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Online sales study of the Circle of Online Marketers (OVK)

Analysis of ROI and sales performance of online advertising on the basis of individual marketing mix modeling and database analysis

Background and motivation

Advertising market: Uncertainty regarding sales effect and with it efficiency (ROI) of online advertising

OVK, Circle of Online Marketers: Analysis of the offline sales effect of online advertising in general and in particular online display

Focus for evaluating: Gross online ROI based on the sales performance

Project structure

Part 1: Customer-specific results
Individual marketing mix modeling

Insights of the ROI and sales effect in connection with campaign details

+

Part 2: Generalizable results
Database analysis of 69 marketing mix modeling projects/campaigns

Show in a reliable manner how efficient online is as advertising medium

Project structure in detail

Study portion	**Individual marketing mix modeling**	**Database analysis of 69 marketing mix modeling projects/campaigns**
Method	multivariate regression analysis (modeling)	Analysis of marketing mix modeling projects/campaigns
Data basis	Model on the basis of 156 weeks across the food retailing businesses of the Nielsen retail panel	69 marketing mix modeling projects/carried that were executed by Nielsen on behalf of the customer since 2002
KPIs	ROI and sales volume effect (in connection with campaign details)	Average online gross ROI
Execution	Nielsen	Nielsen

Underlying data

Reliable statements regarding the online ROI

Measurement of the short-/medium-term sales volume effects (taking into account the depot effect) of all drivers as well as taking into account of umbrella brand effects

Calculation of sales volume effects and ROIs on the basis of objectively empirically measured data

No extrapolation and simulation across non-monitored timeframes

Millions of **purchasing actions**
Millions (rather billions) of **advertising contacts**
Per project/brand up to **three years** of historical **data**

Key insights part 1: Individual marketing mix modeling

- **Online umbrella brand effects** via investments into other Wagner brands are also **measurable and ROI effective.**
- **Additional sales revenue** of the **online** campaigns (incl. umbrella brand effect) are **disproportionately high** in relation to the gross advertising spending, **i.e. almost three times as high**, and already makes for one-fourth of the additional media sales.
- **Incl. umbrella brand effects** the **online ROI ist almost three times as high** as the overall media ROI (excluding the umbrella brand effect the index is at 144).
- **Display** generates the **relatively highest return on investment** of all implemented online advertising formats.

- **Given efficiency aspects, online activities should be prioritized in the media mix.**

Expert opinions

- **Antje Witgen,** Nestlé Wagner:

"The study confirms the importance of digital media for effective brand development. Nestlé Wagner drives the use of adequate online advertising formats; thus, the detailed results of the OVK are another criterion for the optimization of our overall and online media mix."

Key insights part 2: Database analysis of 69 marketing mix modeling projects/campaigns

- Based on millions of individual purchasing actions of consumers in Germany the analysis shows that online achieves significant offline sales effects, and in a very efficient manner!
  - ø gross ROI: **EUR 0.72**
  - ø gross online **ROI top performers (1/3) = EUR 1.86**
- **Adjusted** for the **size of the brand** it shows that **also for smaller brands** online advertising delivers **good ROIs**.
- Comparison size-adjusted ROIs:

  ROI top index = 301 vs. ROI low index = 52
  - Index of the **online sales volume contribution** is at 150
  - **Flight lengths** of about 10 weeks are optimal given efficiency and effectiveness aspects. Meaning, the online budget develops its optimal effect.
  - High **share of voice** (position of brand spending in the competitive environment) is **not necessary** to achieve a high online ROI.
  - **Promotional intensity** of the brand: There is no difference between top, middle and low ROI performers

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Individual marketing mix modeling

Customer-specific results (Nestlé Steinofen Pizza and Piccolinis)

Goal of the analysis

- Goal of the analysis is to examine and **evaluate** the **effect** especially of **online display advertising** on the **sales** of **Wagner Steinofen Pizza and Wagner Steinofen Piccolinis**.

- **Evaluation** is here done via the **return on investment (ROI)** in comparison to other implemented offline advertising media (TV, print, radio, etc.) as well as the **share in the additional sales revenue** generated by the respective advertising medium and the effect per contact unit (**effectiveness**).

Project design

Period	Markets
October 3, 2011 - September 29, 2014 (calendar week 40/2011 - calendar week 39/2014)	Food retail > 400 m² excluding hard discount **ROI calculation**: Food retail ROI = additional sales revenue/gross advertising spending

Included activities	Brands included in the analysis
Advertising: Offline (TV, print, radio) and online	1. Wagner Steinofen Pizza (Steinofen) 2. Wagner Steinofen Piccolinis (Piccolinis)
Trade promotions: Price campaigns, flyers/newspaper ads, display.	
Control over: Distribution, range of products, standard price changes, promotions, season, temperature, holidays	

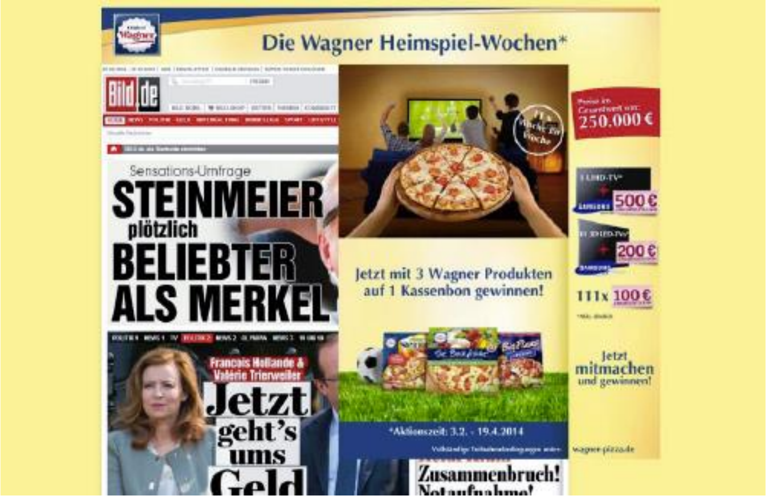
Implemented digital advertising media - Wagner and Piccolinis: Display, video, social, SEM

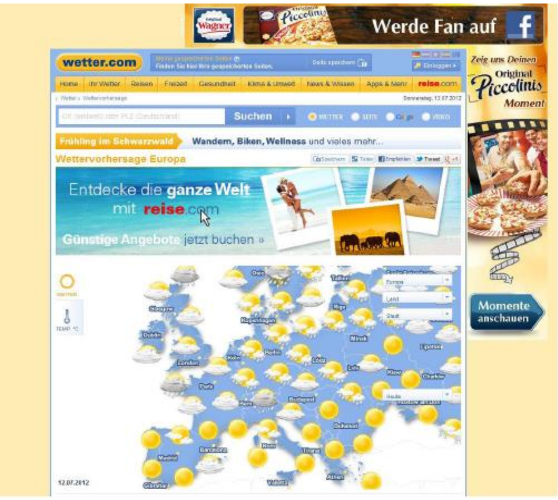
Digital advertising (spanning all marketers):

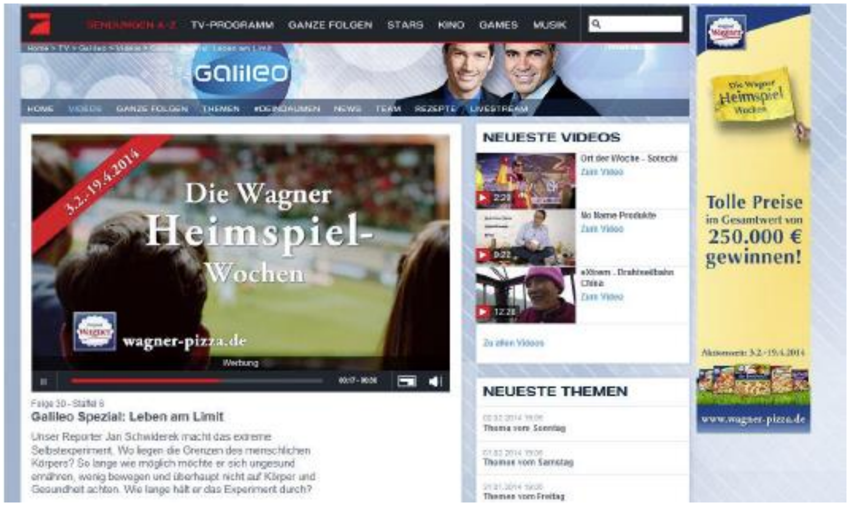
- **In-page display ad ("display")**
  - In-page (non-video and video): Ad bundle (medium rectangle, wide skyscraper, super banner), (expandable) wallpaper, fireplace, flash layer, additional premium ads
- **In-stream video ad ("video")**
  - Only in-stream video ads
- **Social: Facebook ad**

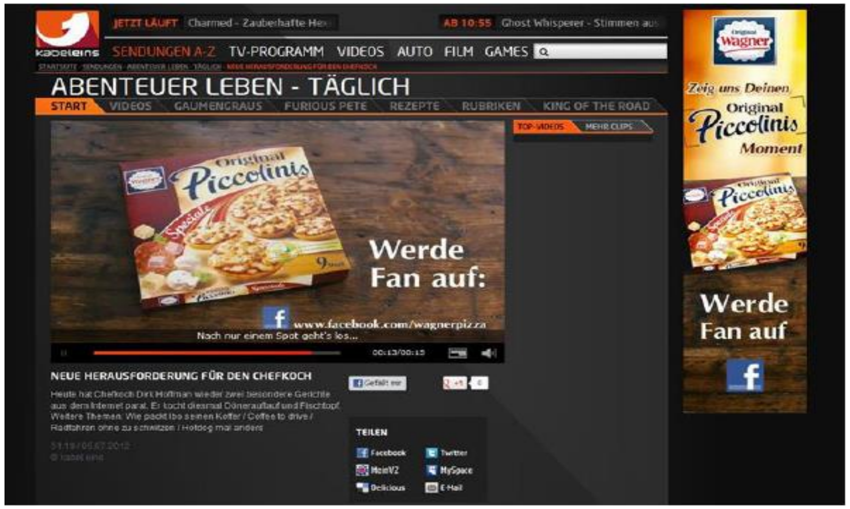
  Display advertising media (non-video)
- **Also: SEM**

Implemented digital advertising media (excerpt) - Steinofen and Piccolinis - display examples


Die Wagner Heimspiel-Wochen*
Bild.de
Sensations-Umfrage
STEINMEIER plötzlich BELIEBTER ALS MERKEL
Jetzt geht's ums Geld
Zusammenbruch! Notaufnahme!
Preise im Gesamtwert von: 250.000 €
500 €
200 €
111x 100 €
Jetzt mit 3 Wagner Produkten auf 1 Kassenbon gewinnen!
Jetzt mitmachen und gewinnen!
*Aktionszeit: 3.2. - 19.4.2014
wagner-pizza.de


Werde Fan auf
wetter.com
Suchen
Wettervorhersage Europa
Entdecke die ganze Welt mit reise.com
Günstige Angebote jetzt buchen »
Zeig uns Deinen Original Piccolinis Moment
Momente anschauen


SENDUNGEN A-Z
TV-PROGRAMM
GANZE FOLGEN
STARS
KINO
GAMES
MUSIK
Galileo
NEUESTE VIDEOS
NEUESTE THEMEN
3.2.-19.4.2014
Die Wagner Heimspiel-Wochen
wagner-pizza.de
Galileo Spezial: Leben am Limit
Die Wagner Heimspiel Wochen
Tolle Preise im Gesamtwert von 250.000 € gewinnen!
www.wagner-pizza.de


JETZT LÄUFT
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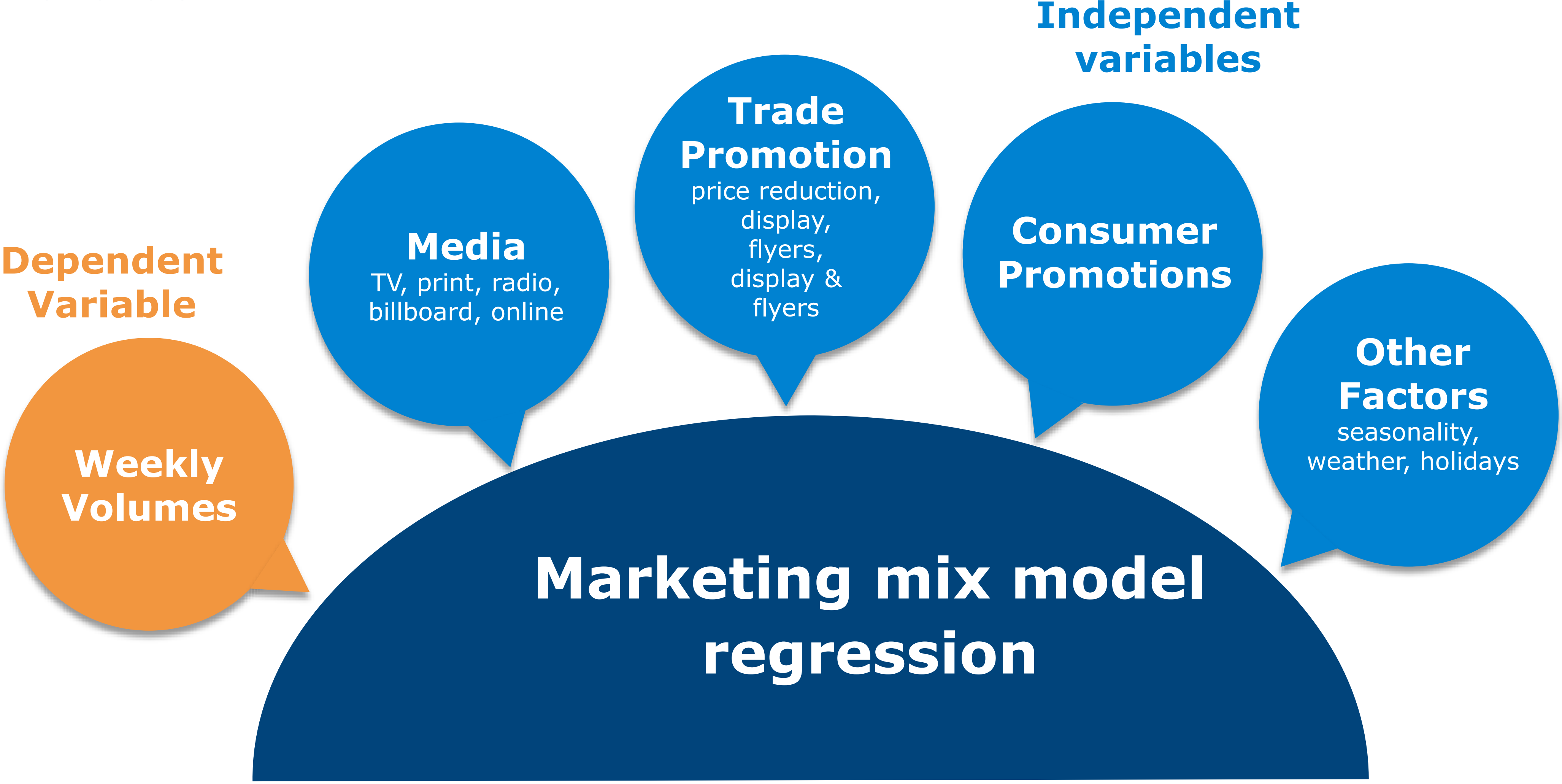
GAMES
ABENTEUER LEBEN - TÄGLICH
Original Piccolinis
Werde Fan auf:
www.facebook.com/wagnerpizza
NEUE HERAUSFORDERUNG FÜR DEN CHEFKOCH
Zeig uns Deinen Original Piccolinis Moment
Werde Fan auf

Nielsen marketing mix modeling: multivariate regression analysis captures all relevant factors for which data is available.



Independent variables

Dependent Variable

Weekly Volumes

Media
TV, print, radio, billboard, online

Trade Promotion
price reduction, display, flyers, display & flyers

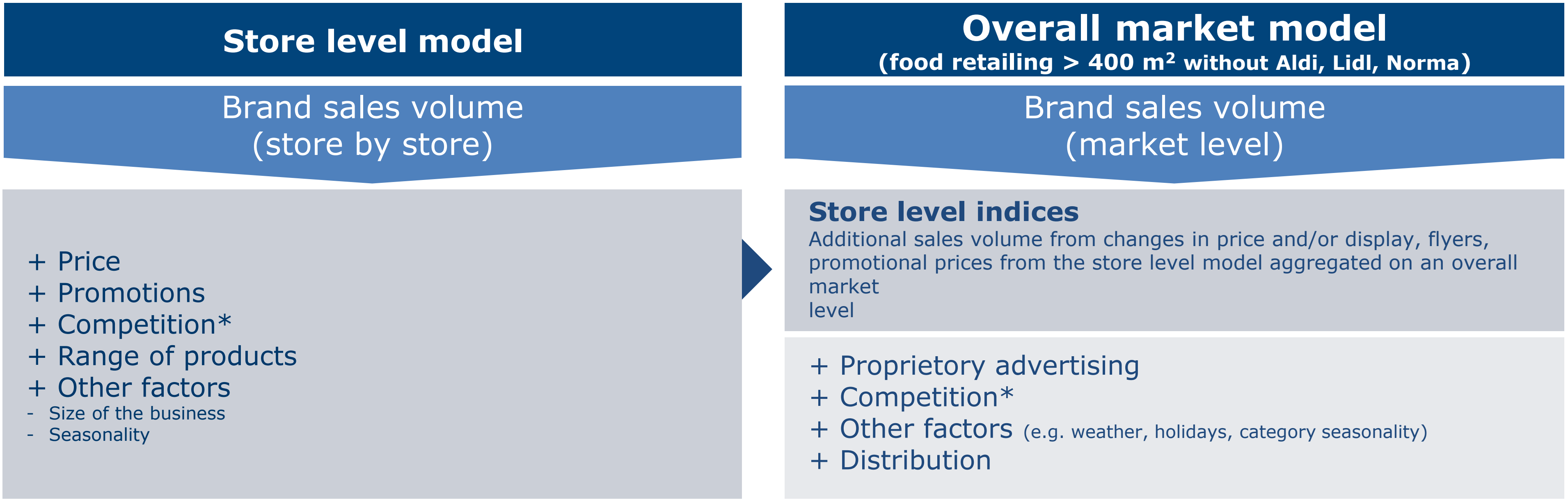
Consumer Promotions

Other Factors
seasonality, weather, holidays

Marketing mix model regression

Two-level, robust model on the basis of 156 weeks across the food retailing businesses of the Nielsen retail panel

- Each model is based on three years of weekly business data from the German foo retail trade.
- Measures the influence of the drivers at the execution level.
- Eliminates quality loss caused by data aggregation and multi-collinearity.
  - tens of thousands of business weeks across all brands as data basis across all campaigns
  - millions of individual purchasing actions of consumers in Germany
  - millions (rather billion) of advertising contacts across all media users in Germany
  - only objectively measured causal factors



Store level model

Brand sales volume
(store by store)

+ Price
+ Promotions
+ Competition*
+ Range of products
+ Other factors
  - Size of the business
  - Seasonality

Overall market model
(food retailing > 400 m^2 without Aldi, Lidl, Norma)

Brand sales volume
(market level)

Store level indices
Additional sales volume from changes in price and/or display, flyers, promotional prices from the store level model aggregated on an overall market
level

+ Proprietory advertising
+ Competition*
+ Other factors (e.g. weather, holidays, category seasonality)
+ Distribution

*Promotional and advertising activities of the competition may be taken into account in the models in order to quantify losses if relevant.

Analyzed KPIs of the OVK sales study

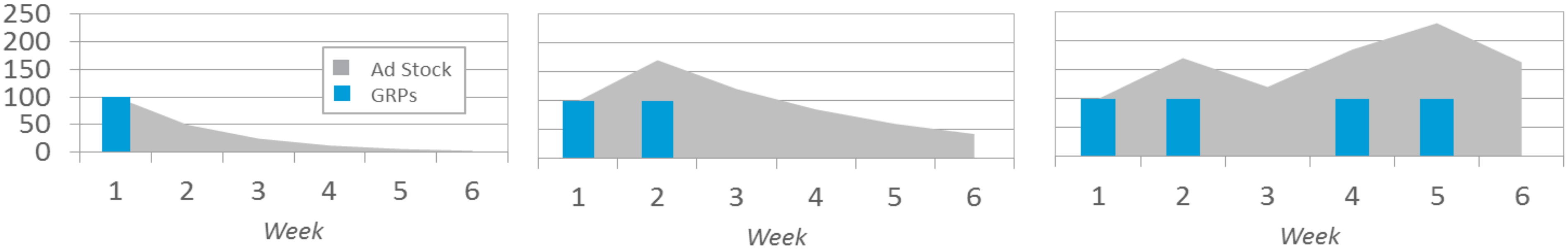
- The modeling divides the brand sales volume into the following:
  - **Base sales volume**: Sales volume due to availability, brand equity, etc., i.e. develops without short-term impulses
  - **Additional sales volume due to promotion and media**: Sales volume generated by impulses in the short-term and that would not have developed without promotion or media
- **KPIs** derived from this:

Effect & effectiveness	Efficiency
Effect (impact): **Additional sales volume & share of sales revenue** How much % of the overall sales volume/sales revenue is the additional sales volume/sales revenue due to advertising and medium: => denotes the significance of sales volume/sales revenue	**ROI per medium** (effect/investment): Additional sales revenue (additional sales volume*retail price) via advertising in a medium/advertising investment into the medium E.g. how much % of an invested advertising euro does advertising generate in the short- or medium-term. => most important efficiency criterion
Effectiveness (effect per contact unit): Calculated as additional sales volume in kg*/1000 AIs Standardized consideration of the effect without monetary evaluation Enables the direct comparison of the effectiveness between for example advertising formats and flights	

*kg = converted additional volume. Allows better comparability between brands since for example the sizes of packaging of Steinofen and Piccolinis are different. Especially relevant also in the comparison between advertising formats and flights.

Measurement of the short-/medium-term sales volume effects of all drivers

- Media in the on-air weeks and in the following weeks regarding the depot effect of advertising
  - “retention rate” (calculated in the model) denotes how many % of the GRP of one week are still sales effective in the following week = depot effect.
  - Cumulation of depot effect and the GRP of the current week results in “adstock” as the amount of sales effective GRP in each week: established procedure, in use for decades. (See for example Broadbent, S. (1979) "One Way TV Advertisements Work", Journal of the Market Research Society Vol. 23 no. 3.)
  - The duration of the short- to medium-term effect arises from the length of the adstock



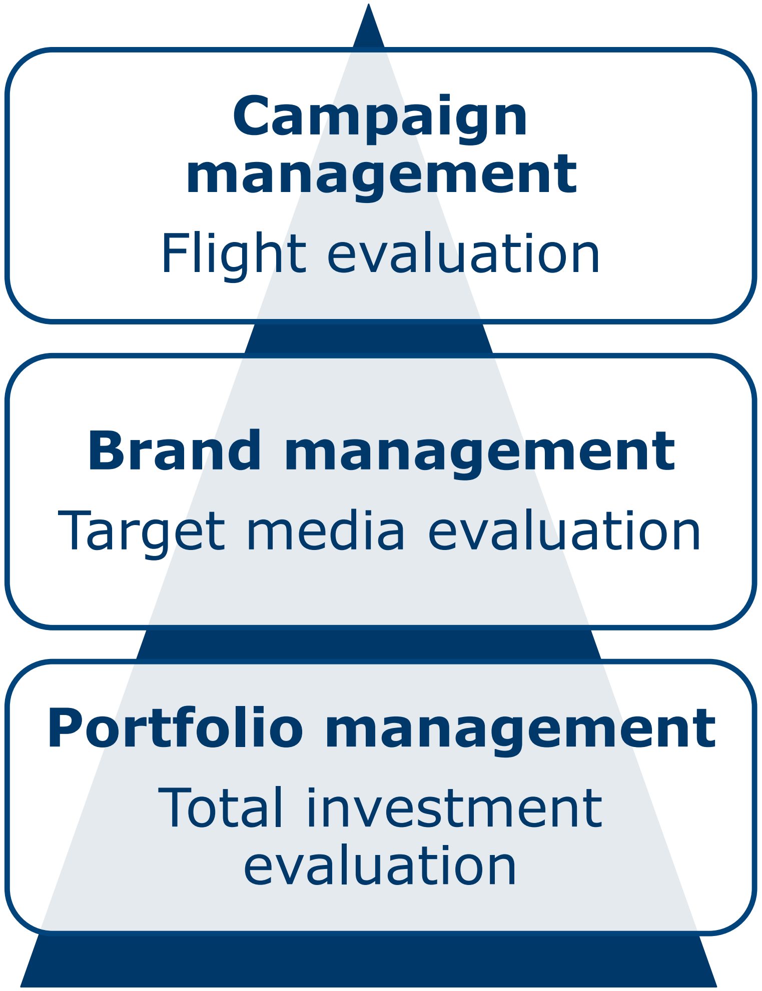
  - The **short-/medium-term ROI** arises respectively as:
    (additional sales revenue during this period) / (gross investment)
    - ○ Depot after flight end lasts in general between two (online) - 6 (TV) weeks
    - ○ Advantage: Calculation of sales effects and ROIs on the basis of empirically measured data, no extrapolation across non-monitored periods under “what if” assumptions

halo or umbrella brand effects

- In the models for Piccolinis and Steinofen Pizza it was tested for **umbrella brand or halo effects** of advertising.
- Flights (offline and online) for other Wagner pizza brands (halo flights) were tested whether they have an effect on the sales of Piccolinis or Steinofen Pizza.
- It was also tested whether there are halo effects of Piccolinis flights on Steinofen and vice versa.
- If such halo effects can be calculated, this shows that
  - **Wagner works as a strong umbrella brand,** that there are respectively halos between the brands of the portfolio.
  - The respective **media are able to transport these halos** and generate corresponding effects.

- **Thus, the following depiction of results talks about umbrella brand effects.**

Level of analysis, evaluation and insights



Campaign management

Flight evaluation

- Looks at the effect and efficiency of investments for target brands at the **flight level**
- **Campaign** control perspective in determining allocation regarding media for a brand

Brand management

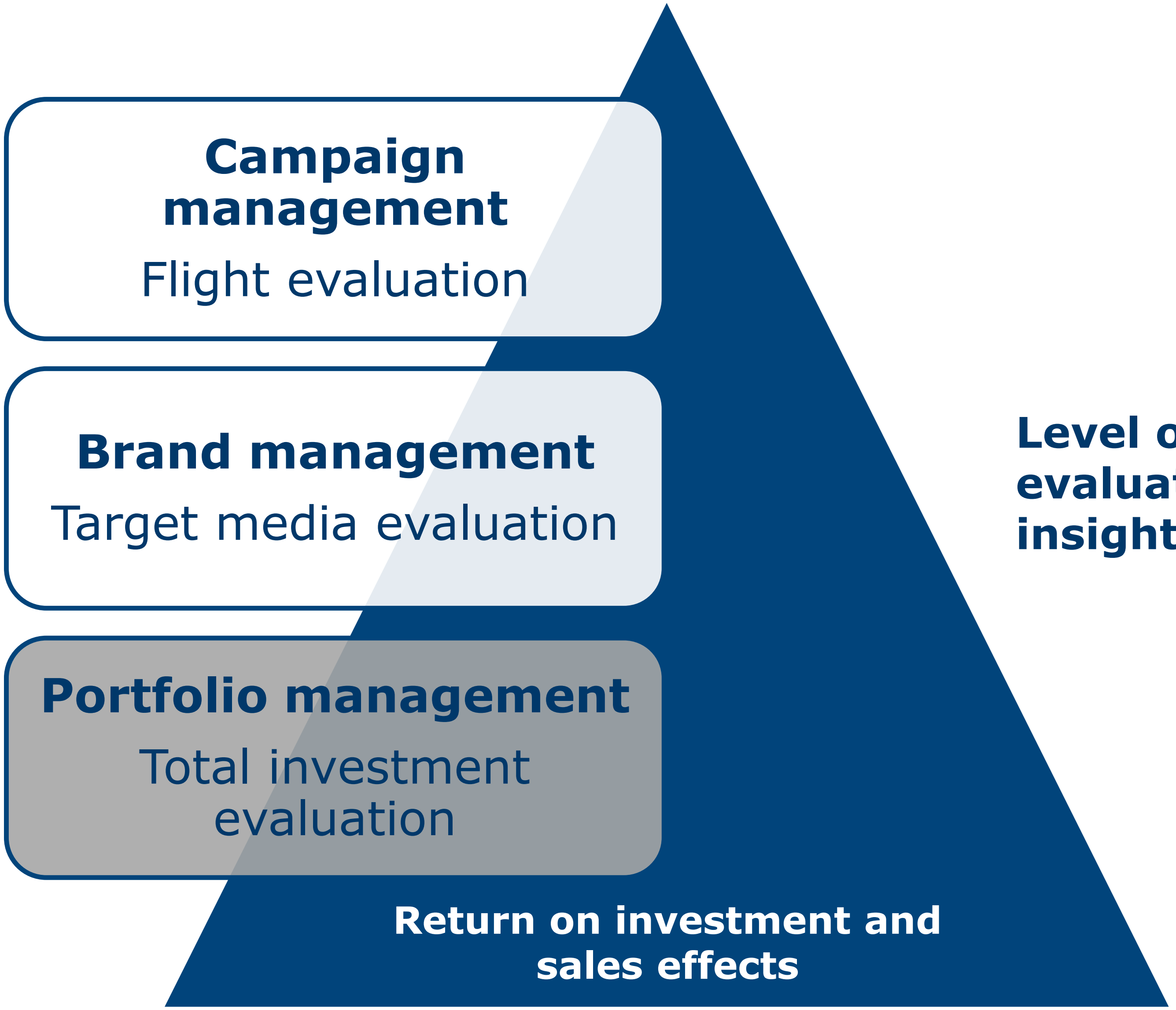
Target media evaluation

- Looks at the effect and efficiency of investments only for the target brands
- **Brand** control perspective in determining allocation regarding media for a brand

Portfolio management

Total investment evaluation

- Looks at the effect and efficiency of investments in the **overall brand portfolio** and its corresponding effect for the monitored target brands (for example including the effect of umbrella brand effects)
- **Manufacturer** perspective in determining allocation across the brands



Campaign management

Flight evaluation

Brand management

Target media evaluation

Portfolio management

Total investment evaluation

Return on investment and sales effects

Level of analysis, evaluation and insights

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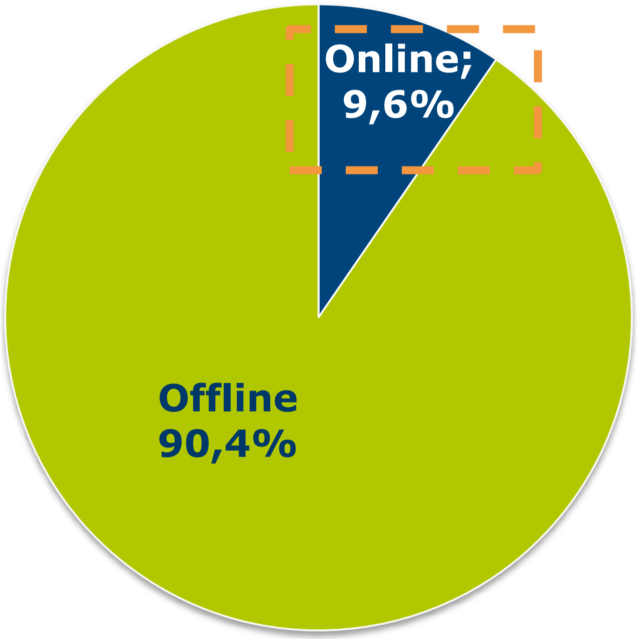
Additional sales revenue of the online campaigns (including umbrella brand effect) is disproportionately high in relation to the gross advertising spending.

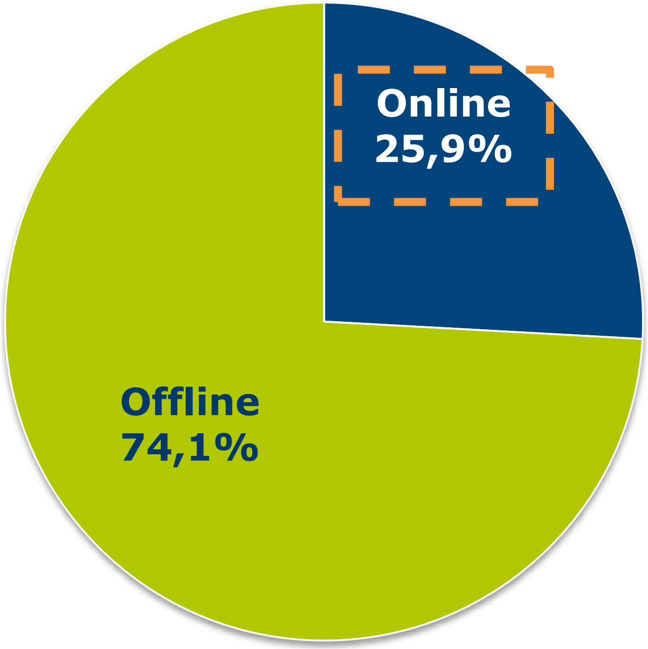
Gross advertising spending*

Wagner total
2011/40-2014/39



Additional media sales

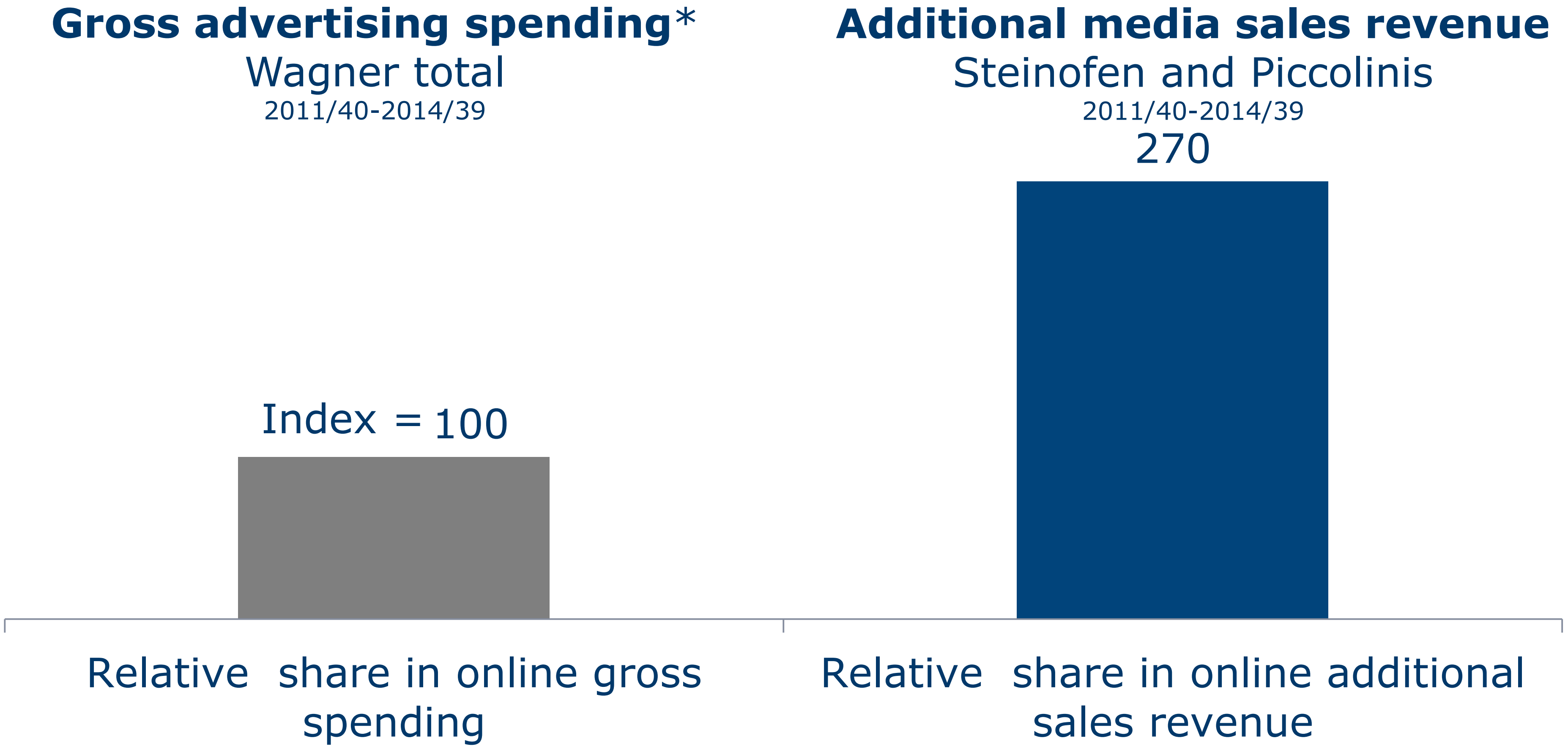
Steinofen and Piccolinis
2011/40-2014/39



*including halo spending and gross advertising spending of insignificant campaigns.

Source: Modeling, food retailing + DM, BVDW Nielsen mix analysis, December 2014

While taking into account umbrella brand effects, the share of online in the additional sales revenue is almost three times as high as the share of online in spending.



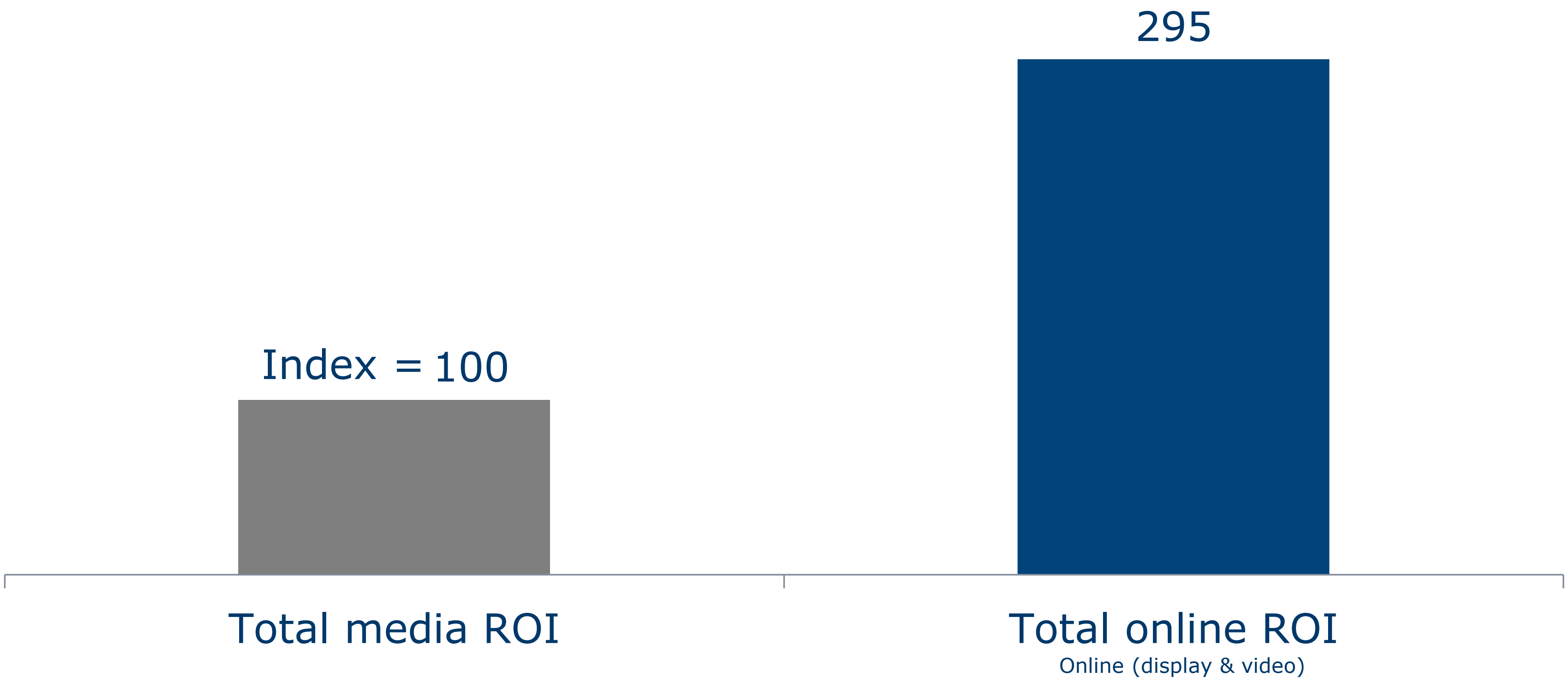
*including halo spending and gross advertising spending of insignificant campaigns.

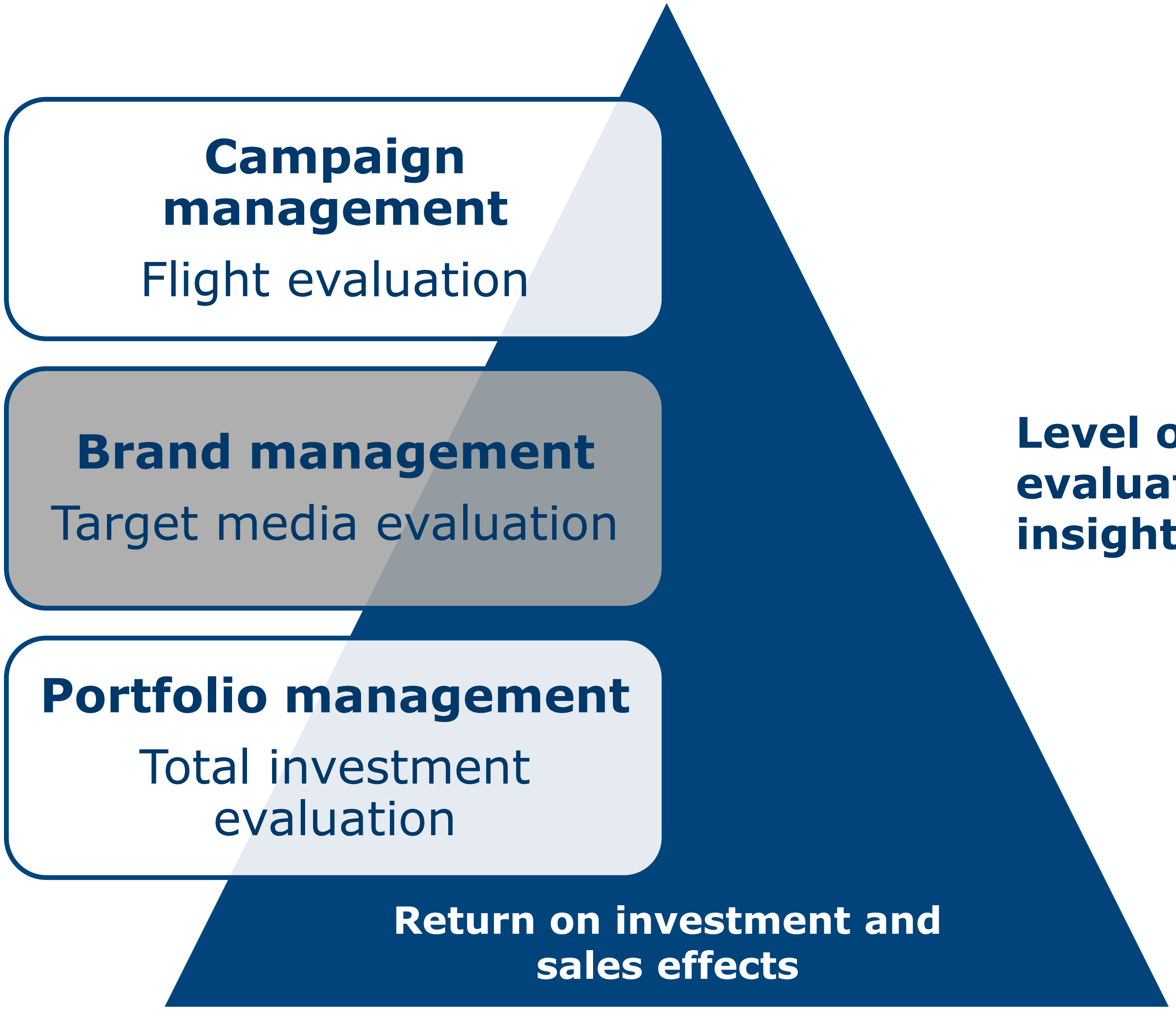
Additional depiction for slide 20

Including Wagner umbrella brand effects, the online ROI is almost three times as high as the overall media ROI.

ROI index (including umbrella brand effects): Total analysis period 2011-2014

Wagner brands: Steinofen and Piccolinis





Campaign management

Flight evaluation

Brand management

Target media evaluation

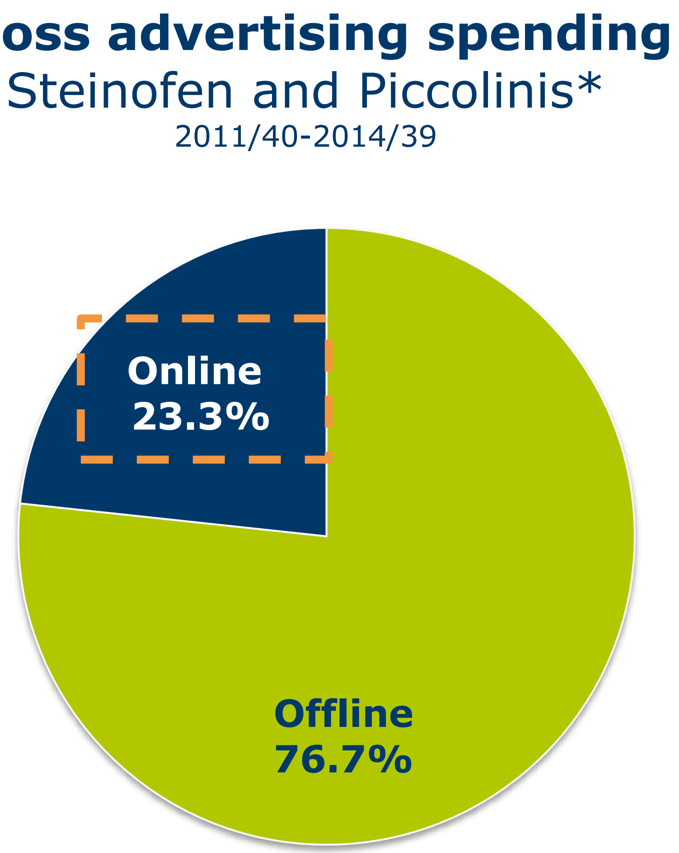
Portfolio management

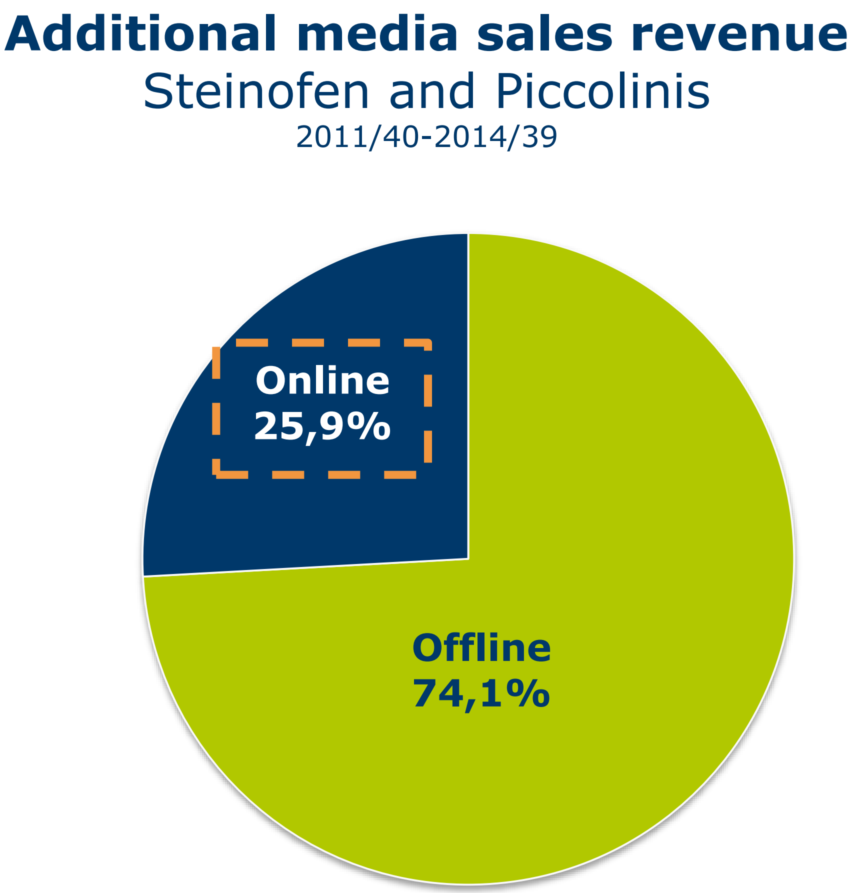
Total investment evaluation

Return on investment and sales effects

Level of analysis, evaluation and insights

Even without the umbrella brand effect, online already represents one-fourth of the additional media sales revenue of Wagner (Steinofen and Piccolinis) and with this is an essential part of the media mix.

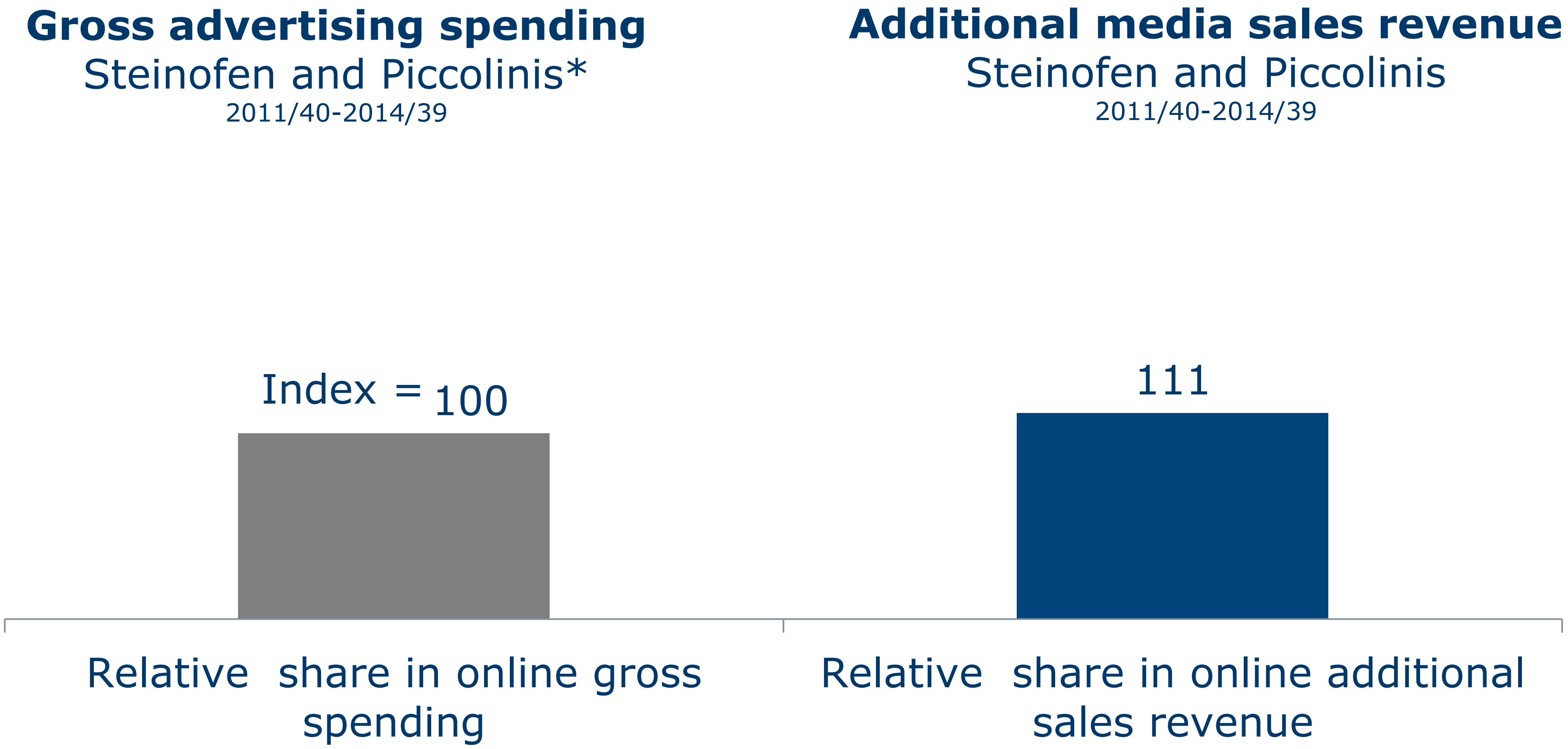




*incl. gross advertising spending of insignificant campaigns without spending for other brands.

Source: Modeling, food retailing + DM, BVDW Nielsen mix analysis, December 2014

Even without umbrella brand spending and effects the online channel in the relative comparison to the investment portion generates a disproportionate share in the additional sales revenue.



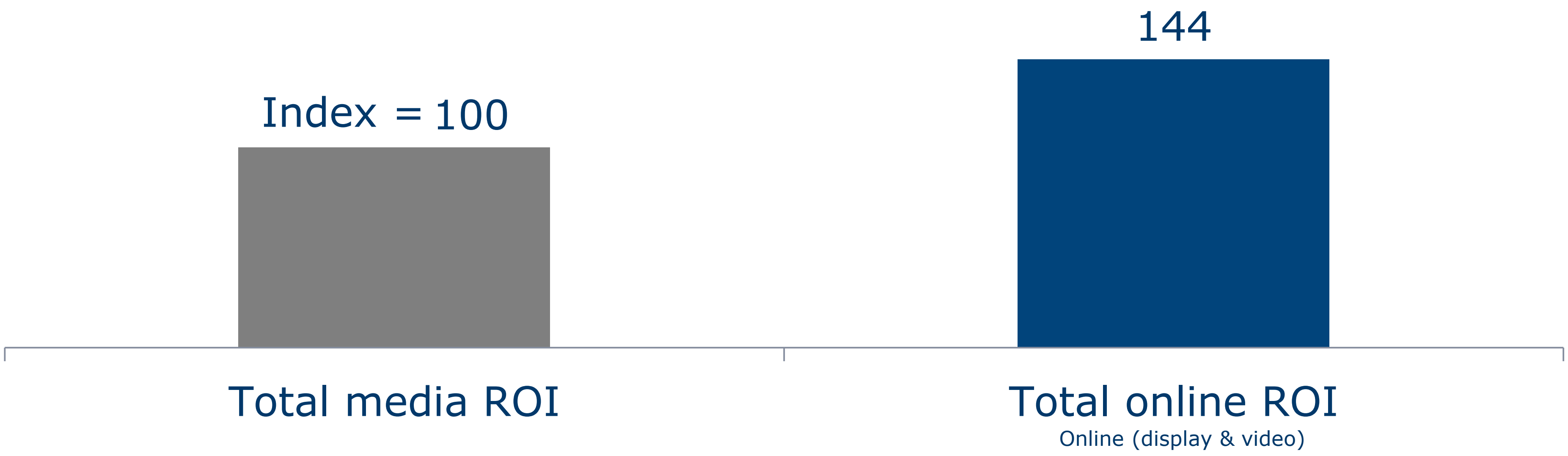
*incl. gross advertising spending of insignificant campaigns without spending for other brands (halo).

Additional depiction for slide 24

Without umbrella brand effects the online ROI is about 50% higher than the overall media ROI.

ROI index (excluding umbrella brand effects): Total analysis period 2011-2014

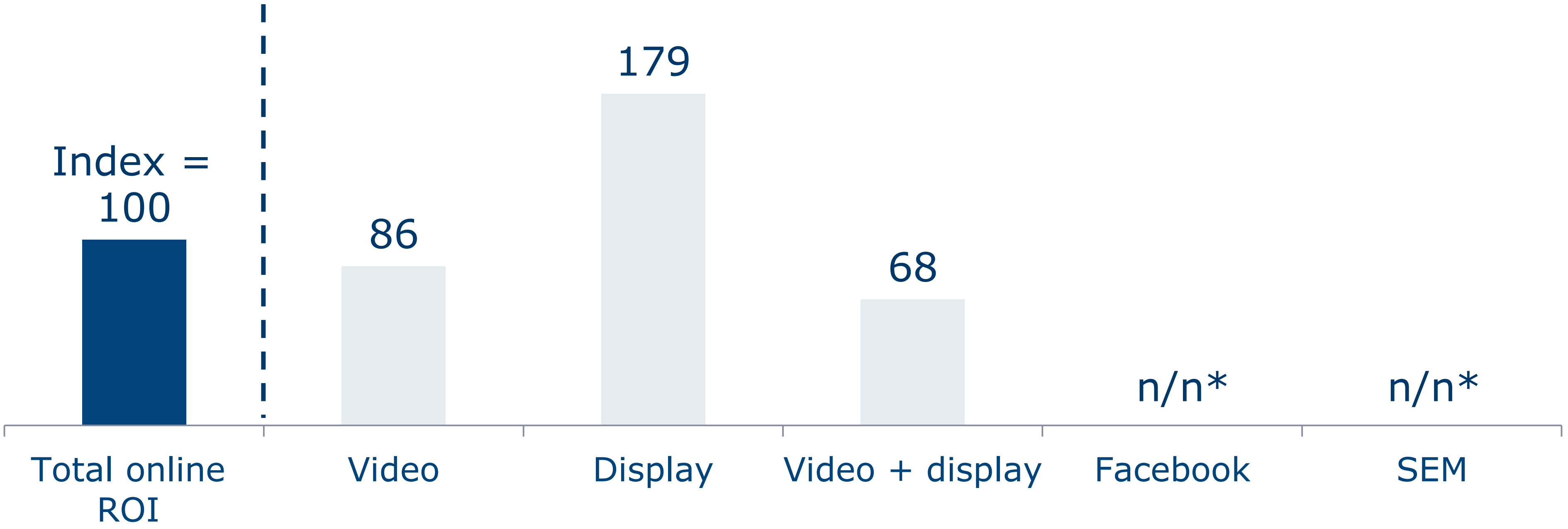
Wagner brands: Steinofen and Piccolinis



Display generates the relatively highest ROI of all implemented online advertising formats.

ROI index (excluding umbrella brand effects): Total analysis period 2011-2014

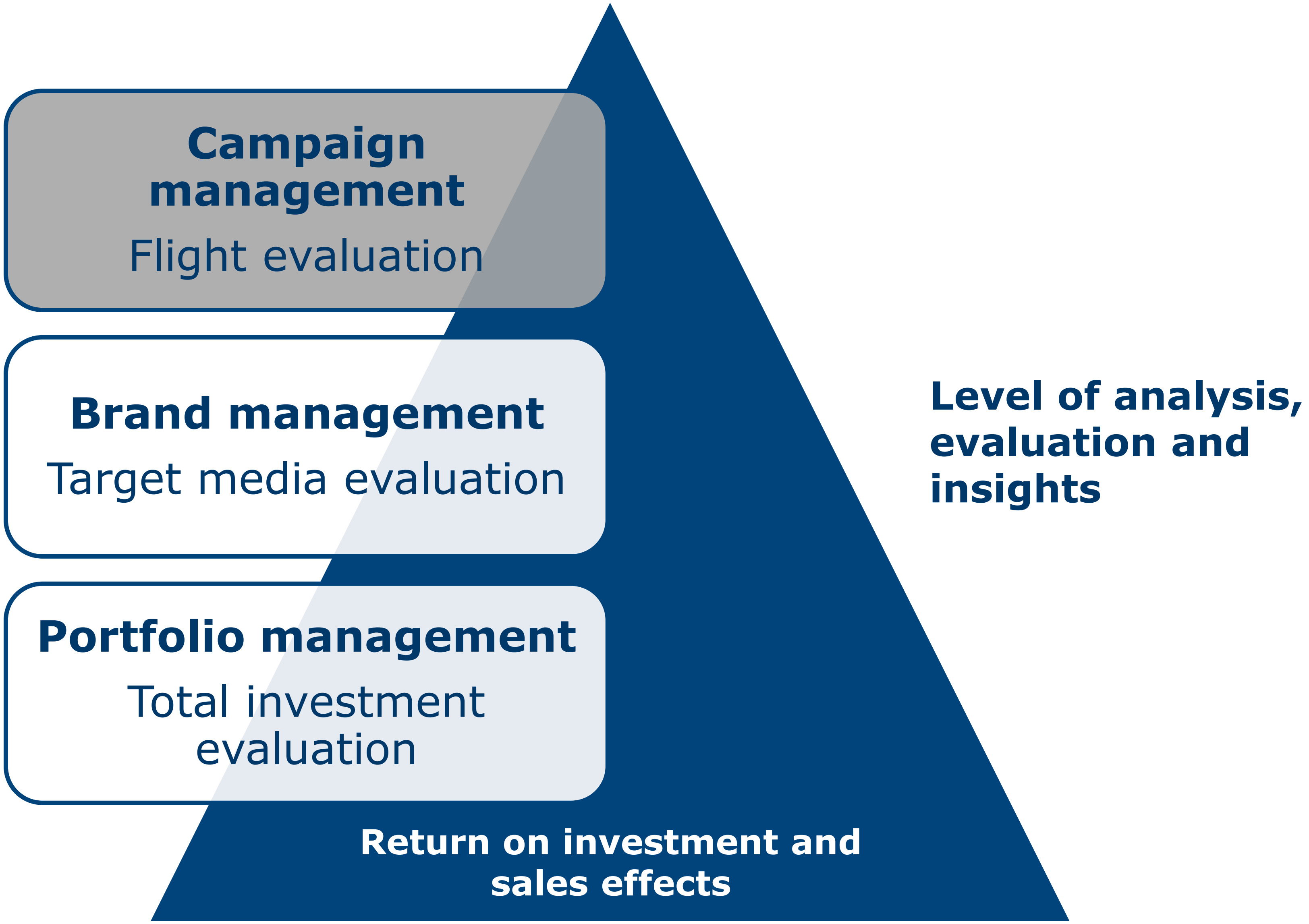
Wagner brands: Steinofen and Piccolinis



Online (display & video)

*For Facebook and SEM no effects can be verified due to low advertising spending. As with other media (traditional and digital) a sufficiently high amount of advertising pressure is necessary to generate effects or guarantee measurability.

Basis:
See total online ROI slide 26



Campaign management

Flight evaluation

Brand management

Target media evaluation

Portfolio management

Total investment evaluation

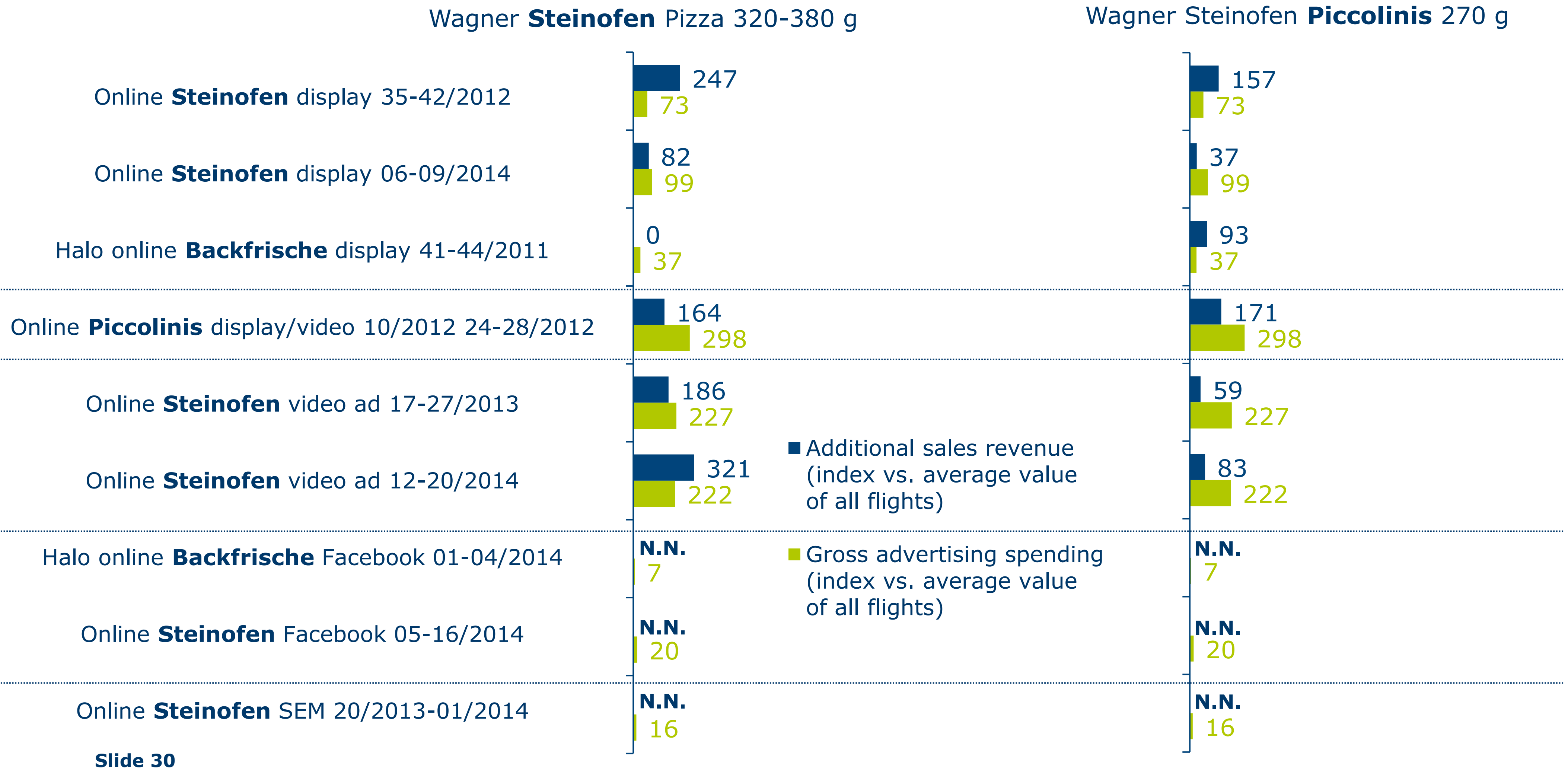
Return on investment and sales effects

Level of analysis, evaluation and insights

The use of online formats has an effect on sales - display and video generate additional sales revenue.

Index additional sales revenue vs. gross advertising spending per flight and brand

Index basis 100: Average of additional sales volumes or advertising spending across all flights



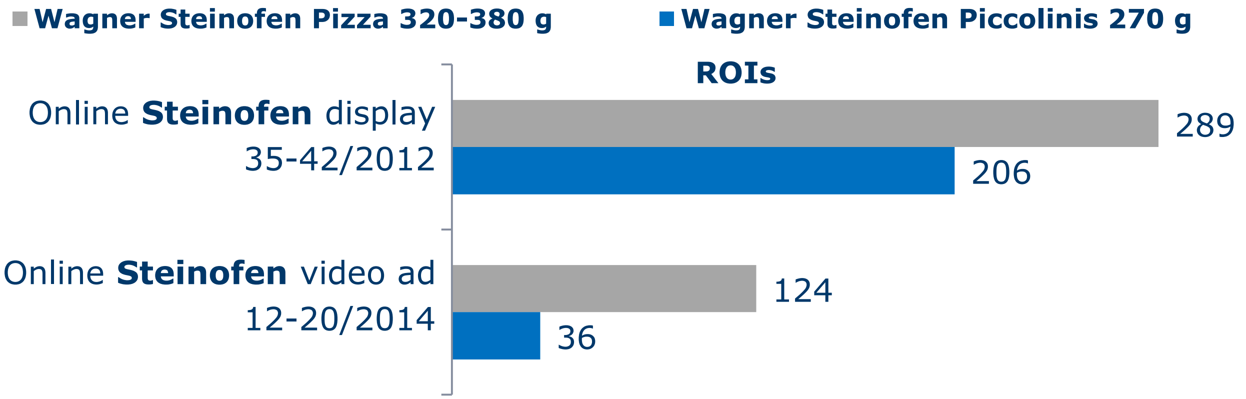
Detailed analysis effectiveness - additional volume per 1000 AIs

- **Standard indicator** for the evaluation of the **effectiveness of advertising** that shows how **sales effective GRP or 1,000 AIs are. I.g. the effect per contact unit.**
- Has the **advantage** in view of monetary variables such as sales revenue that **neither cost fluctuations of the GRP nor price fluctuations** (e.g. via promotions, but also via standard price changes) in food retailing **influence** the value.
- Since the costs per AIs between different advertising formats can be different (and because of this only looking at the ROI would hide important aspects of effect), **ROI as well as the effectiveness are used for the detailed evaluation.**
    - **Parameter that lends itself especially also for comparisons between different flights for time elapsed and advertising formats.**

Example: ROI and effectiveness [additional sales volume in kg*/'000 AIs]

Index: Index basis 100: Average ROI of online flights* per brand

*Without non-significant social media and other flights



Index vs. average across the flights

Costs per '000 AIs	Effectiveness [kg*/'000 AIs]	1,000 AIs per week
17	62	173
167	207	55

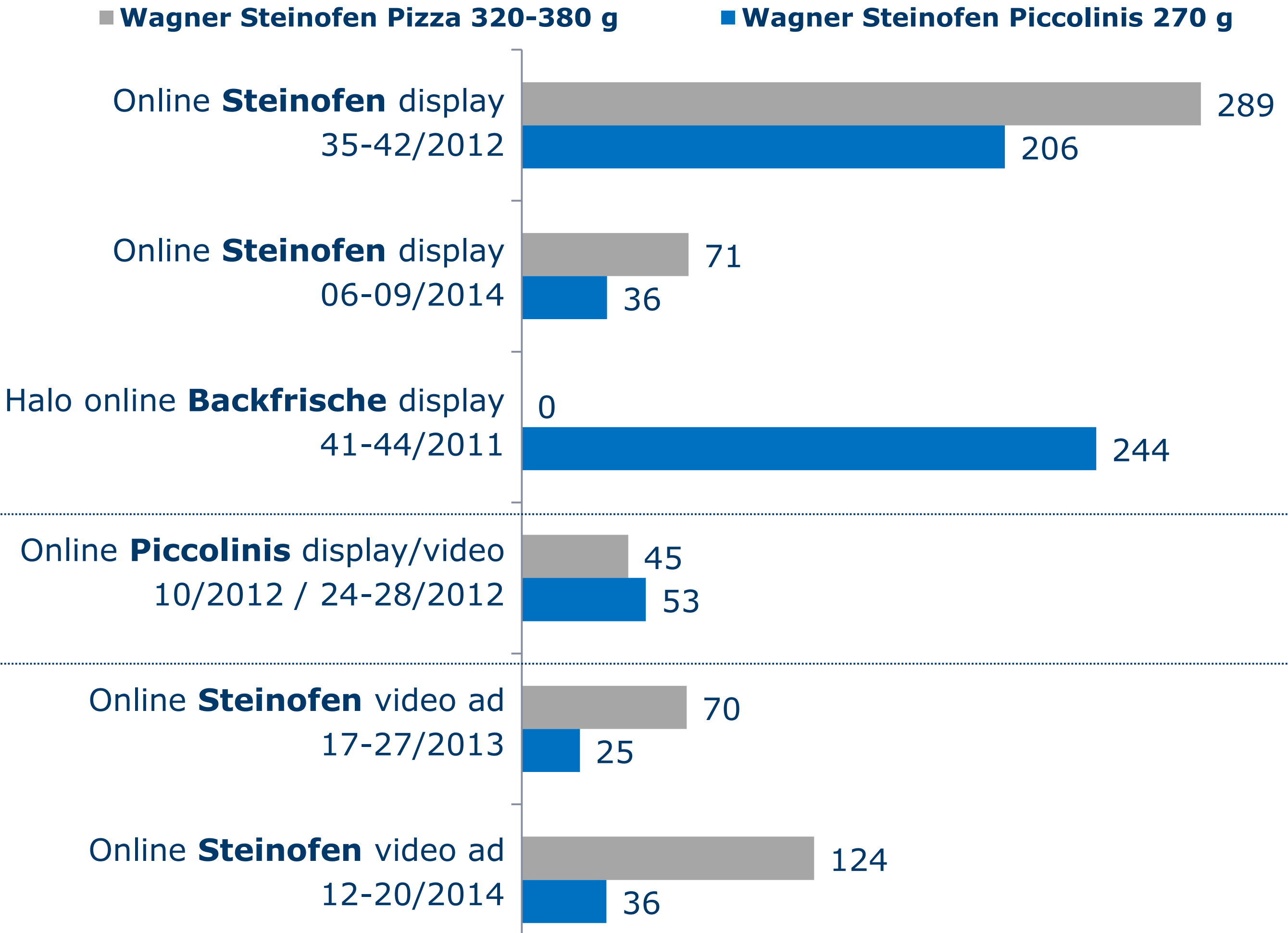
*kg = converted additional volume. Allows better comparability between brands since for example the sizes of packaging of Steinofen and Piccolinis are different. Especially relevant also in the comparison between advertising formats and flights.

Display campaigns convince with an above-average return of investment.

Overview of ROI

Index: Index basis 100: Average ROI of online flights* per brand

*Without non-significant social media and other flights



Index vs. average across the flights

	Costs per ‘000 AIs	Effectiveness [kg*/’000 AIs]	1,000 AIs per week
Online Steinofen display 35-42/2012	17	62	173
Online Steinofen display 06-09/2014	60	47	174
Halo online Backfrische display 41-44/2011	48	67	79
Online Piccolinis display/video 10/2012 / 24-28/2012	158	109	65
Online Steinofen video ad 17-27/2013	150	109	52
Online Steinofen video ad 12-20/2014	167	207	55

Conclusion: Key insights individual marketing mix modeling

- **Online umbrella brand effects** via investments into other Wagner brands are also **measurable and ROI effective.**
- **Additional sales revenue** of the **online** campaigns (incl. umbrella brand effect) are **disproportionately high** in relation to the gross advertising spending, **i.e. almost three times as high**, and already makes for one-fourth of the additional media sales revenue.
- **Incl. umbrella brand effects** the **online ROI ist almost three times as high** as the overall media ROI (excluding the umbrella brand effect the index is at 144).
- **Display** generates the **relatively highest return on investment** of all implemented online advertising formats.

- **Given efficiency aspects, online activities should be prioritized in the media mix.**

Database analysis of 69 marketing mix modeling projects/campaigns

Generalizable results regarding the online ROI

Database analysis regarding the online ROI

69 campaigns

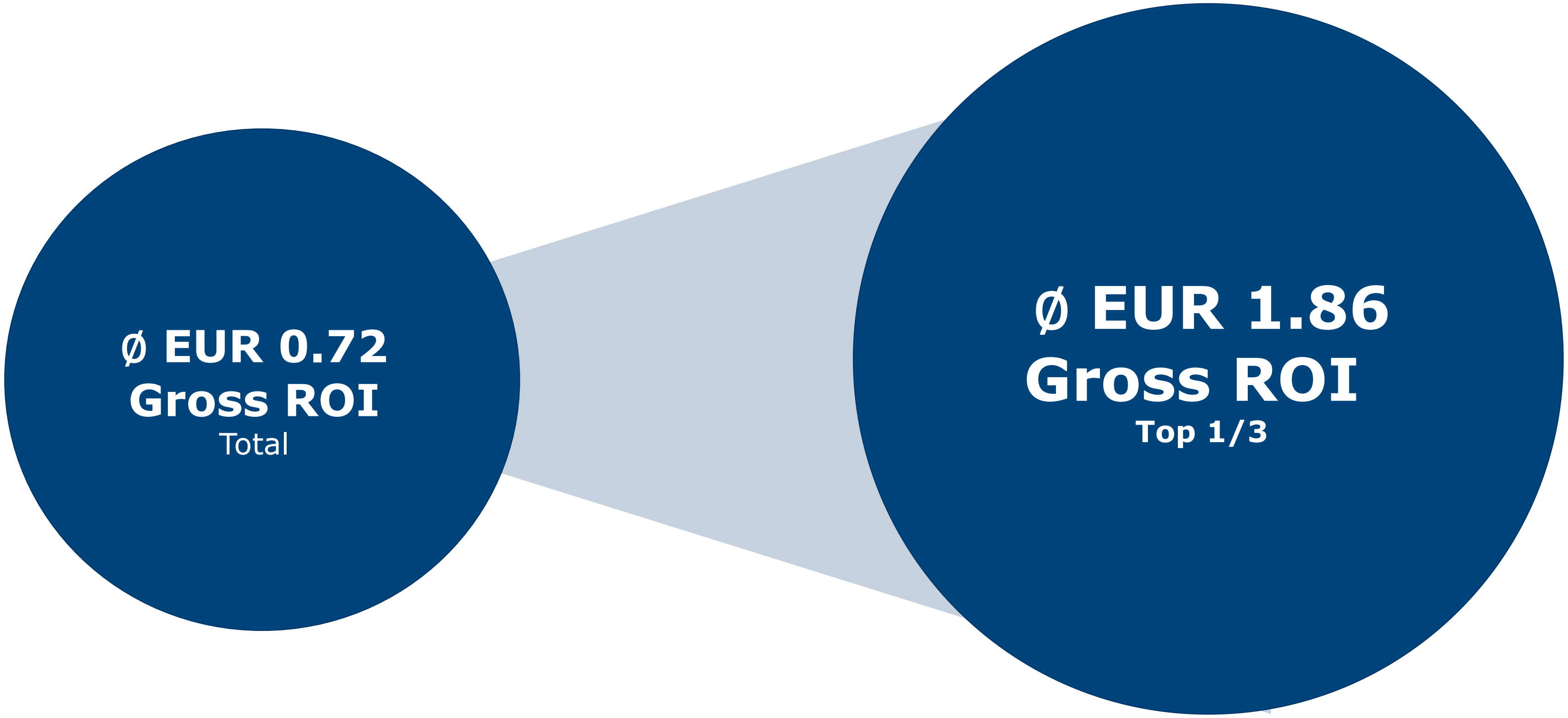
Up to **three years of data** per project/brand

Millions of individual purchasing actions and **millions** (rather billions) of **advertising contacts**

Online generates **significant offline sales effects, and** in an **efficient manner**!

Key insights database analysis: Average online gross ROI

- Based on **millions of individual purchasing actions** of consumers in Germany the analysis shows that online generates significant offline sales effects, and in an efficient manner!

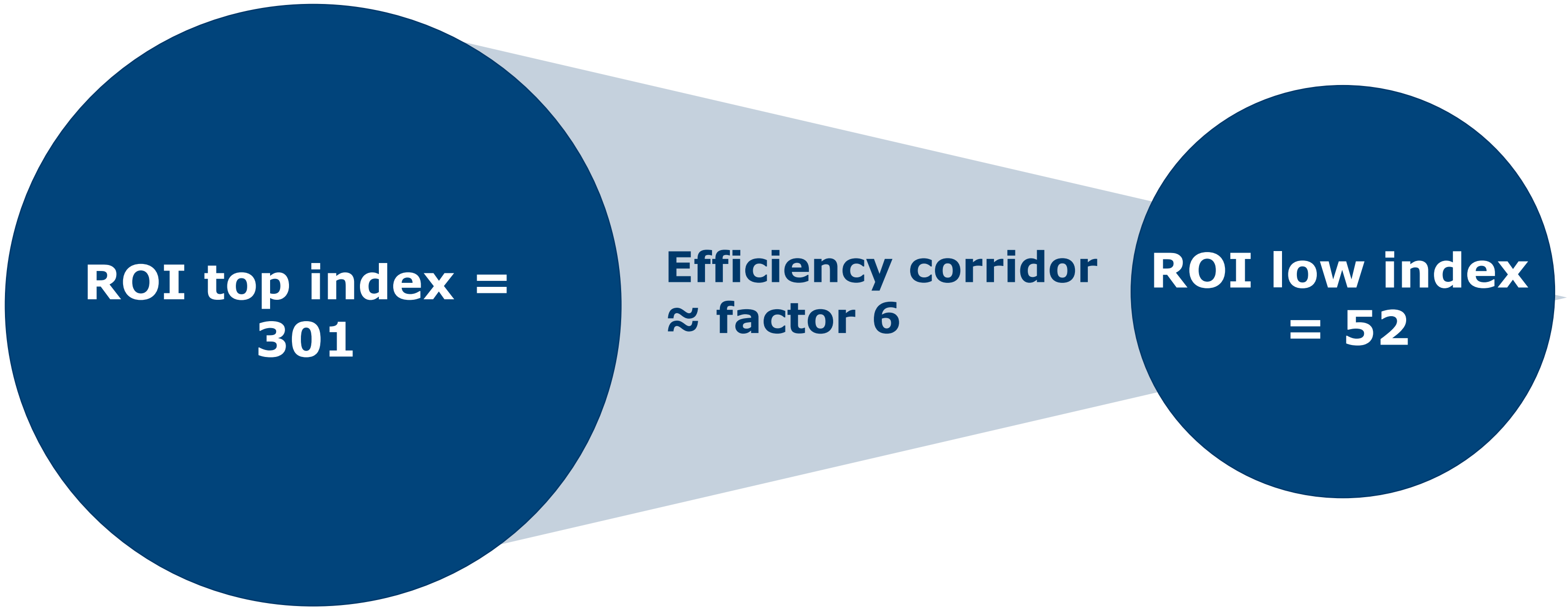


ø EUR 0.72
Gross ROI
Total

ø EUR 1.86
Gross ROI
Top 1/3

Key insights database analysis: Efficiency corridor

- **Adjusted** for the **size of the brand** it shows that **also for smaller brands** online advertising delivers **good ROIs**.
  - Comparison of ROIs adjusted for brand size:



ROI top index = 301

Efficiency corridor ≈ factor 6

ROI low index = 52

*Index refers to medium brand size adjusted online ROI (index = 100)

Lessons learned: Database analysis: Online ROI top performers

➔ **Insights online ROI top performers** (adjusted for brand size)

- Index of the **online sales volume contribution** is at 150.*
- **Flight lengths** of about 10 weeks are optimal given efficiency and effectiveness aspects. Meaning, the online budget develops its optimal effect.
- High **share of voice** (position of brand spending in the competitive environment) is **not necessary** to achieve a high online ROI.
- **Promotional intensity** of the brand: There is no difference between top, middle and low ROI performers

*Index refers to the average online sales volume contribution (index = 100)

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Thank you for your attention.

Joanna Jann
Project Manager Market Research

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