschland.tv, yousport, 90. minuten, DRL, Seven.One Media Network, TV Websites

Production

SevenPictures, Seven.One Production, Red Arrow Studios, Studio71

Commercialization

Seven.One Media, with: Glomex, Smartstream.tv, Virtual Minds, esome, kairion, Buzzbird, Seven.One AdFactory, Seven.One Audio, Seven.One Starwatch, Seven.One Licensing, ProSiebenSat.1 Puls 4, d-force



COMMERCE & VENTURES

NuCom Group

Verivox, Aboalarm, billiger-mietwagen, Camperdays, Aroundhome, Jochen Schweizer, mydays, regiondo, Flaconi, Stylight

SevenAccelerator

Xplora, Beautylove, NEOH, Joboo, Instahelp, Carsale24, Blaue Helden, Studyhelp, ViveLaCar, Tiger Media, mybacs, Eurosender, Dogs'n Tiger, Prepmymeal, Osteolabs, checkrobin, bonify, LemonSwan, Morotai, Pumpkin Organics, kaputt.de, Jaimie Jacobs, Media4Care, KAEX, Framily, NERO, Merula

SevenVentures

About You, Tink, Grover, myToys, Refurbed, Sanity Group, Wellster Healthtech

SevenGrowth

Urban Sports Club



DATING & VIDEO

Dating

Parship, eharmony, ElitePartner, LOVOO

Video

MeetMe, Skout, Tagged, GROWLr, vPaaS

SHAPING THE FUTURE OF P7S1 WITH AI

WE AIM TO BE A **DRIVING FORCE FOR P7S1** BY CHAMPIONING
THE **ADOPTION OF AI AND DATA-DRIVEN THINKING.**

WE BUILD INNOVATIVE PRODUCTS THAT **CREATE VALUE,**
UNLOCK BUSINESS OPPORTUNITIES AND EMPOWER OUR COLLEAGUES.

AI PRODUCTS IS AN INTERNATIONAL AND INTERDISCIPLINARY TEAM...

DATA SCIENTISTS

DATA ENGINEERS

PRODUCT MANAGERS

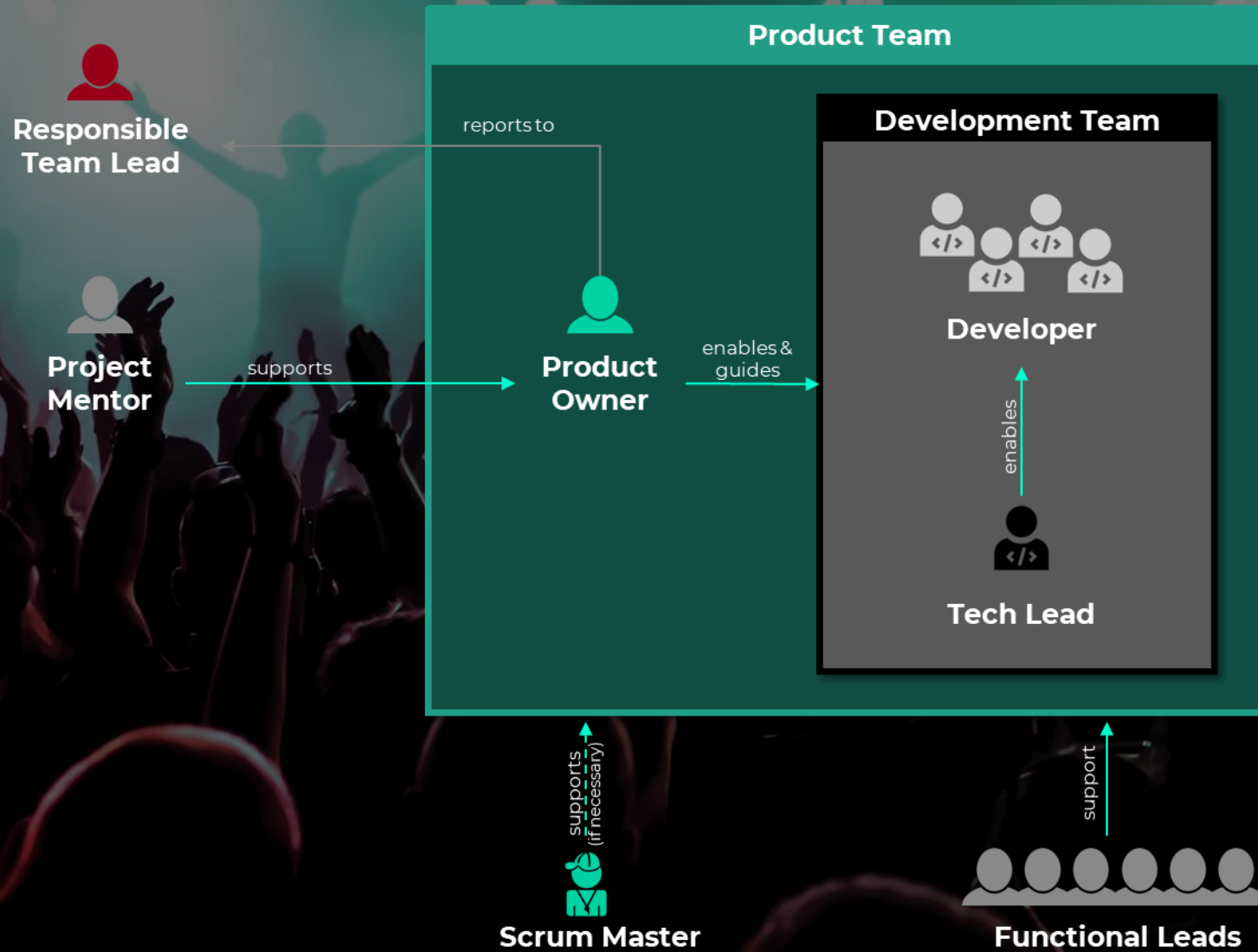
ML ENGINEERS

ARCHITECTS

10 NATIONS

30% WOMEN

...WORKING TOGETHER IN AGILE PROJECT TEAMS



TRUE BIG DATA ALLOWS US TO DEVELOP A WIDE RANGE OF AI / ML PRODUCTS

TV ADVERTISING
PLANNING

ARTIFICIAL
VOICES

AUTOMATED
TAGGING

IMAGE
RECOGNITION

TARGETING

CONTEXTUAL
ADVERTISING

TEXT
RECOGNITION

CONTENT META
DATA GENERATION

SUBTITLES

TV PROGRAM
PLANNING

THUMBNAIL
GENERATION

MUSIC
RECOGNITION

**TV ADVERTISING
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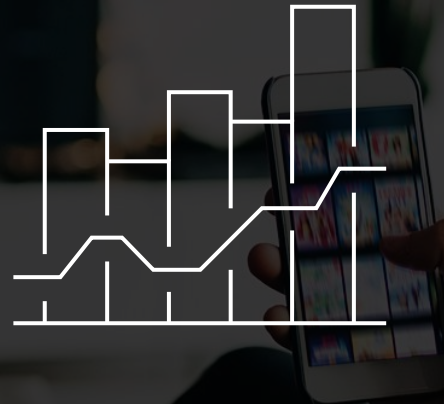
MUSIC
RECOGNITION

PERFORMANCE DATA FROM PAST TV CAMPAIGNS ARE THE BASIS FOR OPTIMIZING TV ADVERTISING WITH THE HELP OF AI



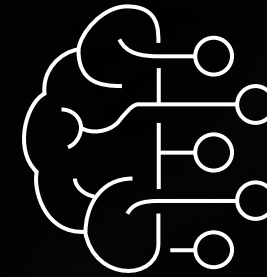
ATTRIBUTION

Who reacted due to TV advertising?



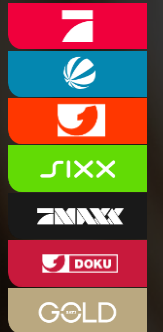
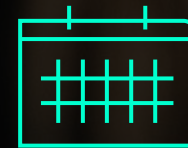
ANALYSIS

How was the performance of past TV campaigns?



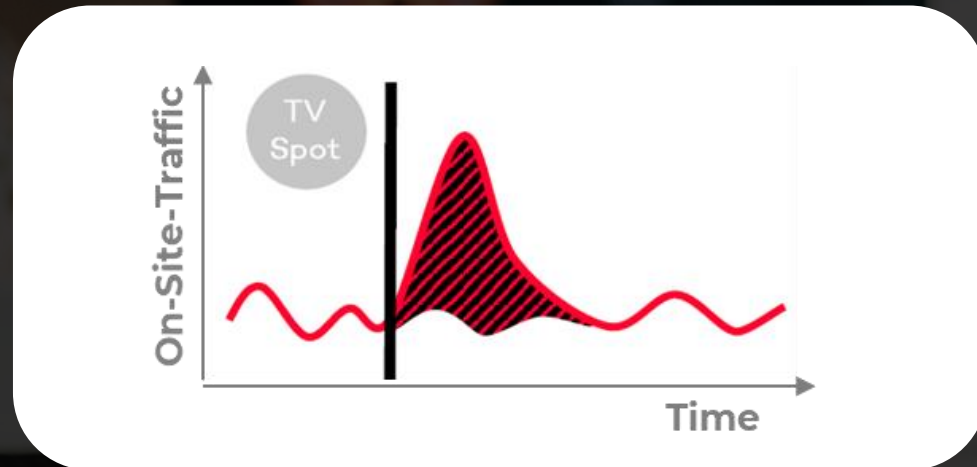
OPTIMIZATION

How to optimize performance of future TV campaigns?



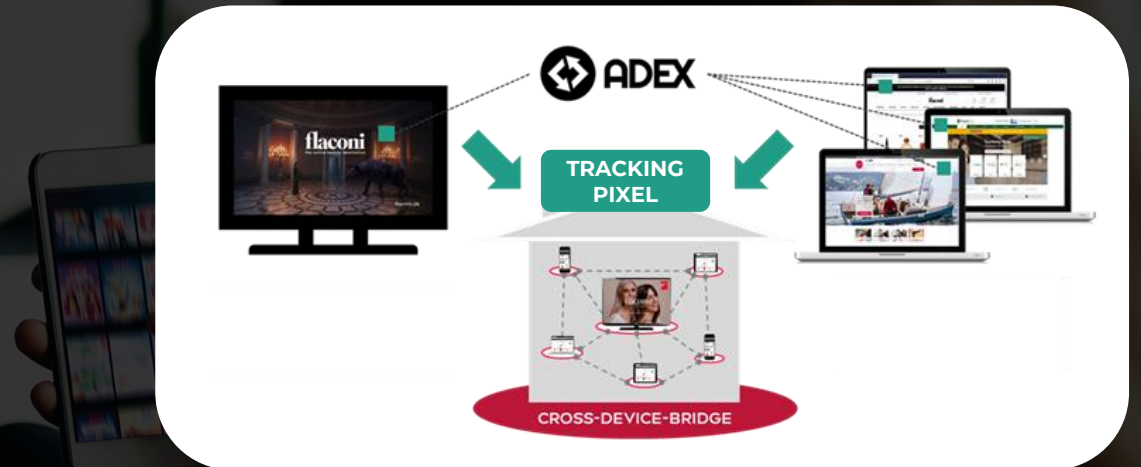
CLASSIC WAY OF TV ATTRIBUTION DID NOT PROVIDE SUITABLE DATA FOR A MACHINE LEARNING MODEL – THEREFORE WE OPTED FOR A NEW INNOVATIVE APPROACH

CLASSIC APPROACH



- Checks traffic on a website shortly before and after airing of a TV ad to **approximate** its effect
- Visits are attributed within the few minutes after an advertising is aired
- Approach leads to **high noise** in the data which makes it unsuitable as a basis for a prediction model

NEW APPROACH



- Measures TV spot performance by allocation of website visits to households that actually saw the TV spot(s)
- Allocation of digital devices to a TV household by matching of Smart TV Tracking and Website Tracking data via IP matching
- Allows 1:1 attribution similar to that of online marketing channels (e.g. SEA) - provides **reliable data** that can be used as a basis for a prediction model

USING THE NEW ATTRIBUTION DATA, WE TRAINED A ML MODEL THAT PREDICTS THE TV BLOCKS WITH THE BEST COST-PER-VISIT RATIO

INPUT DATA

3 years

~ 150.000
TV spots

8
companies

FEATURES

Company

Following program

Length of TV spot

Hour of airing

Price of TV spot

Product

Previous program

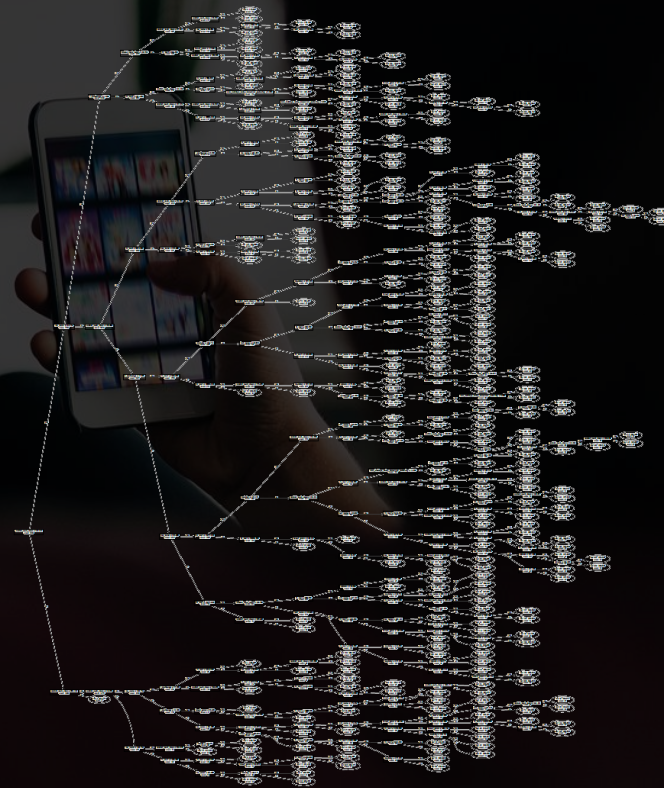
TV channel

Weekday

...

Feature importance

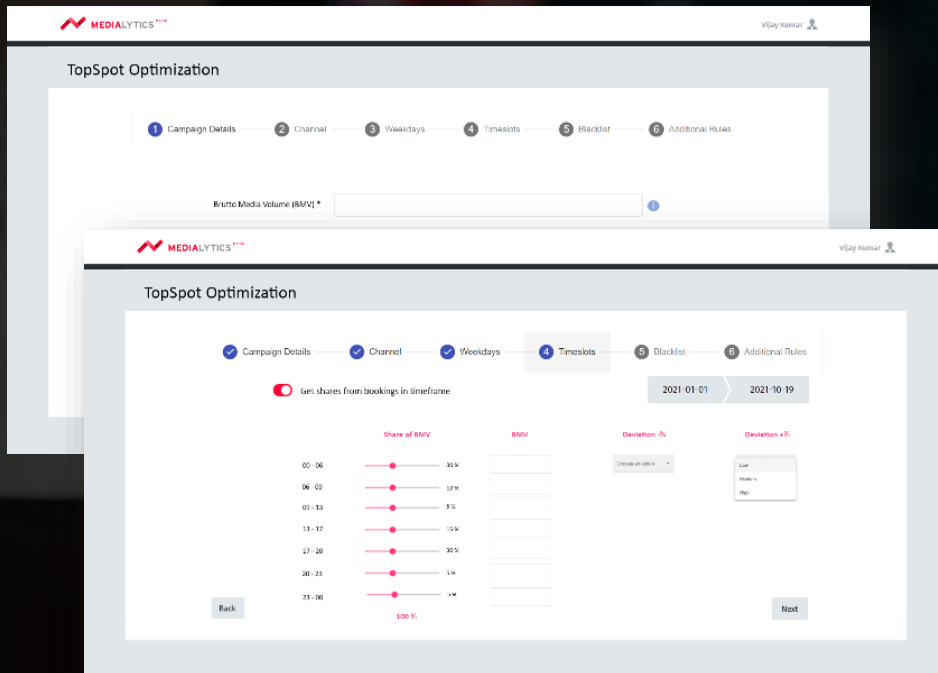
PREDICTION MODEL (GRADIENT BOOSTED TREES)



OUTPUT

Cost-per-visit
(CPV)

ADVERTISING CUSTOMERS CAN OBTAIN THE PREDICTIONS VIA A SELF-SERVICE TOOL AND USE THEM AS BASIS FOR THEIR TV PLANNING



Input of **framework data for TV campaign**
(limitation of channels, times, programs possible)

rank	Sender	KW	WT	Datum	Zeit	Sek.	Stunde	Werbtraeger	WB-Nr.(8)	Umfeld vor	Umfeld nach	Scharnier (ja/nein)	Bruttopreis	Zeitschiene
1	KABEL EINS	47	Di	23.11.2021	2021-11-23 09:08:35	10	9		01.09.09.17	Navy CIS	Navy CIS	nein		09-13
2	KABEL EINS	47	Sa	27.11.2021	2021-11-27 06:52:18	10	6		01.08.06.08	Hawaii Five-0	Hawaii Five-0	nein		06-09
3	KABEL EINS	47	Do	25.11.2021	2021-11-25 07:15:55	10	7		01.05.07.10	Navy CIS	Navy CIS	nein		06-09
4	KABEL EINS DOKU	47	Sa	27.11.2021	2021-11-27 07:32:31	10	7		03.10.07.11	Polizeiinsatz Ala	Polizeiinsatz Ala	nein		06-09
5	KABEL EINS	47	Do	25.11.2021	2021-11-25 09:06:32	10	9		01.09.09.17	Navy CIS	Navy CIS	nein		09-13
6	SAT.1	47	Mo	22.11.2021	2021-11-22 09:42:18	10	9		01.37.09.19	SAT.1-Frühstücks	SAT.1-Frühstück	nein		09-13
7	KABEL EINS DOKU	47	Sa	27.11.2021	2021-11-27 06:37:00	10	6		03.09.06.08	Polizeiinsatz Ala	Polizeiinsatz Ala	nein		06-09
8	KABEL EINS	47	Fr	26.11.2021	2021-11-26 09:11:33	10	9		01.09.09.17	Navy CIS	Navy CIS	nein		09-13
9	KABEL EINS	47	Mi	24.11.2021	2021-11-24 09:05:44	10	9		01.09.09.17	Navy CIS	Navy CIS	nein		09-13
10	SAT.1 GOLD	47	Di	23.11.2021	2021-11-23 11:47:38	10	11		02.16.11.27	Unsere kleine Fari	Unsere kleine Fari	nein		09-13
11	SAT.1	47	Mo	22.11.2021	2021-11-22 07:37:10	10	7		01.37.07.11	SAT.1-Frühstücks	SAT.1-Frühstück	nein		06-09

After optimization has run through, customer receives email with a **ranking of the best TV blocks**

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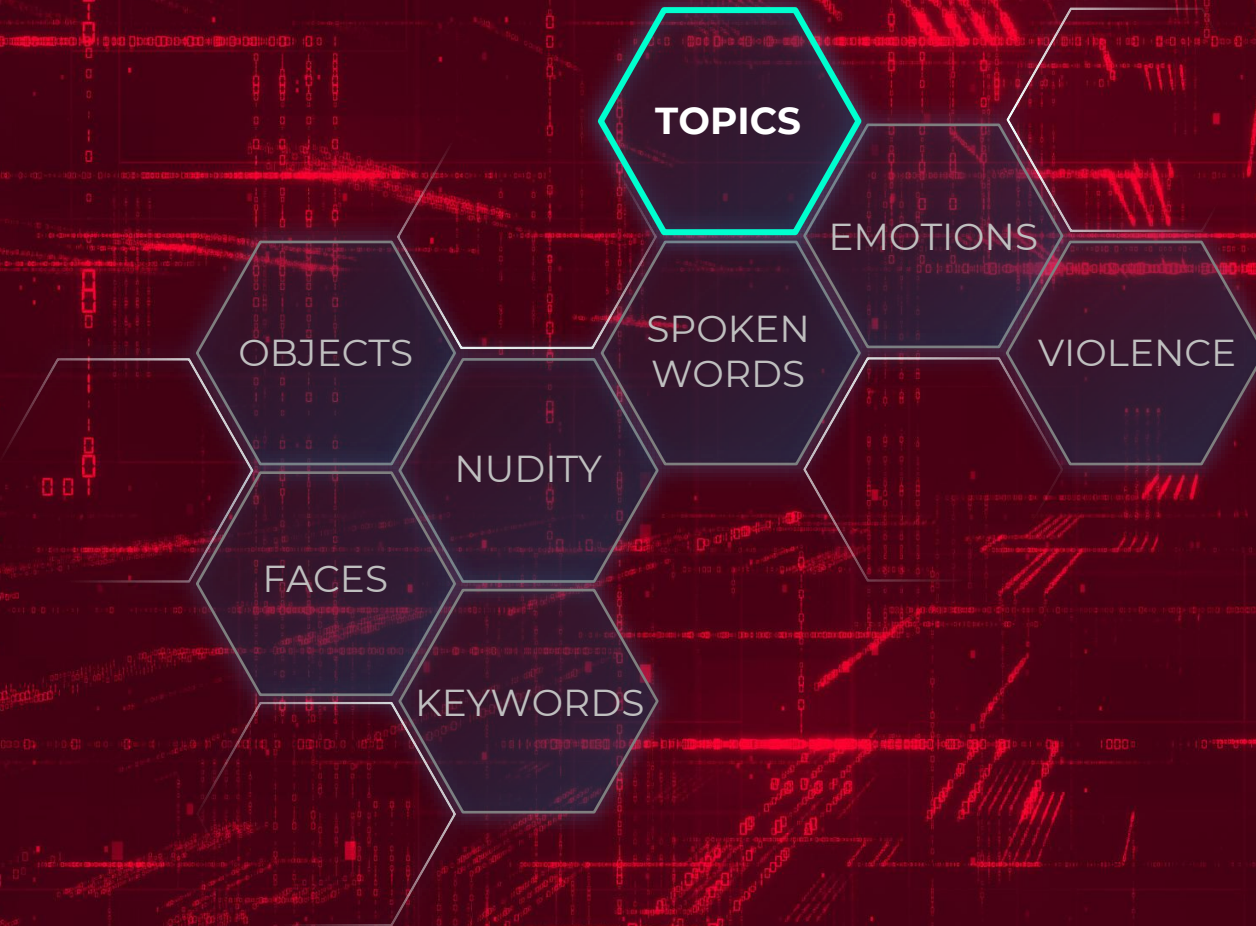
THUMBNAIL
GENERATION

MUSIC
RECOGNITION

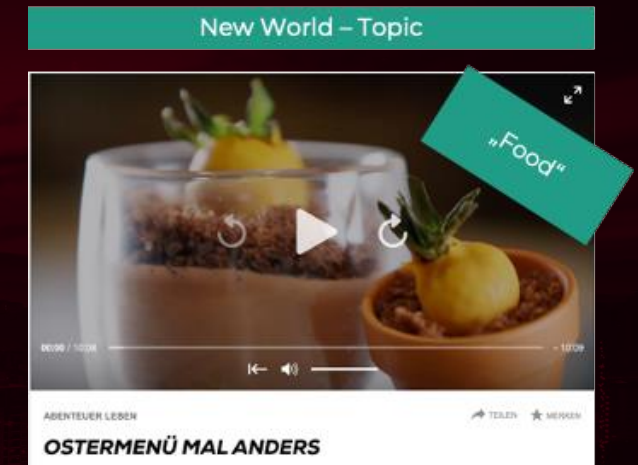
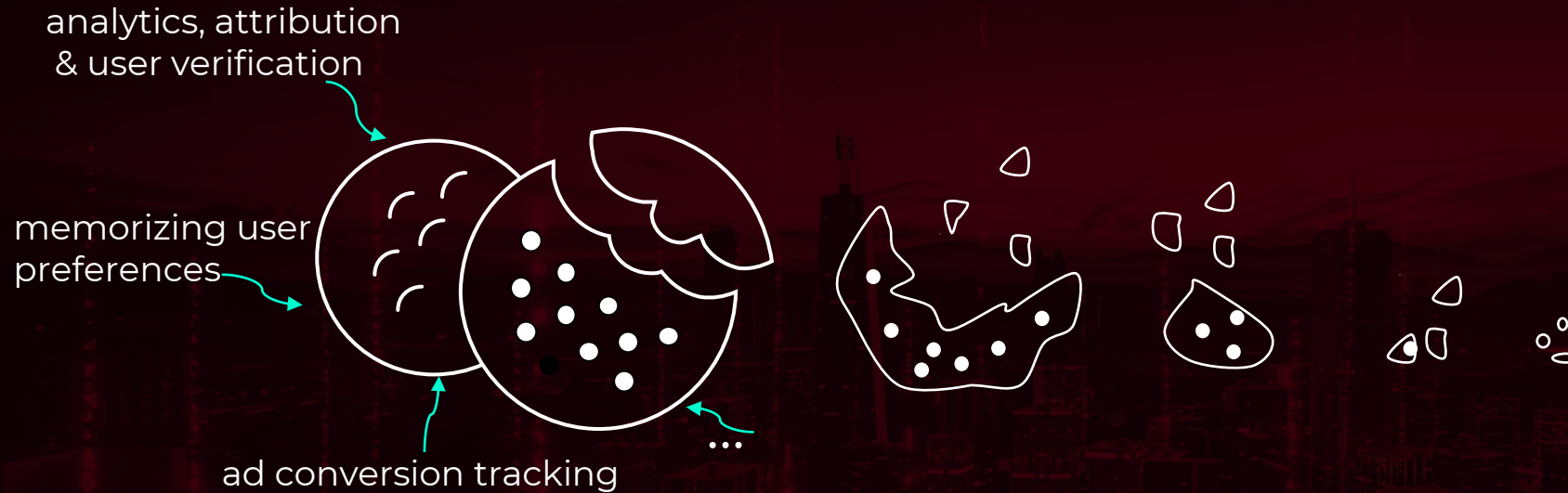
CONTENT METADATA OPENS THE DOOR FOR CONTEXTUAL ADVERTISING



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TO COMBAT STRONGER RESTRICTIONS REGARDING COOKIE TARGETING, WE IDENTIFY USER GROUPS BASED ON TOPICS OF CONSUMED CONTENT



REACH DOESN'T HAVE TO DISAPPEAR AS 3RD PARTY COOKIES DO

WE STRUCTURE THE VIDEO CONTENT INTO TOPICS WITH THE HELP OF ML AND NLP

LABELLING

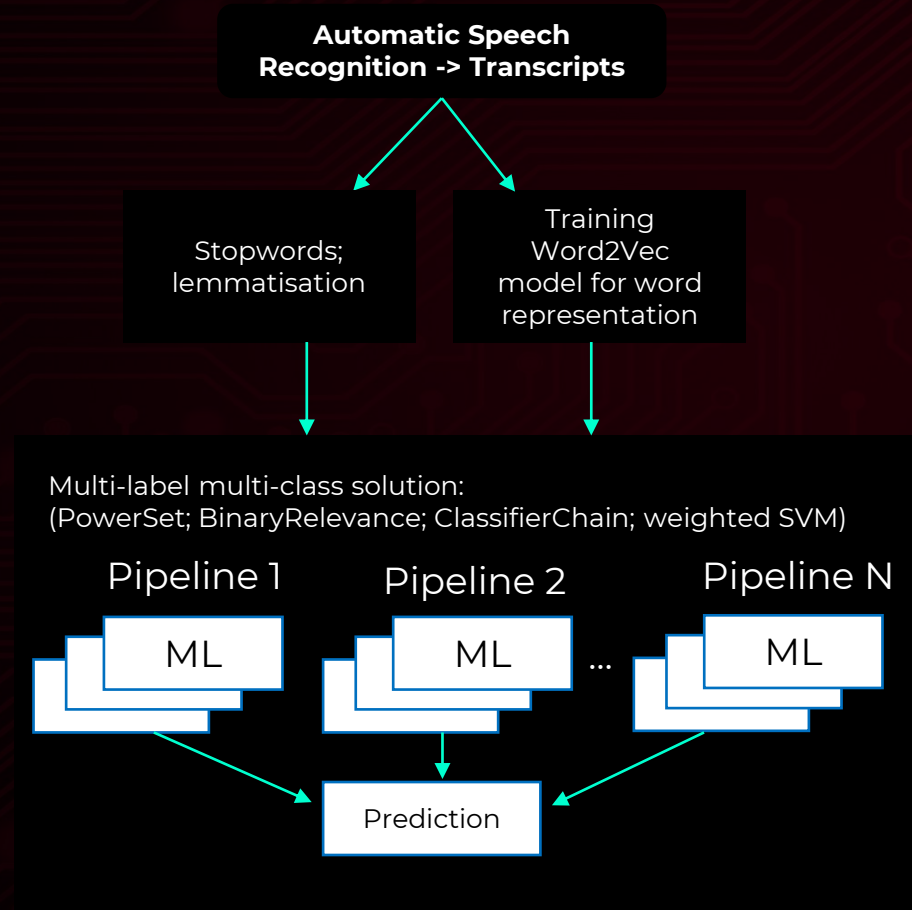
~ 6000 videos labelled,
41 possible topics:

- Automotive
- News
- Fashion
- Sports
- FoodBev
- ...

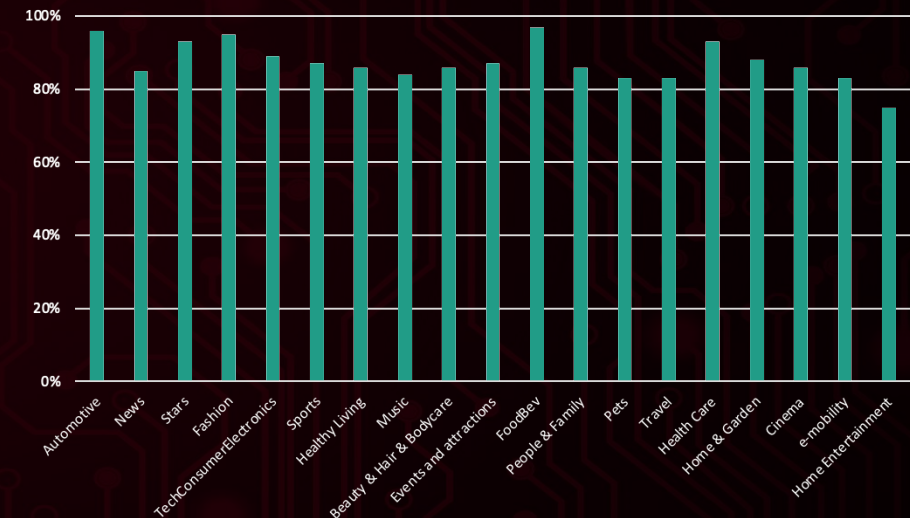
TV formats:

- Galileo
- Abenteuer Leben
- GNTM
- Frühstücksfernsehen
- Taff
- ...

TRAINING & VALIDATION



TESTING



Q & A

