

# Keyword CTR Prediction as a Service for Optimizing Ad Campaigns

Next Gen Collaborative and Scalable Advertising Data Value Chain

**Ad**Verif.ai

Or Levi, Founder and CEO



**JOT** INTERNET  
MEDIA

REACH-2020-READYMADE-JOT\_2.2

**REACH**

# Problem:

Typical small business wastes 25% of their budget on wrong keywords



“ Marketing managers do not have proper insights to select the most profitable keywords.

Multiple challenges related to data analysis, volume, variability and more “



Today's Keyword Research Tools



Provide estimated CPC, but not CTR



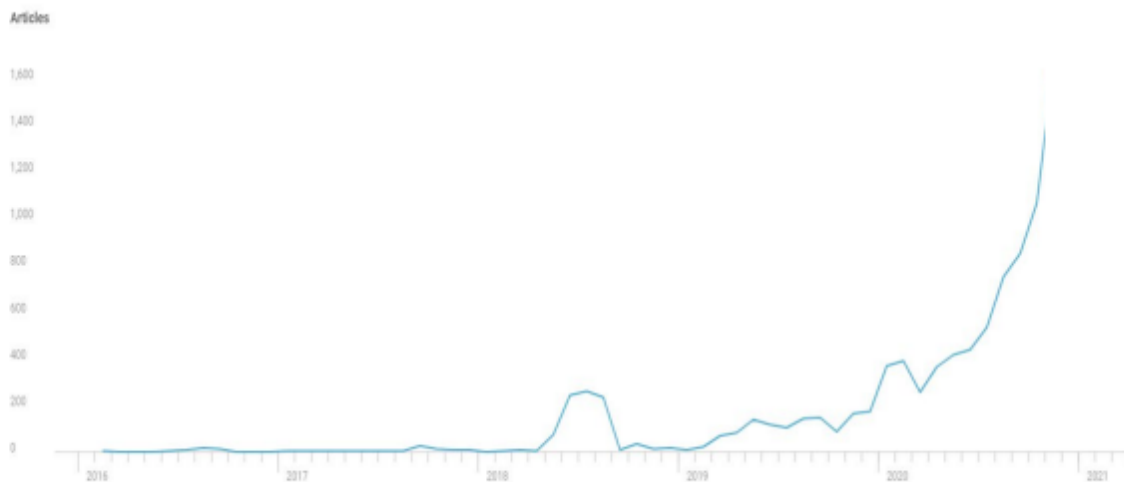
# Transformative Shift from User Profiling to Contextual

## AI steps in as a replacement for cookies

With the coming elimination of third-party cookies, targeting ads based on content could prove to be an effective alternative if AI can identify context at scale.

### News mentions of "third-party cookies"

2016 – 2020



Cookies crumbling as Google phases them out

January 15, 2020



'Cookie apocalypse' forces profound changes in online advertising

February 26, 2020





# Ad Keywords Optimization as a Service: Tailor-Made, Multi-lingual and at Scale

## Tailor-Made



Most relevant  
keywords for each  
brand and campaign

## Optimize ROI



Campaigns with  
ROI > 15%

## Multi language



English and  
Spanish with more  
added later

## Scalable



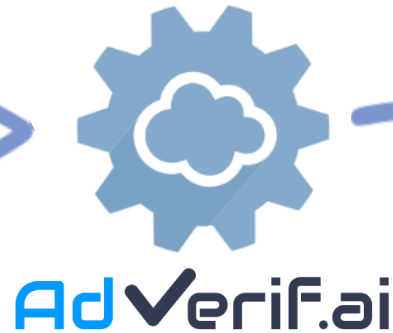
Process 500K  
keywords in  
batch mode

# API and SaaS Insights for Ad Optimization

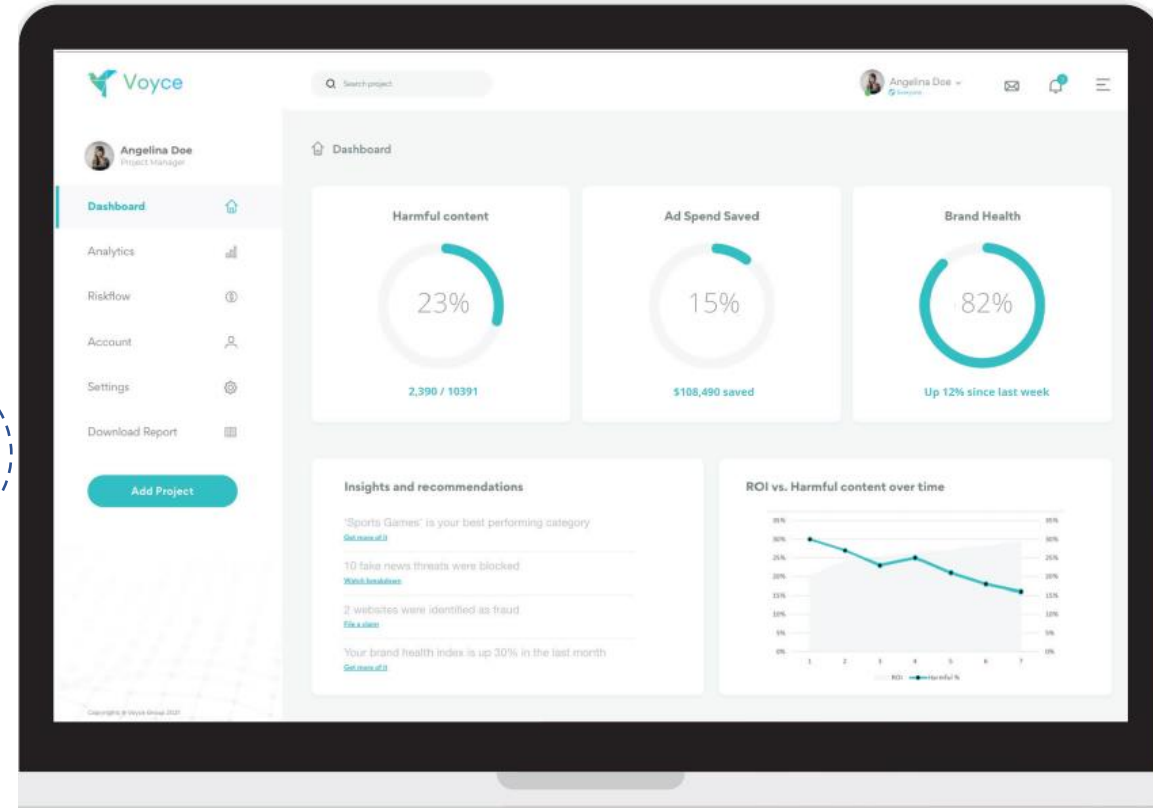
1

Scan Ads data with our API  
And Predict Profitable Keywords

Ad Buying Platform



2



3

Optimize Keyword List  
And Boost ROI

View Deep Analytics and Insights  
Via the SaaS Platform

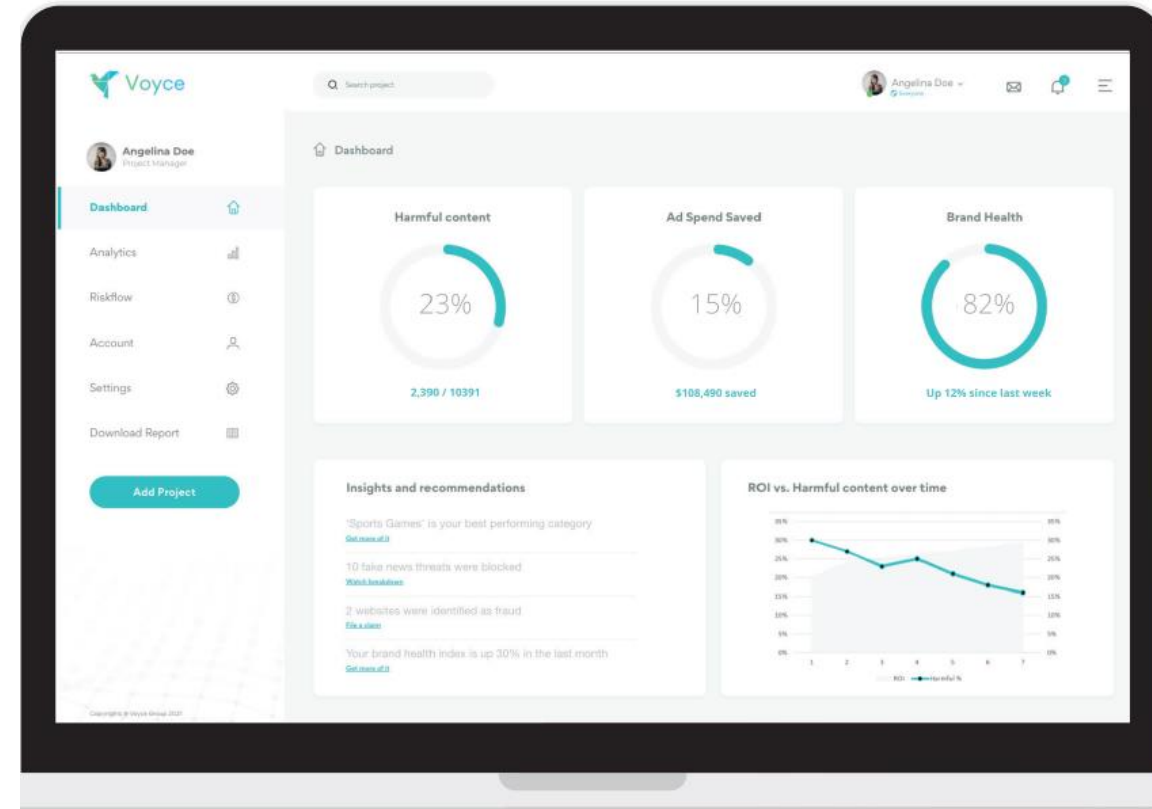
# A Win-Win Business Model

**Advertisers and digital agencies**  
Achieve Higher ROI



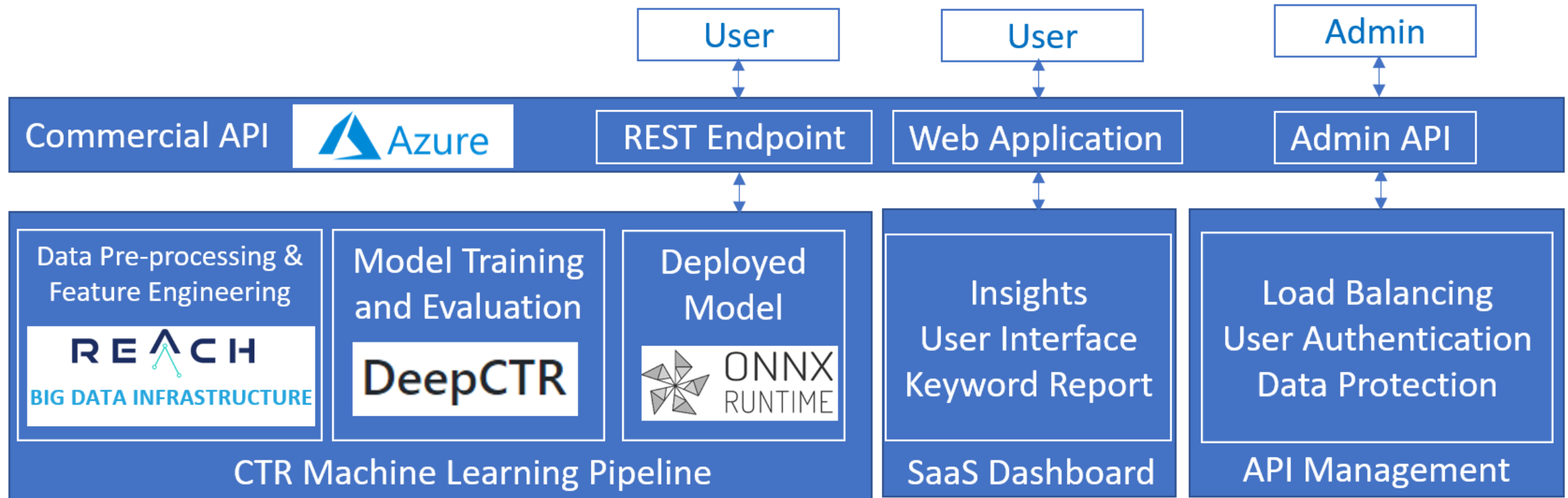
Flat rate per month  
+ Pay as You Go: 1c per API call

Client Type	Small	Medium	Large
API Calls	1M	2.5M	4M
Annual Revenue	\$25K	\$50K	\$75K



**View Deep Analytics and Insights  
Via the SaaS Platform**

# System Architecture: 3 Main Components:



# The Algorithm: State-of-the-Art Deep FM

kaggle

Factorization Machines were commonly used by winning teams in Kaggle CTR prediction competitions

## xDeepFM Achieves State-of-the-art Results

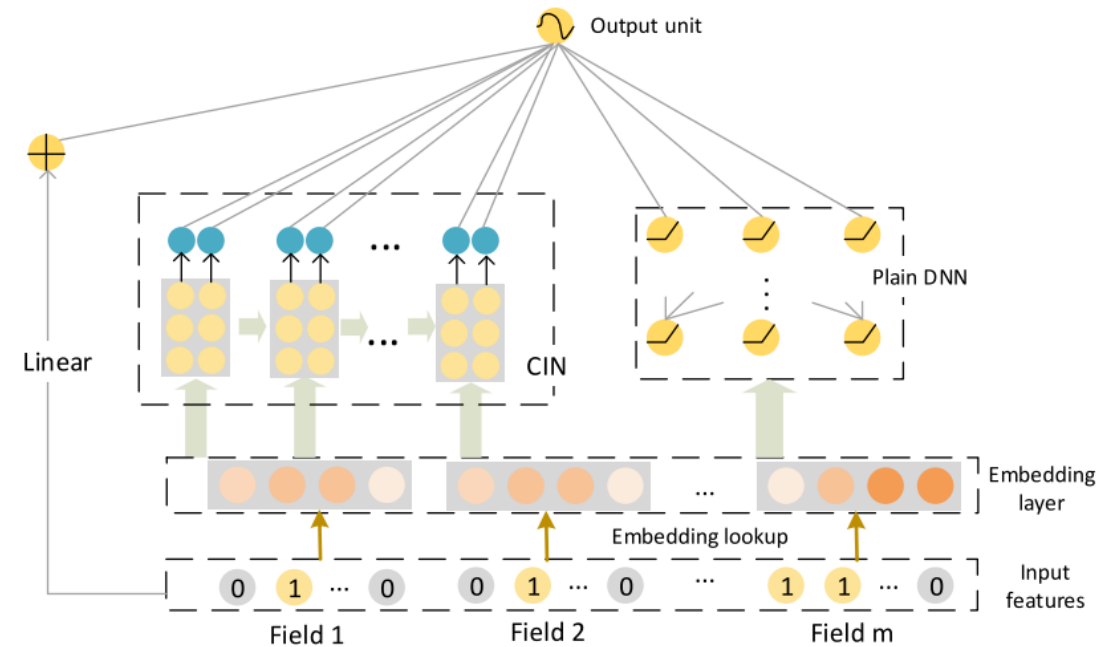
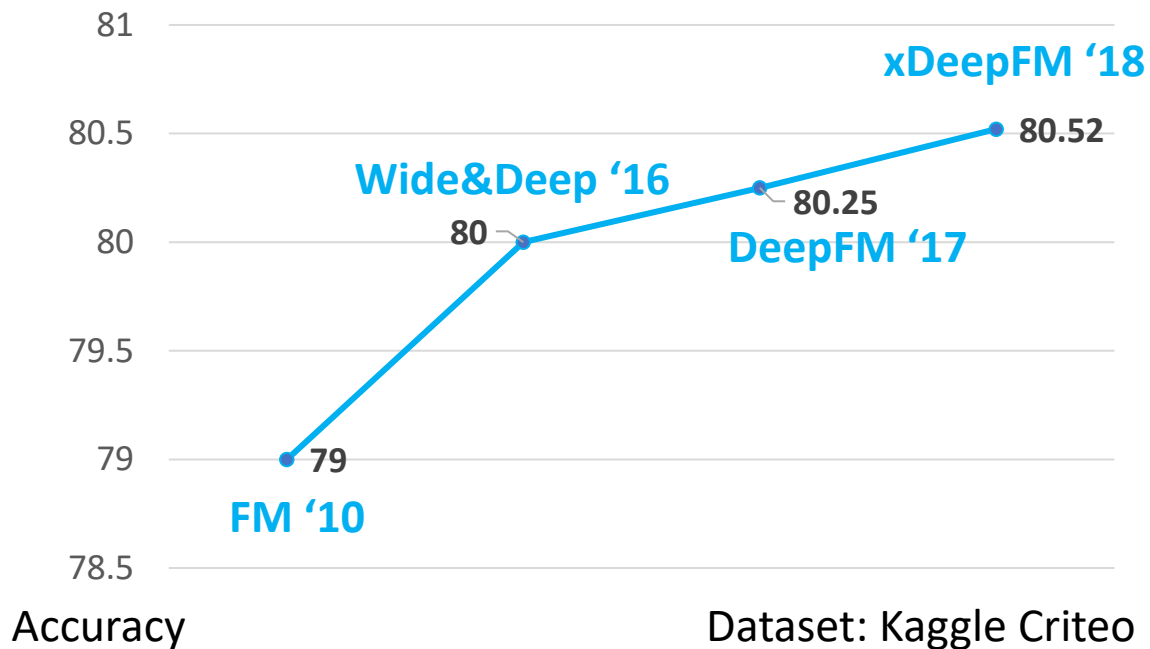


Figure 5: The architecture of xDeepFM.



# Mock-up and Initial Results

## Dataset

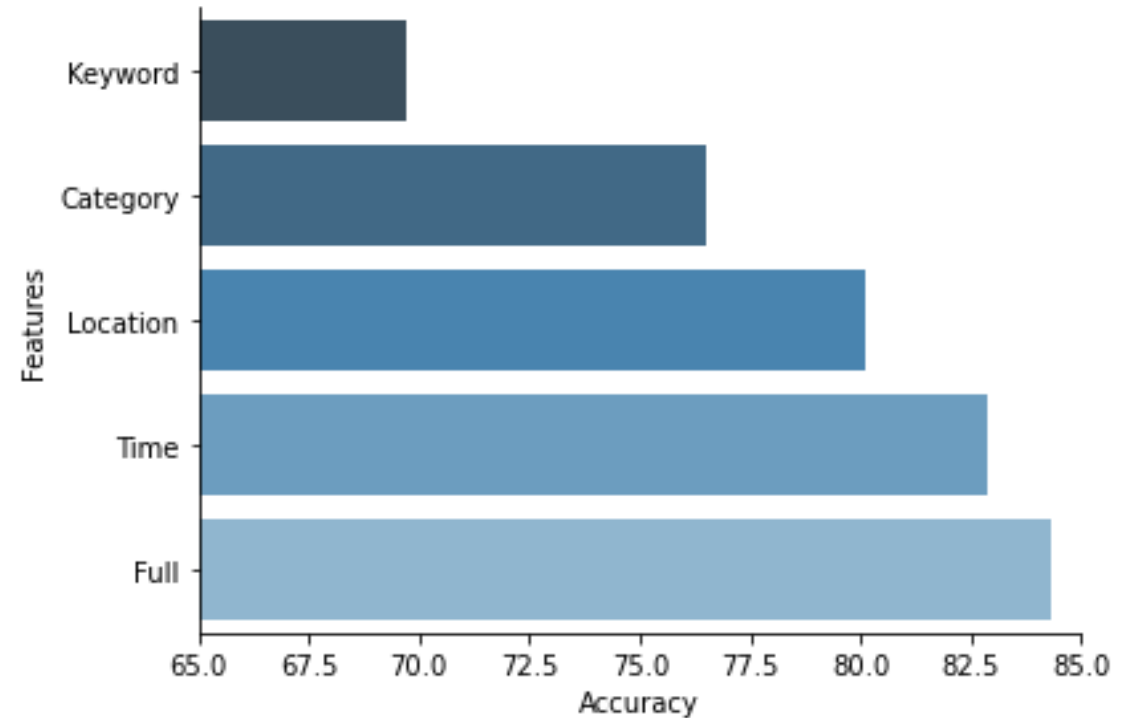


34M records from ad campaigns

## Initial Results

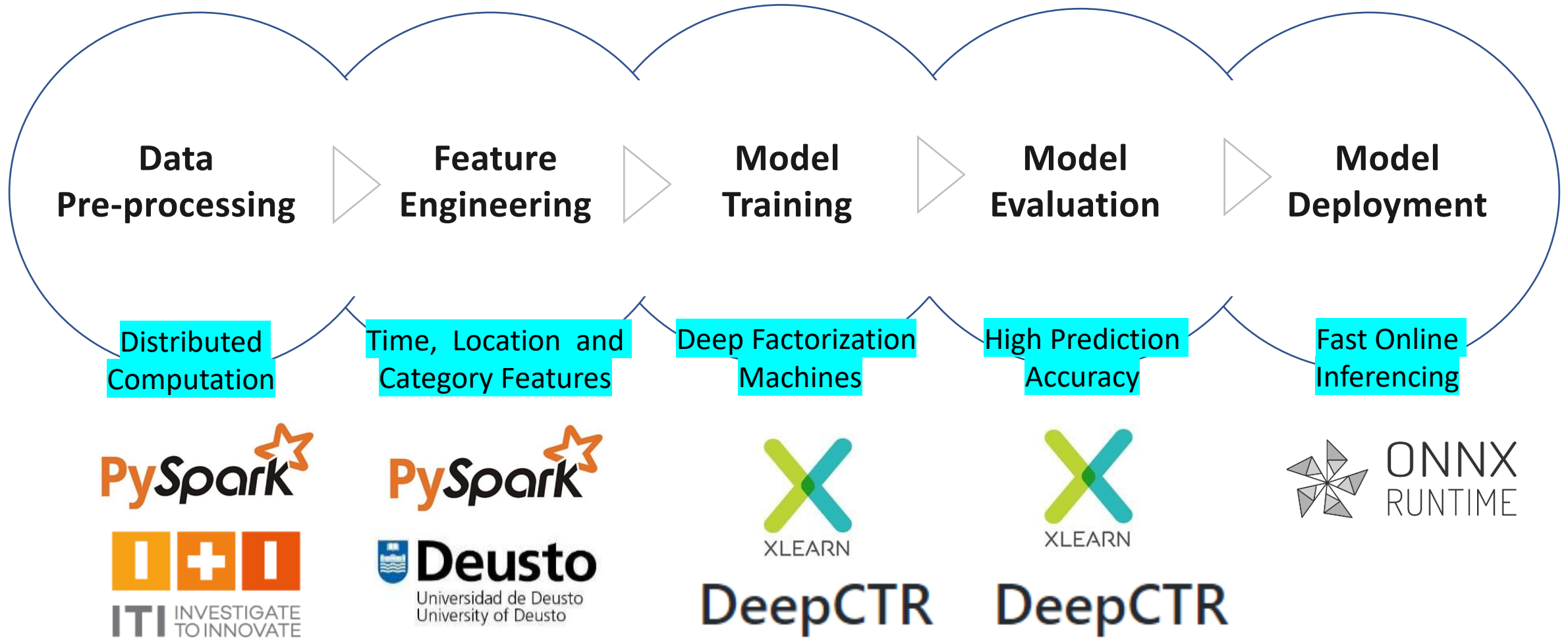
Model	Accuracy
Logistic Regression	76.2
FM	81.6
<b>xDeepFM</b>	<b>84.3</b>

## Feature importance



# The Tools – CTR Prediction at Scale

Leveraging Distributed Open-Source Code and REACH Big Data Infrastructure



REACH BIG DATA INFRASTRUCTURE

# Forming a Cross-EU Data Value Chain

## Public Datasets

kaggle

criteo. Avazu

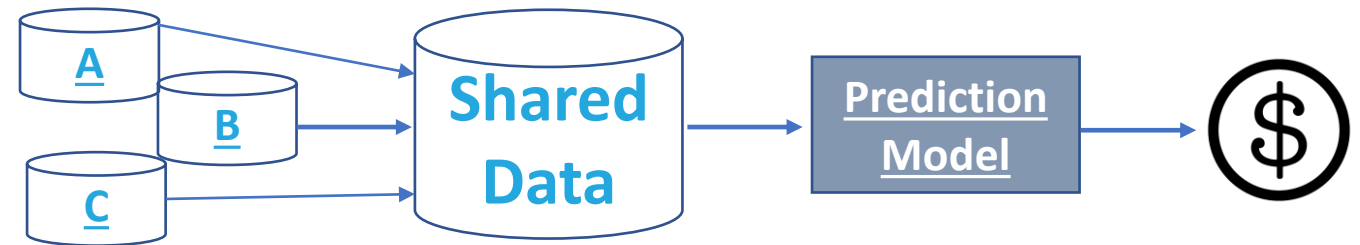
Outbrain Bing news

Diverse Data Providers

## Private Datasets



Clients can opt-in to provide data on keyword performance in **anonymous, privacy compliant and secured fashion**



Create a shared data pool for model optimization and **mutual benefit of the ecosystem**

✓ Multiple eCommerce Domains

✓ Multiple Languages

✓ Proprietary Data = Defensible Edge

# Guaranteeing Data Security and Legal Compliance

## Data Security



- Designated Information Security Officer and Policy
- Azure services are audited against the **ISO 27001** standard
- Authentication via **2FA**
- Data is encrypted at rest using Azure Disk Encryption and at transport with the **IEEE 802.1AE** standard



## Privacy



- Designated Data Protection Officer
- Trace and control of individual rights and data protection rights.  
**Using ProRegister**
- Campaign data is collected only via voluntary opt-in and anonymized.  
**Using Anonymizer**

**REACH BIG DATA  
INFRASTRUCTURE**

**Anonymizer**  
Smart Data Masking Solution

**gnúbila**

# Project Team

Developed by  
AI Researchers  
and Ad Tech  
Veterans



**Or Levi, CEO**

Research Scientist  
M.Sc. Technion



**Reenah Nahum,  
Chief Data Scientist**

Ph.D.. Tel Aviv University



**Brecht Malfait,  
CMO**

Founder, WAX Interactive

# Advisory Board



**Dov Yarkoni**

Managing Director,  
Nielsen Innovate Fund



**David Murnick**

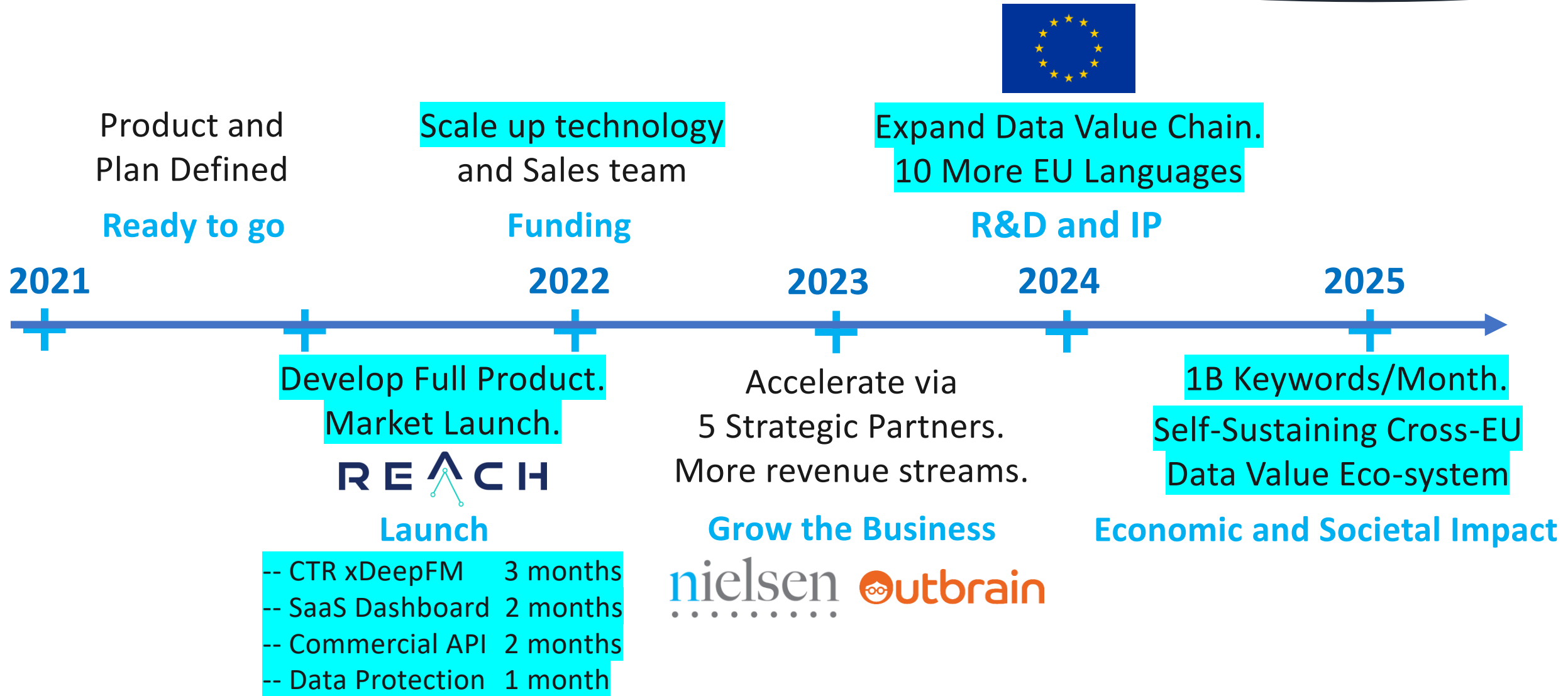
EVP Brand Safety  
Dentsu International



Tel Aviv, Israel (HQ)  
Amsterdam, Netherlands



# R&D ROADMAP AND KEY MILTSTONES



# Thank You!

## Keyword CTR Prediction as a Service for Optimizing Ad Campaigns

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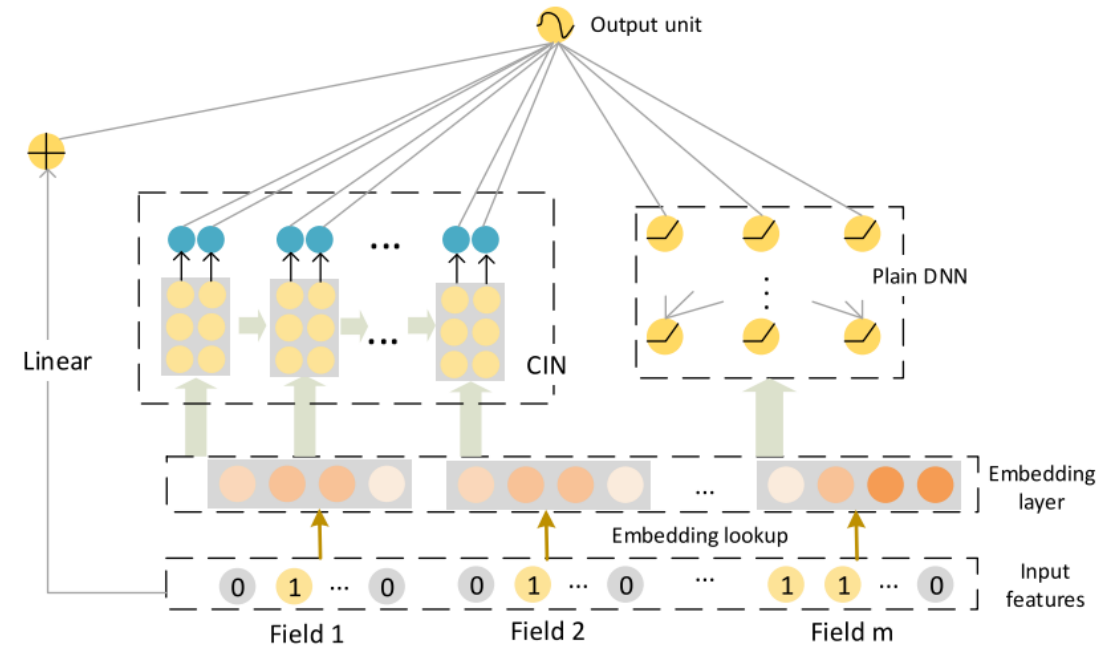
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# Appendix: xDeepFM

Model	Explicit Features	Implicit Features
FM	High-Order (curse of dimensionality)	
Wide&Deep, DeepFM	Low-order	High-order
xDeepFM	High-order	High-order



**Figure 5: The architecture of xDeepFM.**