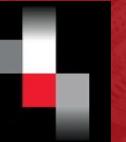


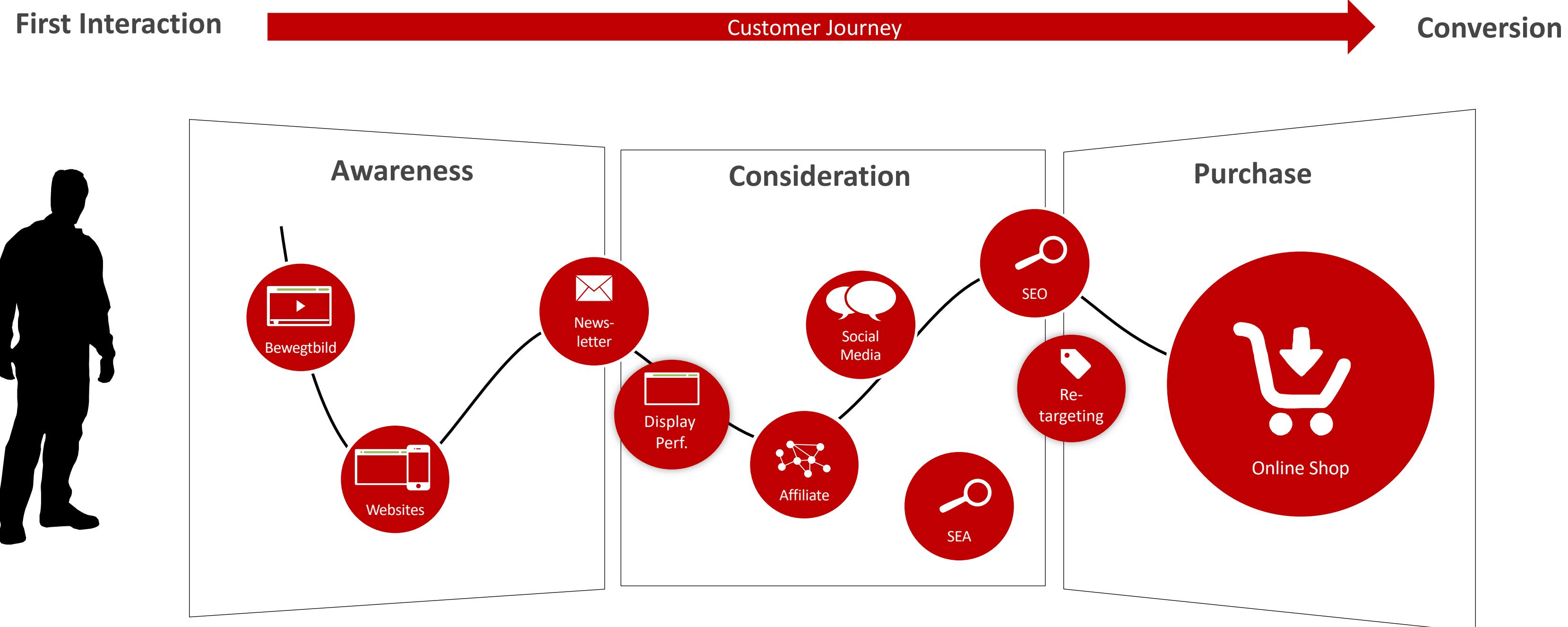


core4os

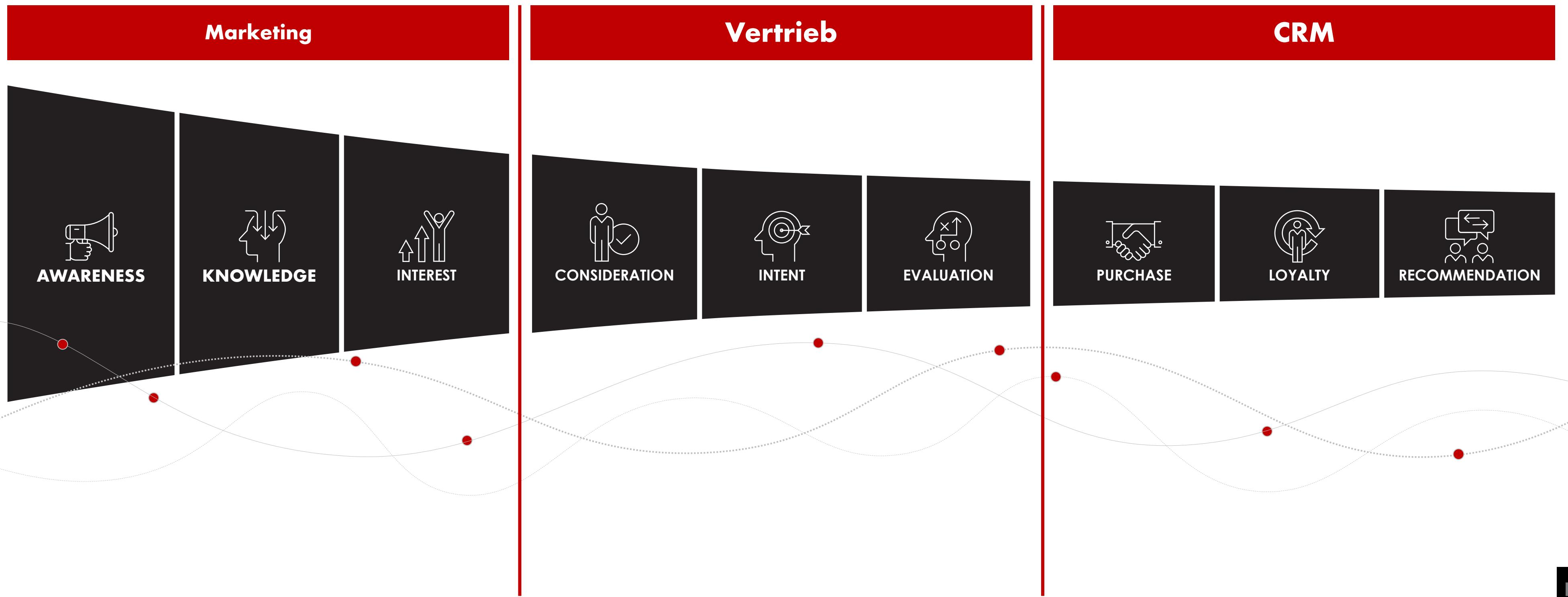
DEVELOP, OPERATE AND COLLABORATE
ON DATA AND ANALYTICS



CUSTOMER JOURNEY: DER INDIVIDUELLE WEG ZUM KAUFABSCHLUSS



DER CUSTOMER JOURNEY PROZESS



> 100 DATENQUELLEN

Facebook Ads

Google Adwords

Google Analytics

Deutscher Wetterdienst

Advisor

AGF

Nielsen

**TV – Programm- und
Preisdaten**

Währungskurse

Diverse Adserver-Daten

Doubleclick

Instagramm

Responsys

CRM

Addition

Google Maps

Aqis

Nero

PREX

...



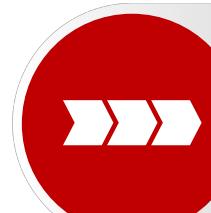
core4os: FLEXIBLES UND AUTOMATISIERTES DATEN MANAGEMENT

AUTOMATISIERTE DATEN-INTEGRATION

-  klassische Medien
-  digitale Medien
-  Marketing Investitionen
-  CRM Daten
-  Kampagnen / Promotions
-  Markt- / Wettbewerbsdaten
-  Marken-Tracking
-  Wetter, andere Randfaktoren
-  Vertriebsdaten
-  Handelsdaten



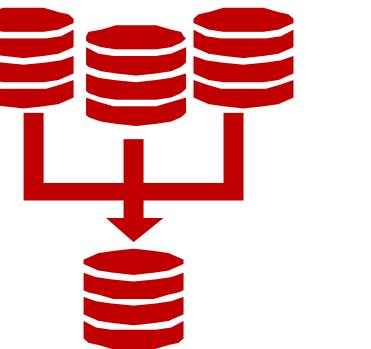
AUTOMATISIERTE DATEN-BEREITSTELLUNG

-  Werbewirkungsmodelle, Media Szenarioplaner
-  individuelle Segmentierungen, Scoring / Targeting Modelle
-  Customer Journey Insights, Attributionsmodelle
-  Media und Sales Controlling, KPI Scorecards, Dashboards



**Flexibles
Datenmanagement**

**Automatisierte
Datenintegration und -
verarbeitung**



CORE4OS

**Mächtige Datenanalyse
und KI Fähigkeiten**

**Einfache und schnelle
Ergebnisbereitstellung**

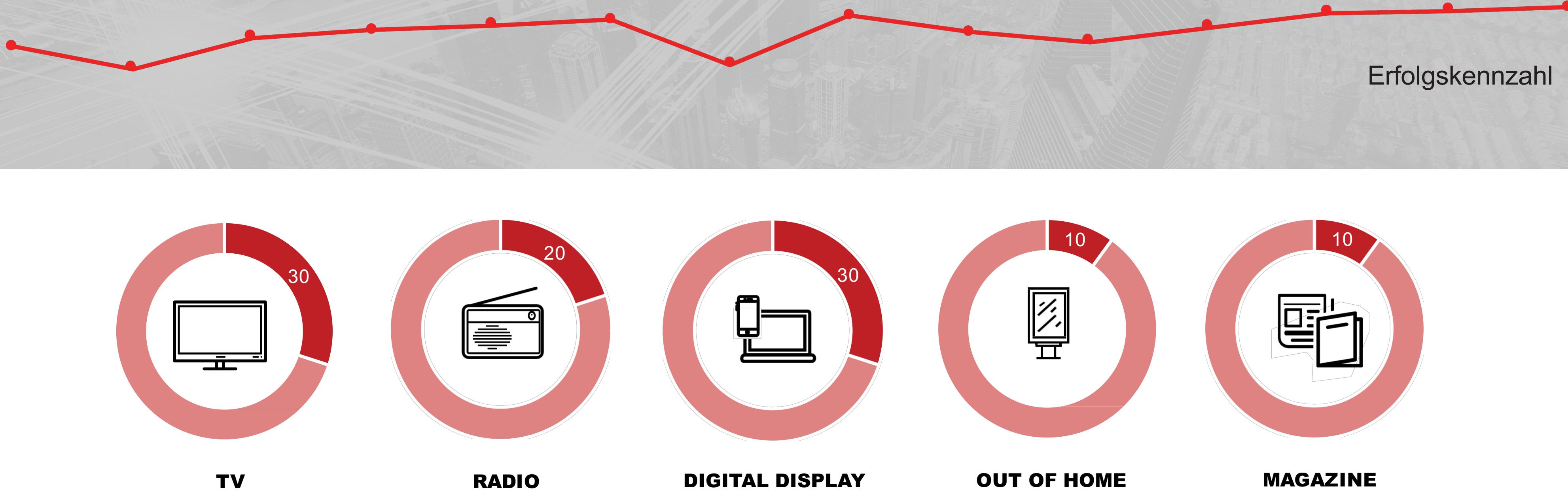




BRANDINVESTOR



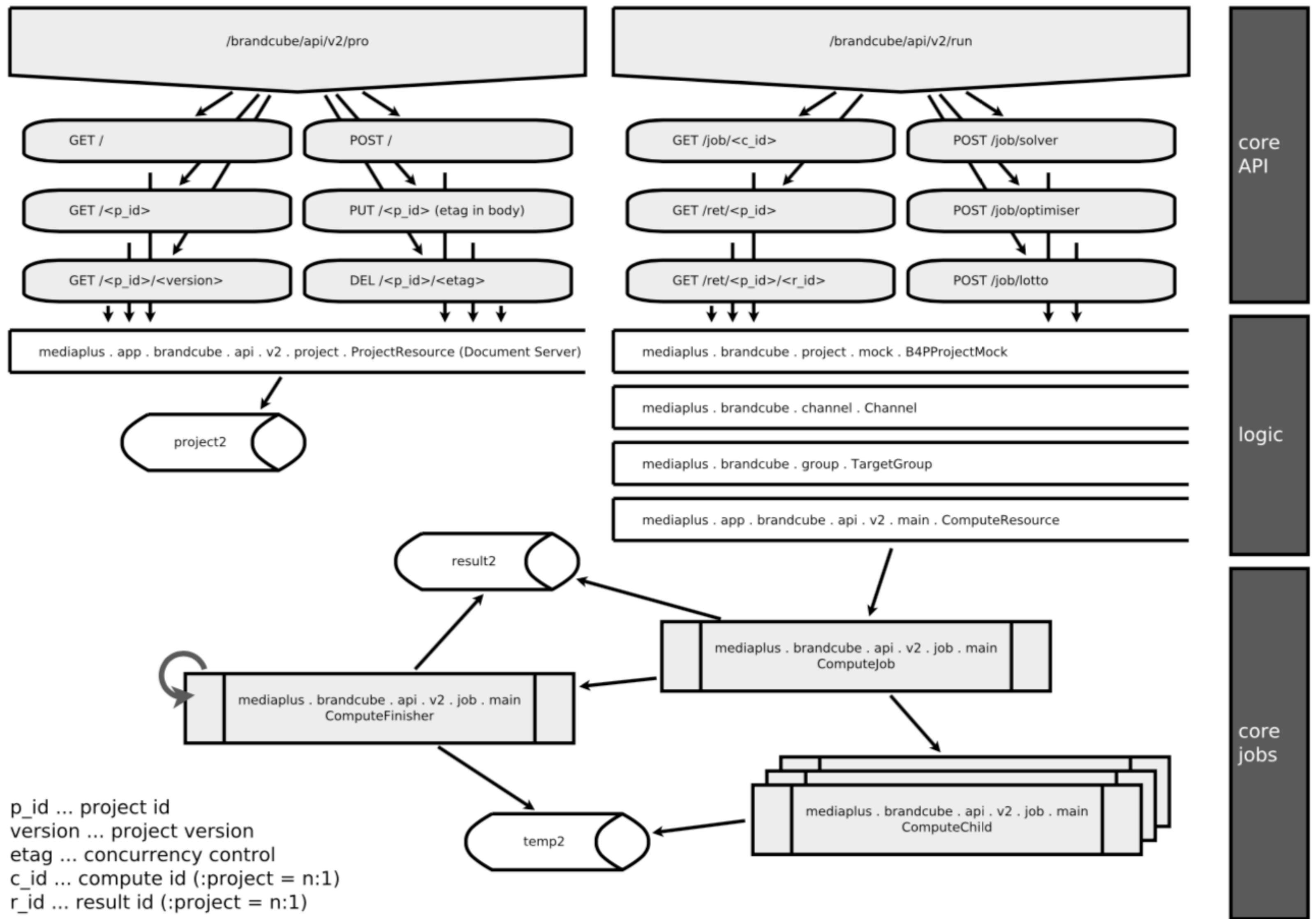
DER BRAND INVESTOR SUCHT DEN ERFOLG- VERSPRECHENDSTEN BUDGETPLAN ...

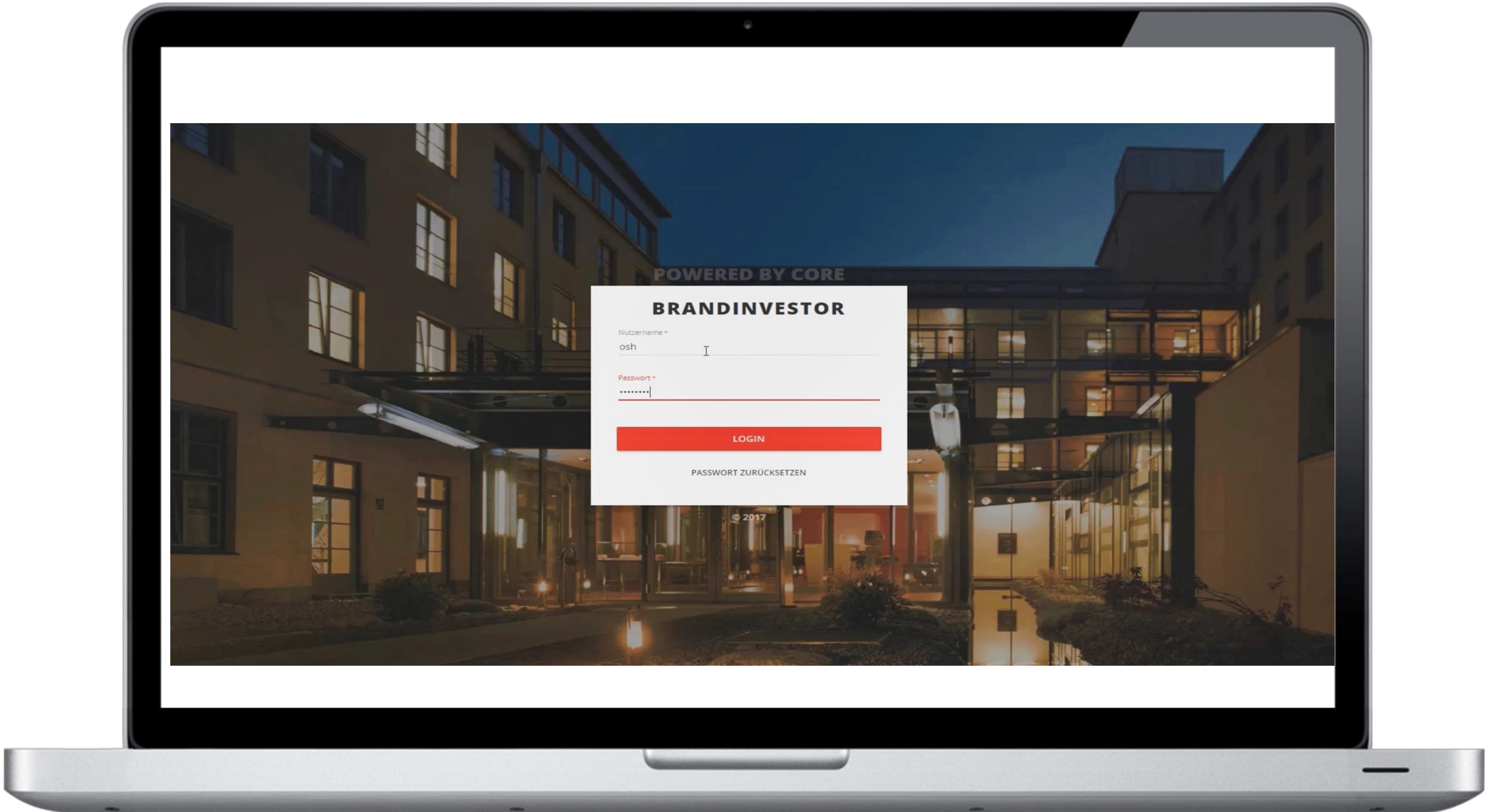


... AUS 19 MEDIENGATTUNGEN

- 1. TV
- 2. PZ
- 3. TZ überregional
- 4. TZ regional
- 5. Radio
- 6. Plakat
- 7. Plakat digital
- 8. Infoscreen
- 9. Kino
- 10. Beilagen
- 11. Anzeigenblätter
- 12. Online Display
- 13. Mobile Display
- 14. Performance Display
- 15. Online Video
- 16. Facebook, Instagram
- 17. SEA Brand
- 18. SEA Generic
- 19. Affiliate







Erstellung eines Analyse-und Planungs-Projektes

The screenshot shows the 'BrandInvestor' interface. On the left, a sidebar lists 'Mandant SHOWCASE', 'Projekte' (with 'Ausgewählt: Demo-Projekt'), 'Dashboard', 'Setup' (which is selected), 'Zielgruppen', 'Media', 'Zeitraum', and 'Ergebnis'. The main area is titled 'SETUP' and contains a 'Zielsetzung' section with a dropdown menu set to 'Maximiere'. Below it, there's a budget input field showing '5.000 T€' with a checked checkbox for 'Verfügbares Budget'. A note says 'Optimierung Produktbekanntheit'. At the bottom, there are five navigation tabs: 'Setup' (selected), 'Zielgruppen', 'Media', 'Zeitraum', and 'Ergebnis'.

Bei Bedarf Korrektur/Anpassung der Wirkungsparameter für alle Medien (Expertenmodus)

This screenshot shows the 'Koeffizienten' (Coefficients) page for a campaign named 'Kampagnenerinnerung'. It lists various media channels with their respective coefficients: TV (AdStock: 90, Grenznutzen: 0,5, Wirkung: 2,5, OTS-Gewichtung: 3), PZ (AdStock: 83, Grenznutzen: 1, Wirkung: 2,04, OTS-Gewichtung: 1,8), Out-of-Home (AdStock: 35, Grenznutzen: 5, Wirkung: 10,18, OTS-Gewichtung: 11), Radio (AdStock: 65, Grenznutzen: 3,5, Wirkung: 2,1, OTS-Gewichtung: 6), and TZ überregional (AdStock: 45, Grenznutzen: 0,2, Wirkung: 2,2, OTS-Gewichtung: 1,8). There are buttons for 'ALLE WERTE WIEDERHERSTELLEN' and 'CSV IMPORTIEREN' at the top right, and a 'SCHLIESSEN' button at the bottom right.

Flexible Zielgruppendefinition

This screenshot shows the 'Zielgruppendefinition' (Target Group Definition) page. It includes sections for 'TARGETING-GÜTE' (70% for Online Display and Online Video), 'MERKMALS-DEFINITION' (filters for Haushalts-Netto-Einkommen and Alter), and a detailed view of the 'Haushalts-Netto-Einkommen' filter where '3.000 bis unter 4.000 Euro' is selected. Other options like 'Bis unter 1.000 Euro' and '4.000 bis unter 5.000 Euro' are also shown. At the bottom, there are buttons for 'ABBRECHEN' and 'SPEICHERN'.

Auswahl der Zielgruppe, auf die optimiert wird und Vergleichszielgruppen

This screenshot shows the 'ZIELGRUPPEN' (Target Groups) page. It lists three target groups: 'Fokus' (E 20-50 HHNE 3.000+, 20,81 Mio.), 'Vergleich' (E14+, 70,09 Mio.), and 'Segment 1' (2,17 Mio.). Each group has edit, delete, and copy icons. At the bottom, there are five navigation tabs: 'Setup' (selected), 'Zielgruppen' (highlighted in red), 'Media', 'Zeitraum', and 'Ergebnis'.



Medienselektion

The screenshot shows the 'MEDIA' section of the BrandInvestor interface. On the left, a sidebar lists categories like Mandant, Projekte, Dashboard, Setup, Zielgruppen, Media, Zeitraum, and Ergebnis. The main area displays a table for 'Demo-Projekt' with columns for Kanal, Spotdauer, Gewichtung, and Aktionen. The table includes rows for various media types such as TV, PZ, Out-of-Home, Radio, TZ überregional, TZ regional, Kino, Beilagen, Anzeigenblätter, Online Display Brand, and Online Display Brand - Mobile. A budget of 5.000 T€ is set at the top.

Anpassung der Basisparameter aller Medien

This screenshot shows the 'TV editieren' (Edit TV) dialog box. It allows users to modify parameters like Payfaktor (set to 45,8%), Budgetrahmen / GRP (Budget set to 500 T€), Format (Standardspot Default and Eckplatzierung checked), Spottdauer (25 Sek. checked), and Gewichtung (set to 100%). Buttons for ABRECHEN, VORHERIGES MEDIUM, NÄCHSTES MEDIUM, and SPEICHERN (Save) are visible at the bottom.

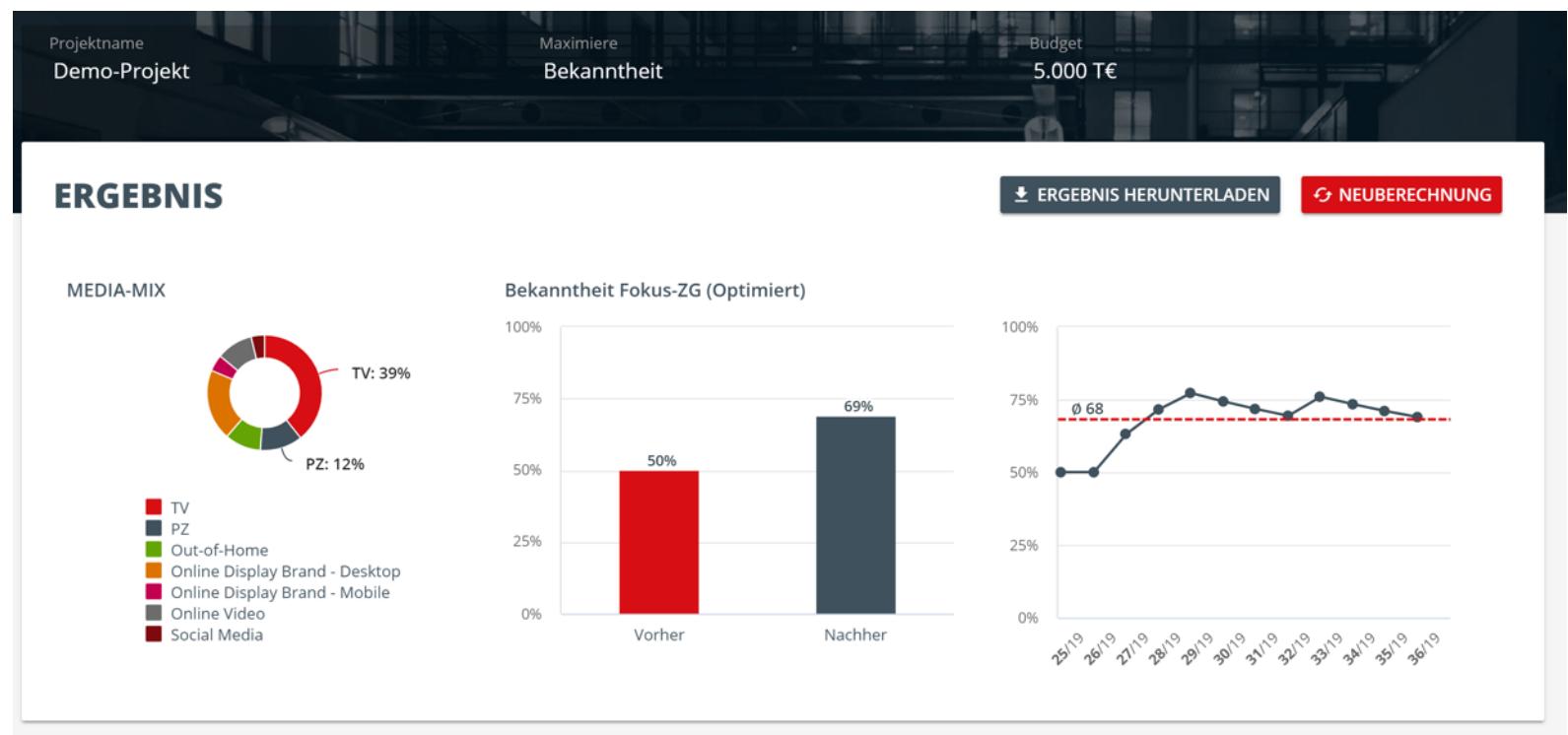
Selektion Analysezeitraum und Kampagnenzeiträume

The screenshot shows the 'ZEITRAUM' (Time Period) section. It displays the 'Gesamtzeitraum' from Woche 25, 2019 to Woche 36, 2019. Below it, two 'Flight' periods are listed: 'Flight 1' from Woche 27, 2019 to Woche 29, 2019, and 'Flight 2' from Woche 33, 2019 to Woche 33, 2019. At the bottom, navigation tabs for Setup, Zielgruppen, Media, Zeitraum (highlighted in red), and Ergebnis are shown. A 'FLIGHT HINZUFÜGEN' (Add Flight) button is also present.

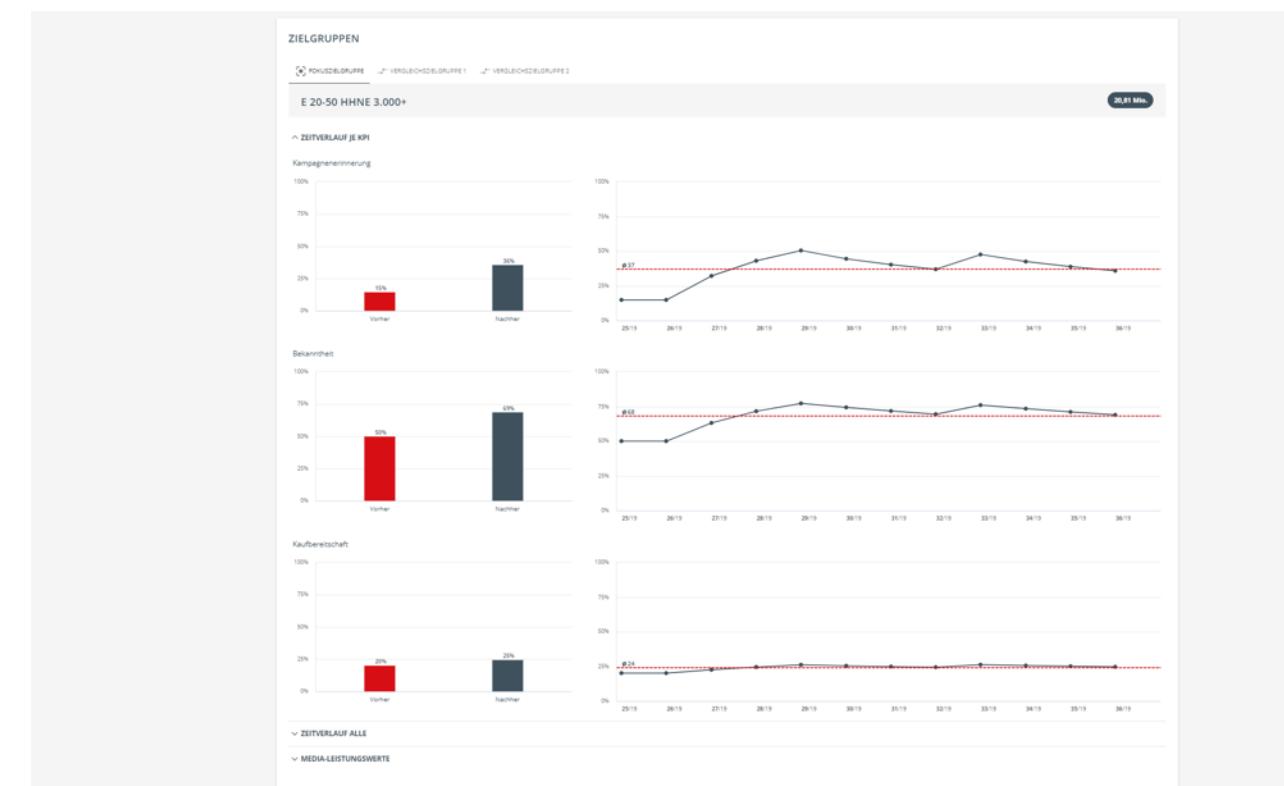
Automatisierte Kalkulation des effizientesten Mediamixes und Prognose

This screenshot shows the 'Berechnung - Demo-Projekt' (Calculation - Demo Project) window. It displays a progress bar with a red wavy line, indicating the calculation status. The right side shows metrics: Start der Berechnung: 13:11:26, Berechnungsdauer: 04 s, Phase: Startet..., Systemauslastung: 32.17%, Wartungsmodus: Aus, and Iteration: 0 von 1. A note at the bottom says 'Budget wird auf Medien verteilt...' (Budget is distributed to media).

Effizientester Mediamix und Prognose des optimierten KPIs



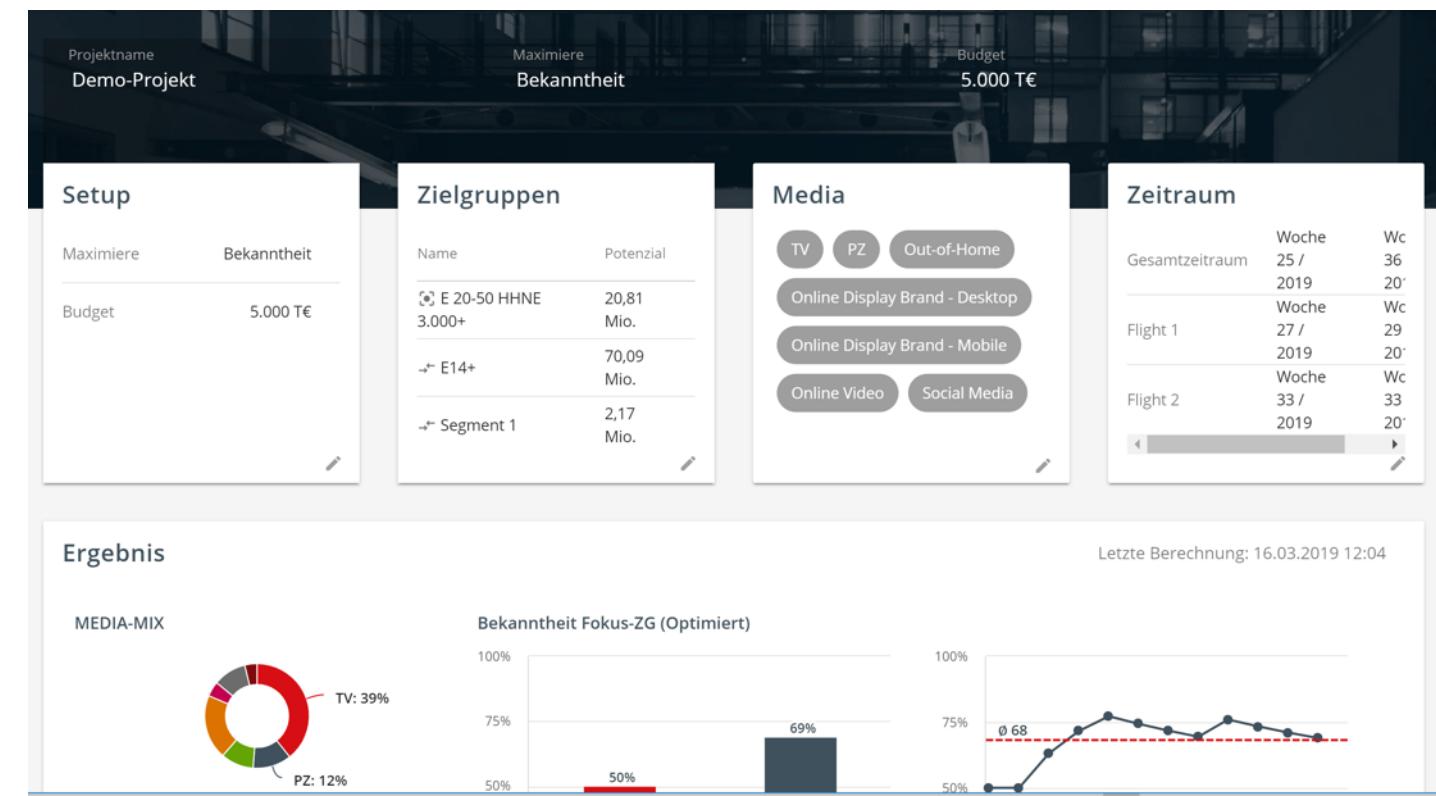
Prognose der verschiedenen KPIs für unterschiedliche Zielgruppen



Vollumfänglicher Ergebnisexport

1	Projektsetup	A	B	C	D	E	F	G	
2	Name	Demo-Projekt							
3	Beschreibung	Optimierung Produktbekanntheit							
4	Budget	5000000							
5	Maximiere KPI	Bekanntheit							
6	Zielgruppenübersicht								
8	Name	Vergleichszielgruppe 1	Vergleichszielgruppe 2						
9	Fokus-Zielgruppe	E 20-50 HHNE 3.000+	Segment 1						
10	Beschreibung	Allgemeine Marke	Segmentation: Cluster 1						
11	Potenzial in Mio.	20,81	70,09						
12	Potenzial in %	29,69%	100,0						
13	Ausgangswert Kampagnenerinnerung	15,0	15,0						
14	Ausgangswert Bekanntheit	50,0	50,0						
15	Ausgangswert Kaufbereitschaft	20,0	20,0						
16	Ausgangswert Leads pro Woche	30000,0	30000,0						
17	Media-Kanäle								
19	TV	Auswahl	Budgetrahmen Min	Budgetrahmen Max	Formate	Spotdauer	Man.	Gewichtung	
20	Publikumszeitschriften	ja			Standardspot (Def)	25	100		
21	Plakat	ja			1/1 Seite (Default)		100		
22	Radio	nein			Großfläche		100		
23	Tageszeitungen überregional	nein							
24	Tageszeitungen regional	nein							
25	Kino	nein							
26	Beilagen	nein							
	Input	Media-Mix und Leistungswerte	Wirkungsverlauf	export	+				

Finale Projektübersicht



A black and white photograph of a scuba diver in profile, swimming towards the left. The diver is wearing a full scuba gear, including a tank, fins, and a mask. The background is a dark, textured surface of water. The overall mood is mysterious and deep.

core4os DEEP DIVE



core4os – WHAT IS THIS ?

core4os is the **applied analytics hub** for the three communities of **data engineers, data scientists and business users** inside and outside of Serviceplan organisation. core4os is used

- to deliver data **integration**,
- to execute workflow **automation**,
- to extract **insights** and
- to host applications of data and insights via smart **web-based** user interfaces.



WHY IS IT ? – DESIGN CONSIDERATIONS

**Today all industries have an urgent need for constant change.
Change is the new normal.**

**As a Business Intelligence company this means for us:
non-stop application implementation and delivery.**



THE PYTHON ECO SYSTEM

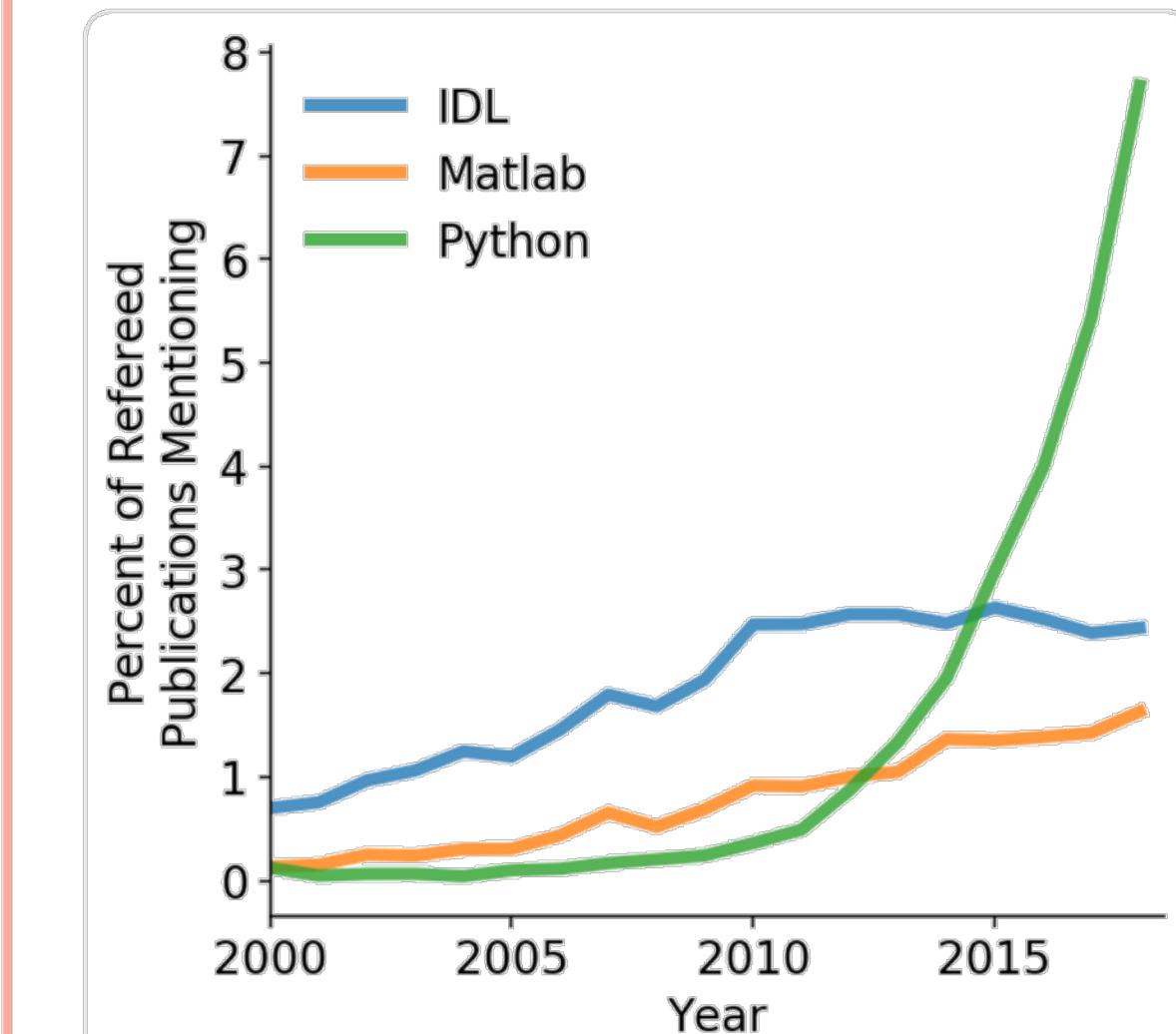


Juan Nunez-Iglesias
@jnuneziglesias

Folgen

Python is taking over astronomy,
2018Q3 edition: the curve keeps getting
steeper! Updated in collaboration with
 [@_russrussruss](#) and [@astrowizicist](#) .

CC [@jakevdp](#) [@astrofrog](#)
 [@BeaumontChris](#)



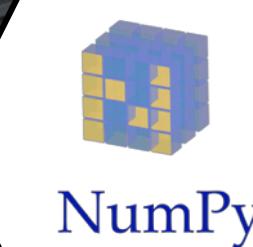


SciPy

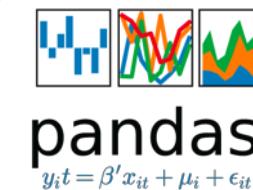


Numba

IP[y]:



NumPy



y_it = β'x_{it} + μ_i + ε_{it}



DASK



TensorFlow



matplotlib



jupyterhub



ANACONDA®



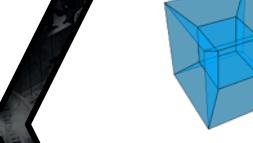
Bokeh



NetworkX



OpenCV



Blaze



plotly



SPHINX



Yelp



NLP



SALTSTACK



Requests



Jinja



Flask



Scrapy

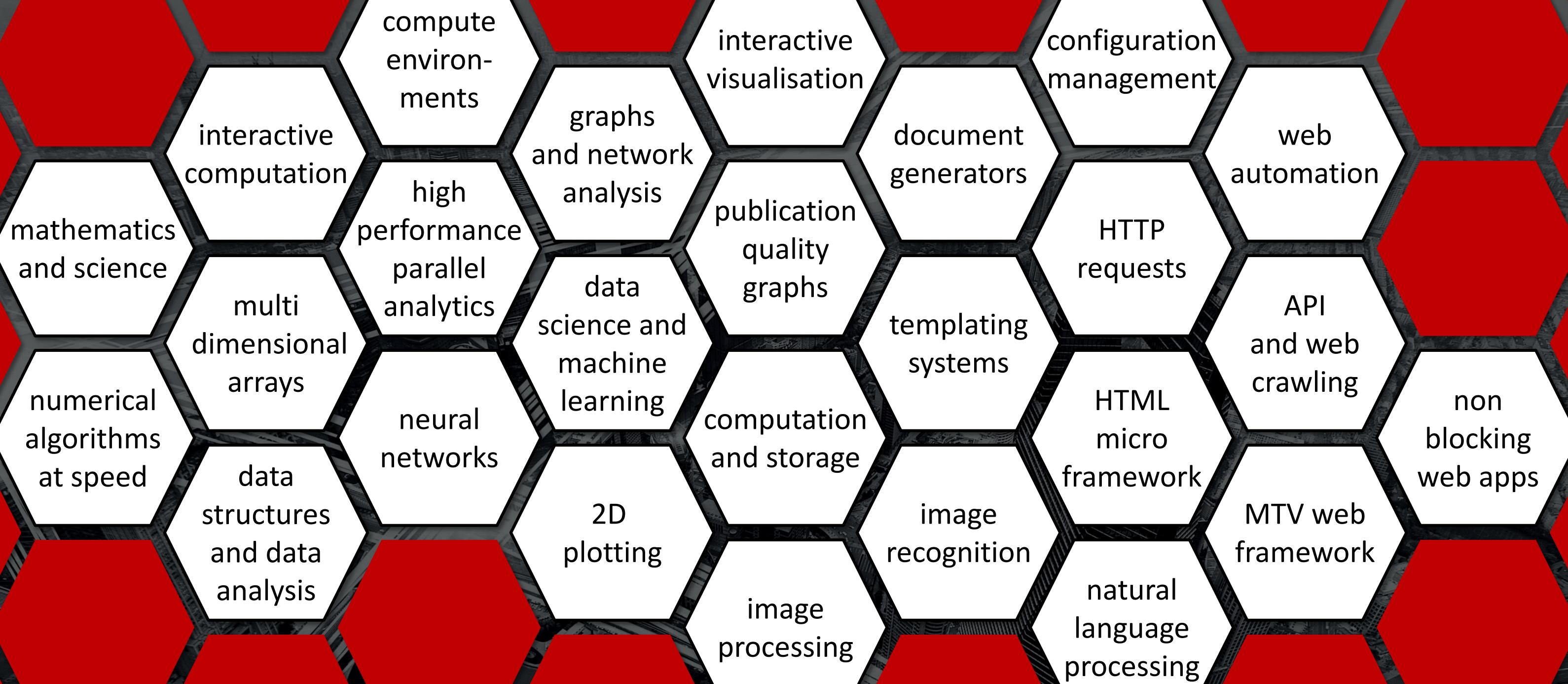


Tornado



Selenium

WebDriver





AUTOMATISIERUNG

1

- Job Warteschlange
- Zeitsteuerung
- Fehlertolerante Producer/Consumer Mechanik
- Kein *Fire-and-Forget*
- Data Traceability
- Distributed Job Execution

LOGGING

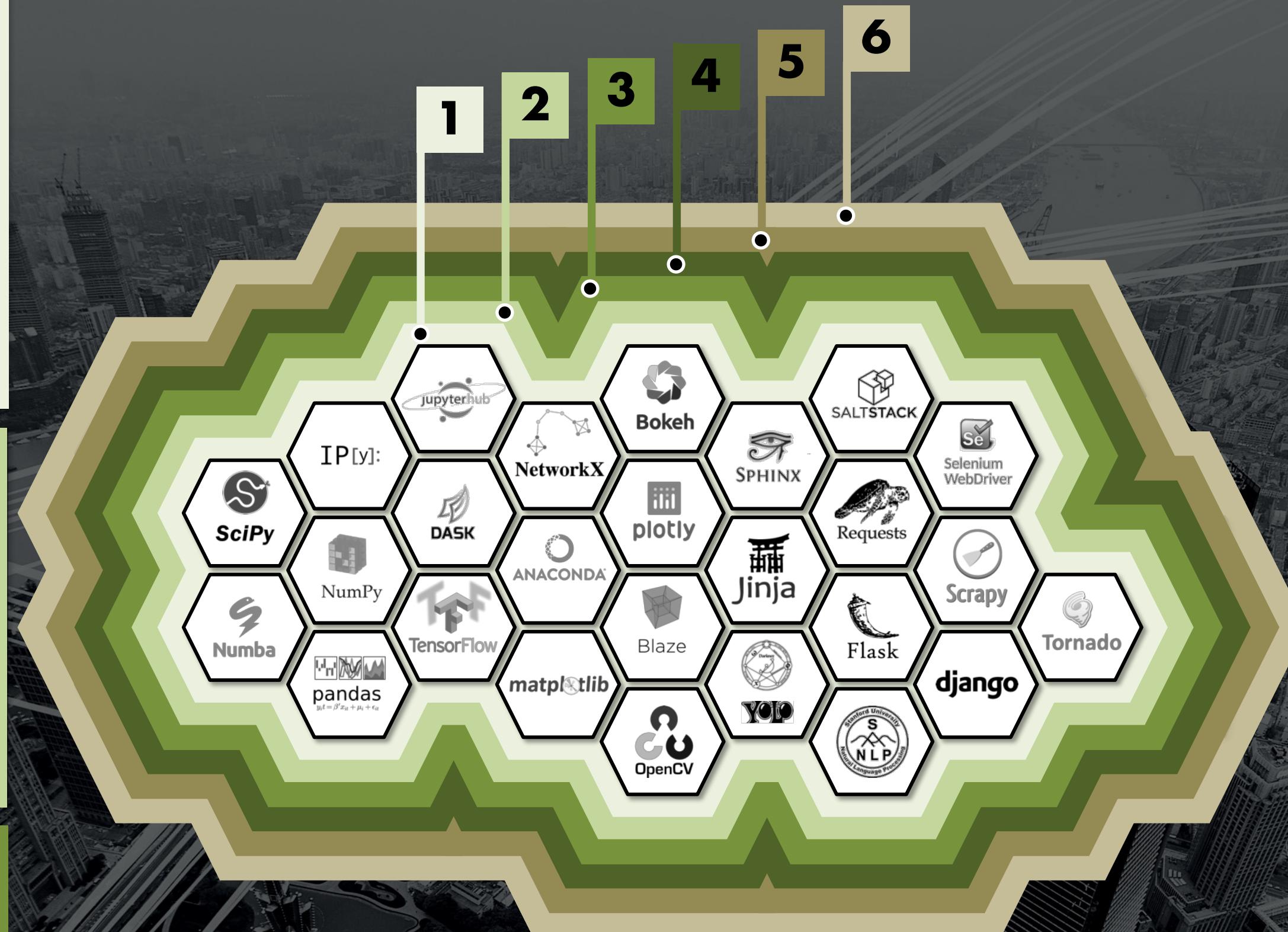
2

- Python Standard logging
- Zentrales Log in der Mongo Datenbank
- DEBUG logging Level im Fehlerfall

KONFIGURATION

3

- YAML/JSON mit Dateien, OS Environment und Datenbank
- Abgestimmt auf Entwicklung und Produktion
- Datenbank übergreifende Zugriffsprotokolle



4

HTTP API

- Authentifizierung und Zugriffsmanagement
- `async io`
- Integrierte Dokumentation
- App Manager

5

DATENBANK

- MongoDB NoSQL
- System Management
- Projekt/Kundendaten
- Weitere Connectoren

6

DEPLOYMENT

- Gitflow basierter Release Management Prozess
- Rapid Deployment Tools



PROGRAMMIEREN MIT CORE4



AUFGABENSTELLUNG

AUTOMATISIERUNG – JOBS UND WORKER

ABFRAGE DER MVG ABFAHRTSZEITEN IM 10' TAKT

BEREITSTELLUNG – WEB API UND WEB SERVICES

AUFBEREITUNG DER ABFAHRTSZEITEN ALS WEB SERVICE

ZUGANG – APP MANAGER

BEREITSTELLUNG DER ABFAHRTSZEITEN ALS WEB APP





SETUP



Issue Navigator - Jira

installation — core4os document

https://core4os.readthedocs.io/en/latest/i...

Outlook gmail Docs CORE Jira Wetter WebHistory Andere Lesezeichen

core4os

Docs » installation

installation

Contents:

- quick guide
- prerequisite installation guide
- develop and maintain core4 and core4 projects
- develop and maintain existing core4 projects
- regression tests
- documentation build

See [prerequisite installation guide](#) on how to install and setup these on ...

Previous

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Built with [Sphinx](#) using a [theme](#) provided by [Read the Docs](#).

Issue Navigator - Jira

quick guide — core4os document

https://core4os.readthedocs.io/en/latest/i...

Outlook gmail Docs CORE Jira Wetter WebHistory Andere Lesezeichen

core4os

Docs » installation » quick guide

quick guide

This quick installation guide installs the prerequisites and uses the default core4 settings. The setup has been tested with Debian 9 (Stretch). For Ubuntu 18.04 there is a dedicated [Ubuntu quick guide](#).

```
1 # install prerequisites
2 sudo apt-get install python3-pip python3-venv python3-dev git
3
4 # install MongoDB
5 sudo apt-key adv --keyserver hkp://keyserver.ubuntu.com:80 --
6 echo "deb http://repo.mongodb.org/apt/debian $(lsb_release -sc) main" | sudo tee /etc/apt/sources.list.d/mongodb.list
7 sudo apt-get update
8 sudo apt-get install mongodb-org --yes
9 sudo systemctl start mongod.service
10 sudo systemctl enable mongod.service
11
12 # install nodejs and npm
13 wget -qO- https://deb.nodesource.com/setup_11.x | sudo bash -
14 sudo apt-get update
15 sudo apt-get install -y nodejs
16
17 # install yarn
18 wget -qO- https://dl.yarnpkg.com/debian/pubkey.gpg | sudo apt-key add -
19 echo "deb https://dl.yarnpkg.com/debian/ stable main" | sudo tee /etc/apt/sources.list.d/yarn.list
20 sudo apt update
21 sudo apt-get install yarn --yes
22 sudo npm -g install vue-cli
23
24
25 # clone core4
26 git clone https://github.com/plan-net/core4.git
27
28 # setup and enter Python virtual environment
29 cd core4
30 python3 -m venv .venv
31 source enter_env
32
33 # install core4
34 pip install --upgrade pip
35 pip install .
```

Issue Navigator - Jira

Ubuntu quick guide — core4os

https://core4os.readthedocs.io/en/latest/i...

Outlook gmail Docs CORE Jira Wetter WebHistory Andere Lesezeichen

core4os

Docs » Ubuntu quick guide

Edit on GitHub

Ubuntu quick guide

This quick installation guide installs the prerequisites and uses the default core4 settings. The setup has been tested with Ubuntu 18.04. For Debian 9 there is a dedicated [quick install guide](#).

```
1 # install prerequisites
2 sudo apt install python3-pip python3-venv --yes
3 sudo apt install git --yes
4 sudo apt install mongodb --yes
5
6 # install yarn/vue-cli
7 wget -qO- https://dl.yarnpkg.com/debian/pubkey.gpg | sudo apt-key add -
8 echo "deb https://dl.yarnpkg.com/debian/ stable main" | sudo tee /etc/apt/sources.list.d/yarn.list
9 sudo apt update
10 sudo apt install yarn --yes
11 sudo yarn global add @vue/cli
12
13 # clone core4
14 git clone https://github.com/plan-net/core4.git
15 cd core4
16
17 python3 -m venv .venv
18 source enter_env
19
20 # install core4
21 pip install --upgrade pip
22 pip install .
23
24 # finish local setup with MongoDB and local.yaml
25 python local_setup.py
26
27 # build core4 web apps
28 cadmin build
```

Revisit your core4 settings with:

coco --who

```
mra@ubuntu:~$ # prerequisites ←
mra@ubuntu:~$ 
mra@ubuntu:~$ sudo apt install python3-pip python3-venv git -yes
mra@ubuntu:~$ sudo apt install mongodb --yes # version v3.6.3
mra@ubuntu:~$ 

mra@ubuntu:~$ # yarn & vue.js ←
mra@ubuntu:~$ 
mra@ubuntu:~$ wget -qO- https://dl.yarnpkg.com/debian/pubkey.gpg | sudo apt-key add -
mra@ubuntu:~$ echo "deb https://dl.yarnpkg.com/debian/ stable main" | sudo tee /etc/apt/sources.list.d/yarn.list
mra@ubuntu:~$ sudo apt update
mra@ubuntu:~$ sudo apt install yarn --yes
mra@ubuntu:~$ sudo yarn global add @vue/cli

mra@ubuntu:~$ # core4os ←
mra@ubuntu:~$ 
mra@ubuntu:~# git clone https://github.com/plan-net/core4.git
mra@ubuntu:~$ cd core4
mra@ubuntu:~/core4$ python3 -m venv .venv
mra@ubuntu:~/core4$ source enter_env
[ core4 ] mra@ubuntu:~/core4$ pip install --upgrade pip
[ core4 ] mra@ubuntu:~/core4$ pip install .
...
Successfully installed Jinja2-2.10.1 MarkupSafe-1.1.1 PyJWT-1.7.1 PyYaml-5.1 Pygments-2.4.0 Sphinx-2.0.1 alabaster-0.7.12
atomicwrites-1.3.0 attrs-19.1.0 babel-2.6.0 certifi-2019.3.9 chardet-3.0.4 core4-0.3.4 coverage-4.5.3 croniter-0.3.30 docopt-0.6.2
docutils-0.14 idna-2.8 imagesize-1.1.0 more-itertools-7.0.0 motor-2.0.0 numpy-1.16.3 packaging-19.0 pandas-0.24.2 passlib-1.7.1
pluggy-0.11.0 psutil-5.6.2 py-1.8.0 pymongo-3.8.0 pyparsing-2.4.0 pytest-4.5.0 pytest-runner-4.4 pytest-timeout-1.3.3 pytest-
tornasync-0.6.0.post1 python-dateutil-2.8.0 python-magic-0.4.15 python-mimemparse-1.6.0 pytz-2019.1 requests-2.22.0 sh-1.12.14 six-
1.12.0 snowballstemmer-1.2.1 sphinx-rtd-theme-0.4.3 sphinxcontrib-applehelp-1.0.1 sphinxcontrib-devhelp-1.0.1 sphinxcontrib-
htmlhelp-1.0.2 sphinxcontrib-jsmath-1.0.1 sphinxcontrib-qthelp-1.0.2 sphinxcontrib-serializinghtml-1.1.3 tornado-6.0.2 tzlocal-
1.5.1 urllib3-1.25.2 wcwidth-0.1.7 websockets-7.0 wheel-0.33.4

[ core4 ] mra@ubuntu:~/core4$ # post setup scripts ←
[ core4 ] mra@ubuntu:~/core4$ 
[ core4 ] mra@ubuntu:~/core4$ python local_setup.py
[ core4 ] mra@ubuntu:~/core4$ cadmin build
```

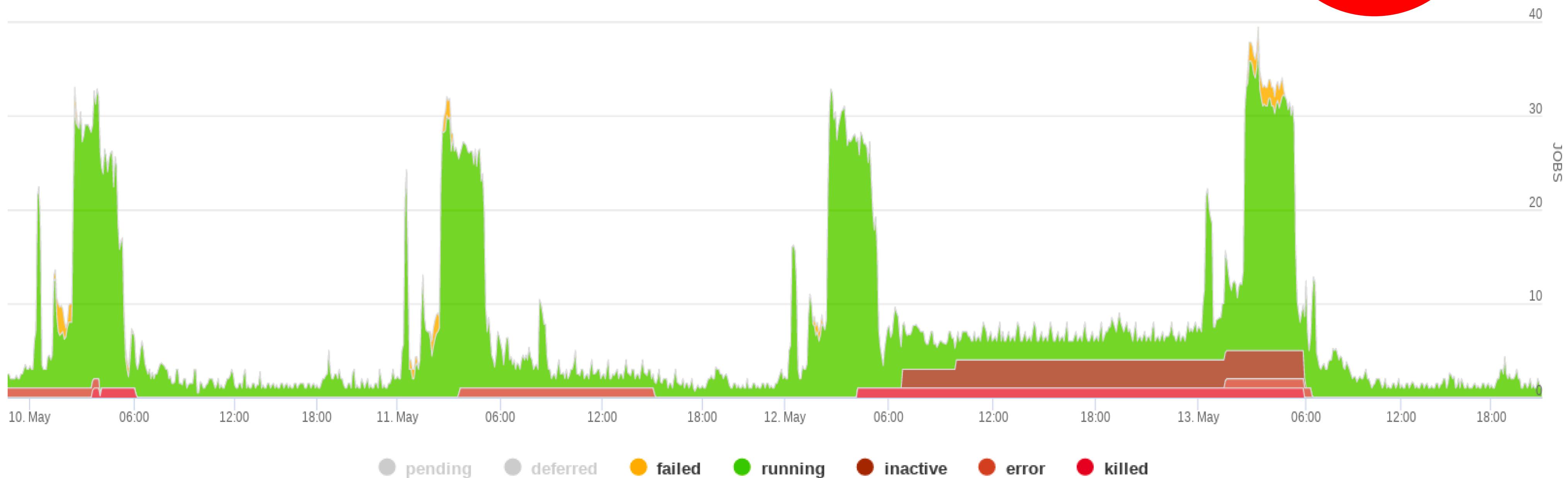
Abfrage der MVG API

<https://core4os.readthedocs.io/en/latest/example/mvg.html>

<https://github.com/plan-net/meetup>

JOB VERARBEITUNG DER PLAN.NET BI

> 7.500
Jobs täglich

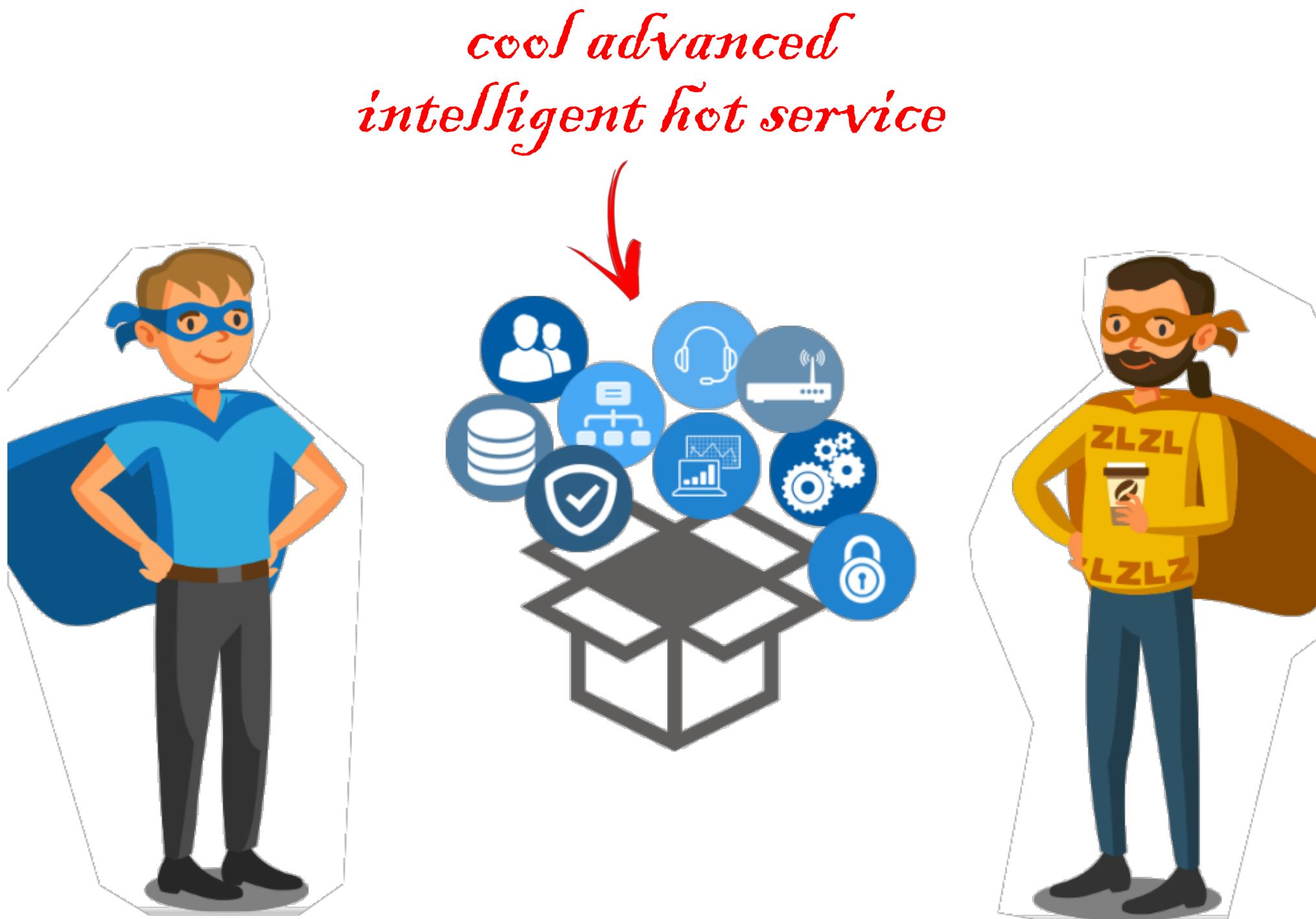




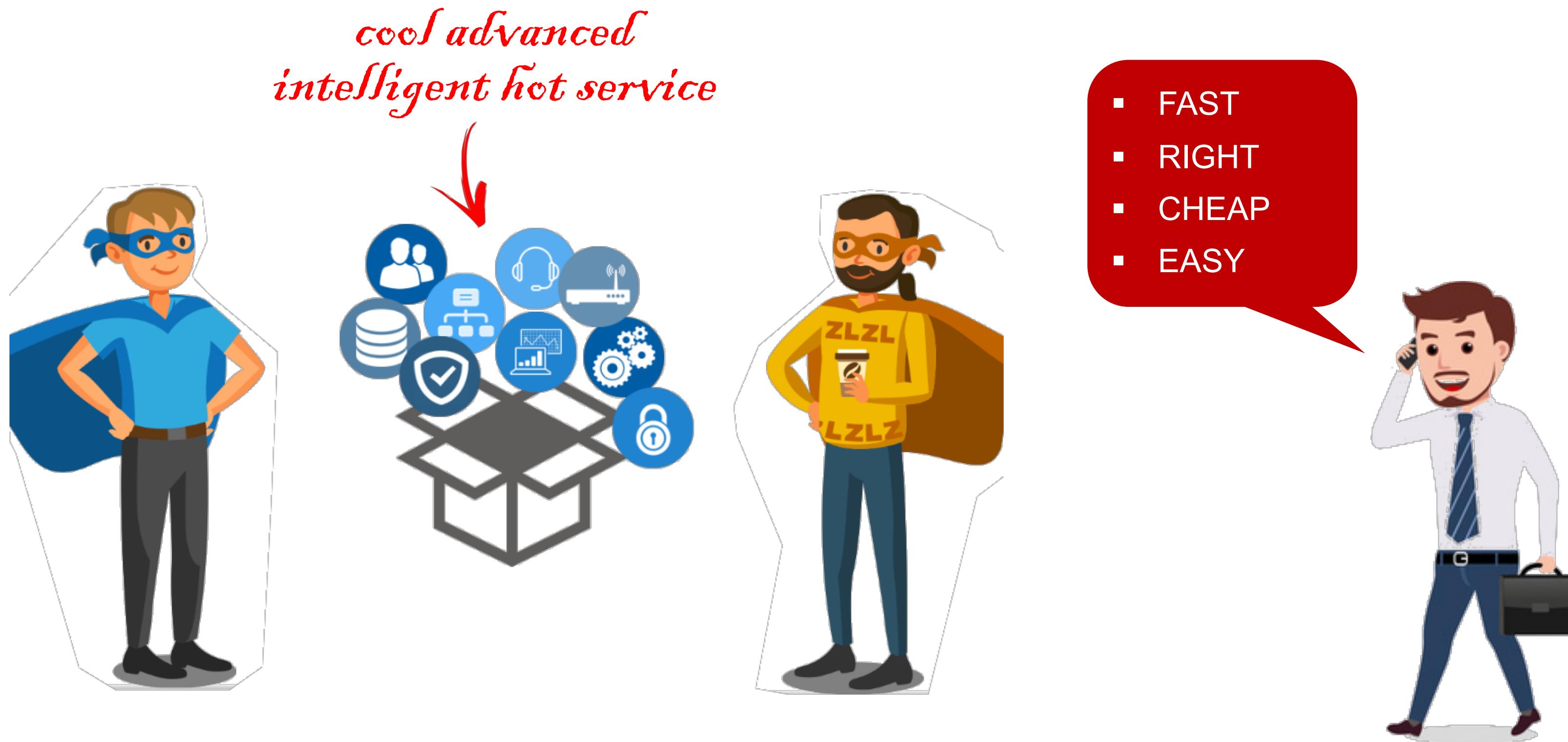
WRAP UP



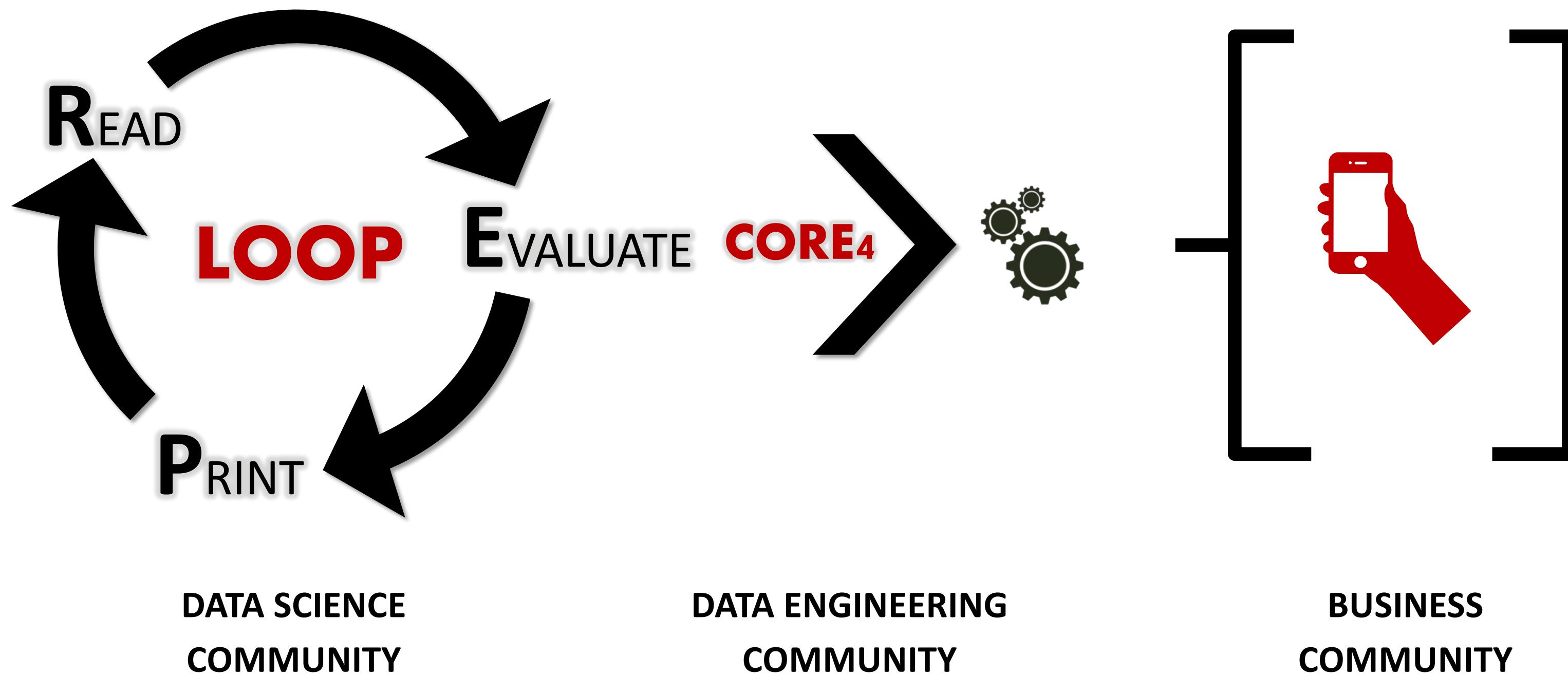
ERFOLGSFAKTOR: DIE ZUSAMMENARBEIT ZWISCHEN DATA SCIENTISTS UND DEVELOPER



DIE REALITÄT: ES GEHT UM DATA SCIENTISTS, DEVELOPER UND BUSINESS



core4os: AGILE DATA INTEGRATION, INSIGHT EXTRACTION AND WEB APPLICATION PLATFORM



Plan.Net Business Intelligence

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Markus Kral <M.Kral@plan-net.com>
Michael Rau <M.Rau@plan-net.com>

