

## CERTIFICATE OF ADVANCED STUDIES IN BIG DATA ANALYTICS

### ADVERSE MEDIA SEARCH

**Barbara Block-Kaefer**  
Finnova AG

**Liliana Alvarado**  
IT Evotion GmbH

**William Worthington**  
Sequoia Intelligence



Rotkreuz, Datum 22.03.2019

# ADVERSE MEDIA SEARCH

## Content

- **Introduction**
- Target Solution - Requirements
- Technical solution
- Dashboard
- Implementation in Finnova
- Future enhancements

# THE BANKS HAVE FACED HIGHER REPUTATIONAL RISKS BY CUSTOMERS IN RECENT YEARS

## Bank Julius Bär im Zwielficht

Julius Bär soll bei der Aufnahme und Betreuung von Kunden aus dem Fifa-Umfeld und aus Venezuela nicht genügend Abklärungen getroffen haben. Probleme in der Compliance zeigt zudem der Fall des suspendierten Russland-Chefs.

Zoé Baches  
10.4.2018, 06:00 Uhr



Gegen die Bank Julius Bär wird derzeit von der Finma ein Enforcement-Verfahren geführt. (Bild: Arnd Wegmann / Reuters)

## 30-Millionen-Angriffe gegen Basler Kantonalbank

379 gepöhlte Anleger fordern Geld von der Bank. Das Geldhaus habe sich «bewusst blind» gestellt, als das Schneeballsystem des Vermögensverwalters ASE ins Rollen kam.



Eine Gruppe von Kleianlegern bekam von der BKB bis heute kein Geld zurück. Foto: Gattian Bally (Keystone)

Mario Stähle  
Reporter  
[investigativ](#)  
13.09.2016

[Leuchtturm](#)

«Mindestens 28 Millionen Franken; plus 2,2 Millionen Euro; plus 2,4 Millionen US-Dollar – exakt so viel wollen 379 Anleger von der Basler Kantonalbank (BKB) bezahlt haben. Am 19. August haben die Anwälte der Gruppe von Geschädigten einen Antrag beim Bezirksgericht Laufenburg eingereicht.

## Ruag: Das Vorleben der Manager

Die wegen Waffengeschäften suspendierten Kadermänner von Julius Bär und Ruag früher in fragwürdige Deals involviert.



igal nach Russland. Foto: Alessandro Della Valle (Keystone)

men sich schon lange, der heutige Moskau-Chef von Bär und der Marketingleiter von Ruag Ammotec, stens 15 Jahre. Kurz nach der Jahrtausendwende steigt itere Ruag-Mann als Chief Operating Officer bei ox ein, einem Start-up im Telekommunikationsbereich, das auf der

Abu-Dhabi-Affäre: Strafrechtler hält Verurteilung für möglich

## Pierre Maudet muss mit dem Schlimmsten rechnen

Pascal Tischhauser  
Stv. Politischef der BUCK-Gruppe

12:36 Uhr  
21.12.2018

14:18 Uhr  
21.12.2018



Selbst wenn sich die Genfer Freisinnigen für seinen Abgang aussprechen, will Staatsrat Pierre Maudet noch an seinem Amt festhalten. Nur bei einer Verurteilung würde er den Sessel räumen. Diese ist aber nicht unwahrscheinlich.



Pierre Maudet ist von seiner Unschuld überzeugt.

Pierre Maudet (40, FDP) machte im BLICK-Interview klar: «Nur ein einziger Mensch entscheidet, ob ich zurücktrete oder nicht – ich selber.» Das sähen die Regeln unserer Demokratie so vor, sagte der Genfer Staatsrat.

Maudet will auch dann nicht einfach zurücktreten, wenn die Parteibasis am 15. Januar sich für seinen Abgang ausspricht. Einzig wenn es zu einer Verurteilung kommt, würde er als Justizminister den Hut nehmen. Und eine solche Verurteilung ist nicht ausgeschlossen: Der Genfer hat sich und seine Familie 2015 von den Herrschern der Vereinigten Arabischen Emirate zu einer Luxusreise nach Abu Dhabi einladen lassen. Er gab vor, ein Freund habe die Reise bezahlt.

Ist Maudet «angefüttert» worden?

Nun läuft ein Verfahren wegen Vorteilsannahme im Amt gegen den Staatsrat. Anders als bei Bestechung, bei der jemand etwa einen Geldbetrag annimmt, um im Gegenzug zum Beispiel eine ungerechtfertigte Baugenehmigung zu erteilen, geht es bei der Vorteilsannahme nicht um

# KNOW YOUR CUSTOMER: WITH TO EARLY RECOGNITION, REPUTATIONAL RISKS AND PENALTIES FOR THE BANK CAN BE PREVENTED

- money laundering
- corruption / bribery
- trading of arms
- drug trafficking
- tax evasion
- environmental pollution
- blood diamonds
- snowball system/ponzi
- insider trading



- » reputational risk
- » penalties
- » announcements
- » liability

for banks



**KNOW YOUR CUSTOMER**

## DEFINITION OF A PEP – POLITICALLY EXPOSED PERSON

- According to the Money Laundering Act, the Politically Exposed Person (PEP) customer group is a natural person who holds an important political office, a public office in Switzerland or abroad, as well as their immediate family members and their known close associates. Immediate family members are spouses, partners, their children, parents, and siblings.
- Known persons are co-owners of a business or other close business relationships, or relationships in which the political person is the beneficiary
- These include Members of Parliament, members of the Government, members of the Supreme Court and judicial authorities, ambassadors, chargé affairs, senior officers, religious leaders, members of the governing and administrative boards and supervisory bodies of state-owned companies,



# ADVERSE MEDIA SEARCH

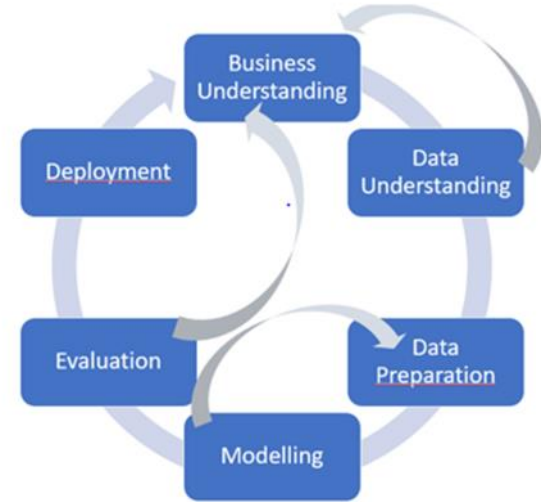
## Content

- Introduction
- **Target Solution - Requirements**
- Technical solution
- Dashboard
- Implementation in Finnova
- Future enhancements



# TARGET SOLUTION - REQUIREMENTS

- Business Requirements
- Envisioned Solution: Adverse Media Screening
- Software requirements: processing and rules
- Handling False Negatives and False Positive
- Alerts Visualization

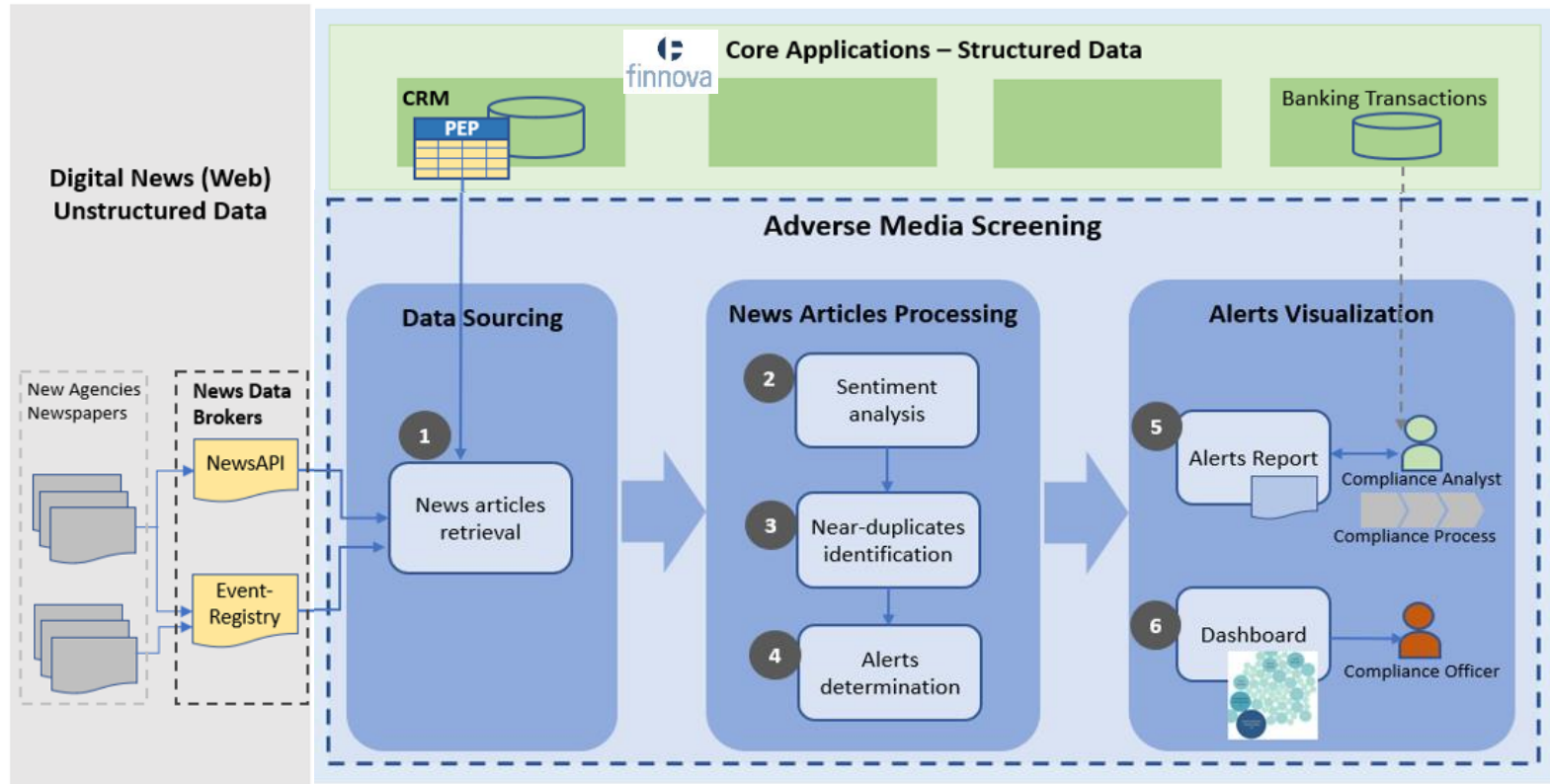


# BUSINESS REQUIREMENTS

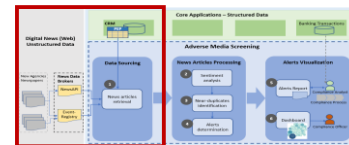
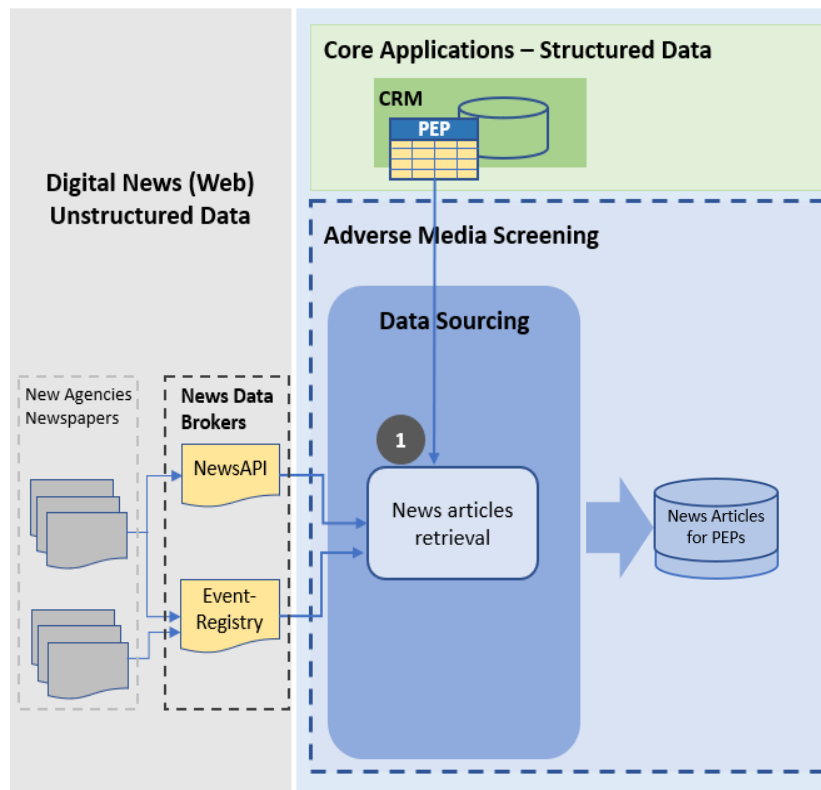
- Support the identification, analysis and resolution of potential corruption cases where PEP clients may be involved
- Raise alerts as soon as the news has been made public
- Compliance Officers and Senior Management shall be enabled with a visualization tool to support the revision of PEP client relationships
- Record of transactions and relevant clarifications shall be kept in order to assist reliable assessment
- The solution shall be compliant with Global Data Protection Regulation (GDPR), a mandate that financial Institutions must fulfil
- Users of the Solution are Cantonal Banks, Finnova's customers, Swiss based company



# ENVISIONED SOLUTION: HIGH-LEVEL OVERVIEW



# DATA SOURCING



Wahlen im Kanton Genf

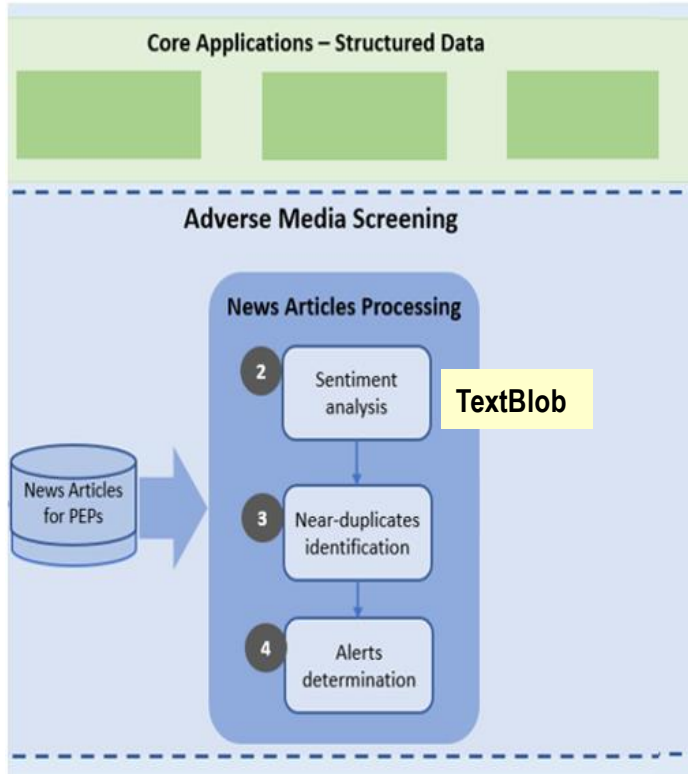
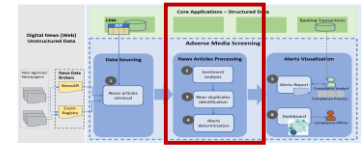
## Nur Pierre Maudet schafft es in den Staatsrat

Bei den Gesamterneuerungswahlen im Kanton Genf hat einzig Staatsrat Pierre Maudet (FDP) die Wiederwahl in die Regierung im ersten Wahlgang geschafft (50'177 Stimmen).

## Behörden durchsuchen Hauptsitz von Bastos-Firma in Zug

Im Nachgang zu den «Paradise Papers»-Enthüllungen wurde am Mittwoch in Zug der Hauptsitz der Quantum-Global-Gruppe von Jean-Claude Bastos durchsucht. Zudem erklärt nun der bekannte Baarer Anwalt Martin Neese seinen Rücktritt aus dem Verwaltungsrat.

# NEWS ARTICLES PROCESSING



## Erschütterung in Zug und in Afrika

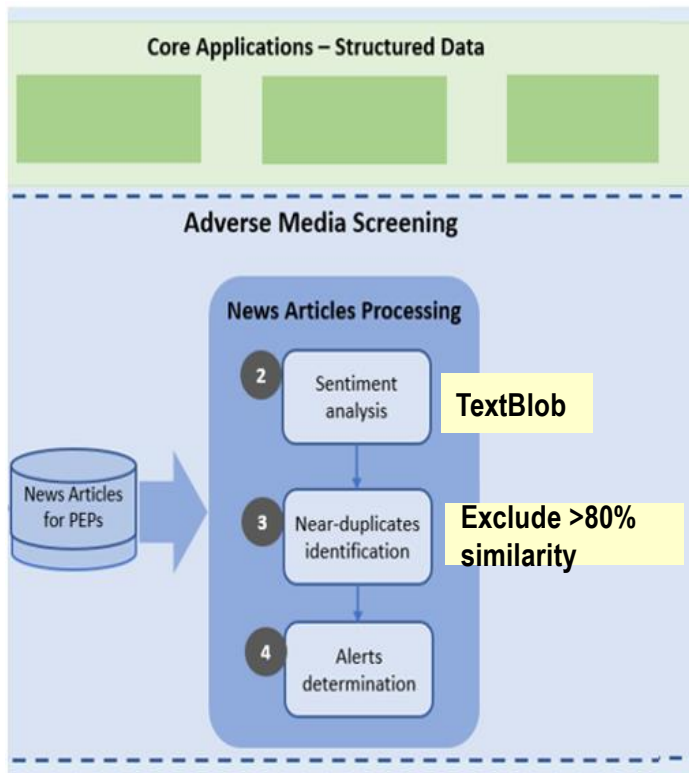
Der Schweizer Geschäftsmann Jean-Claude Bastos verliert sein Angola-Mandat. Und Glencore steht im Kongo unter grossem Druck.



Die Paradise Papers haben entscheidend zum Absturz des Milliarden-Imperiums von Jean-Claude Bastos beigetragen. Vor gut zwei Wochen verfügte ein britisches Gericht die Einfrierung von drei Milliarden Dollar auf den Konten des umstrittenen Schweizer Geschäftsmanns und dessen Firmen. Betroffen sind auch zwei Schweizer Firmen aus Bastos' Quantum-Global-Gruppe mit Hauptsitz in Zug.

***Published by Berner Zeitung on 15.05.2018***

# NEWS ARTICLES PROCESSING



Armee sorgt für Missklänge:  
300'000 Franken für  
Posaunen aus Ausland -  
Schweizer Angebot war  
günstiger



Dissonanzen im Zusammenhang mit der Instrumentenbeschaffung für die Schweizer Militärmusik sind nicht neu. Schon vor zwei Jahren wurde bekannt, dass sich die Armee reichlich unpatriotisch mit Instrumenten aus dem Ausland eindeckt - statt die kleinen, aber feinen Schweizer Hersteller zum Einsatz kommen zu lassen. Diese konnten in der Vergangenheit nicht einmal Offerten einreichen.

*Published by Aargauer Zeitung, 16.01.2019 15:02*

Armee sorgt für Missklänge: 300'000  
Franken für Posaunen aus Ausland -  
Schweizer Angebot war günstiger

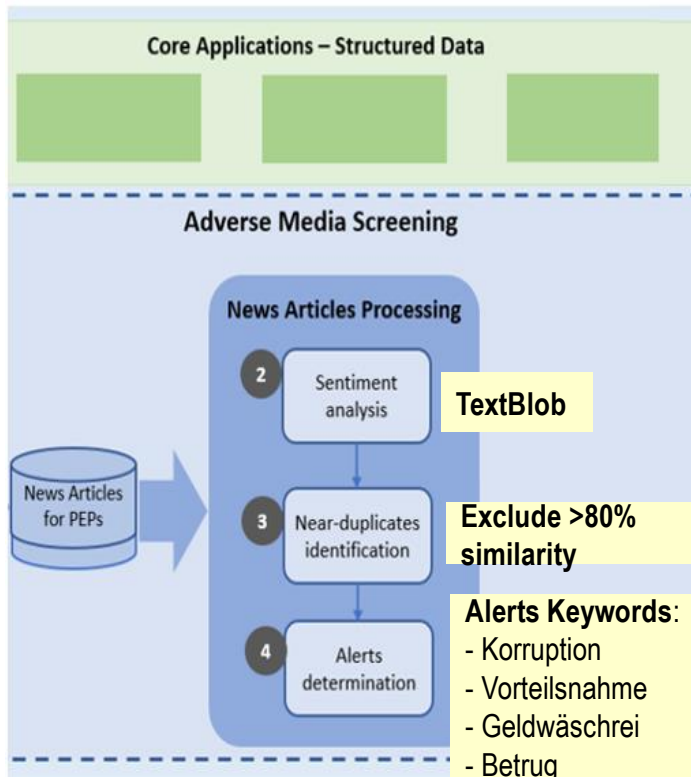


Dissonanzen im Zusammenhang mit der Instrumentenbeschaffung für die Schweizer Militärmusik sind nicht neu. Schon vor zwei Jahren deckte diese Zeitung auf, dass sich die Armee reichlich unpatriotisch mit Instrumenten aus dem Ausland eindeckt - statt die kleinen, aber feinen Schweizer Hersteller zum Einsatz kommen zu lassen. Diese konnten in

*Published by Luzerner Zeitung, 16.01.2019 16:03*



# NEWS ARTICLES PROCESSING



## Korruptionsverdacht: Aufstieg und Fall des Pierre Maudet



### Reise nicht selbst finanziert

Die Staatsanwaltschaft wirft Maudet nun vor, der Kronprinz habe für die Flüge in der Business-Class und die Unterkunft bezahlt. Der Verdacht lautet auf Vorteilsnahme. Maudet hat zwar bereits offengelegt, dass er die Reise nicht selber finanziert habe. Beahlt haben soll gemäss seiner Darstellung aber der Geschäftsmann Said Bustany. Der Aussage schenkt die Staatsanwaltschaft allerdings keinen Glauben.

*Argauer Zeitung, 01.09.2018*

NUR FÜR INTERNEN GEBRAUCH

# FALSE NEGATIVE AND FALSE POSITIVE ALERTS

		Actual Alert	
		Positive	Negative
Predicted Alert	Positive	<b>True Positive</b> A news article was predicted as adverse news and it is true.	<b>False Positive</b> A news article was predicted as adverse news, but it is <u>actually not</u> .
	Negative	<b>False Negative</b> A news article was predicted as non-adverse news, but it <u>actually is</u> .	<b>True negative</b> A news article was predicted a non-adverse and it is true.

## False Positive

Focus of Analysis
Alert Keywords Homonyms
News Story: - Opinion - Negation

## False Negative

Focus of Analysis
PEP Client List
Alert Keyword
News Retrieval Criteria
News Data Broker News Agency

## SBB verkaufen Immobilien für 1,5 Milliarden Franken

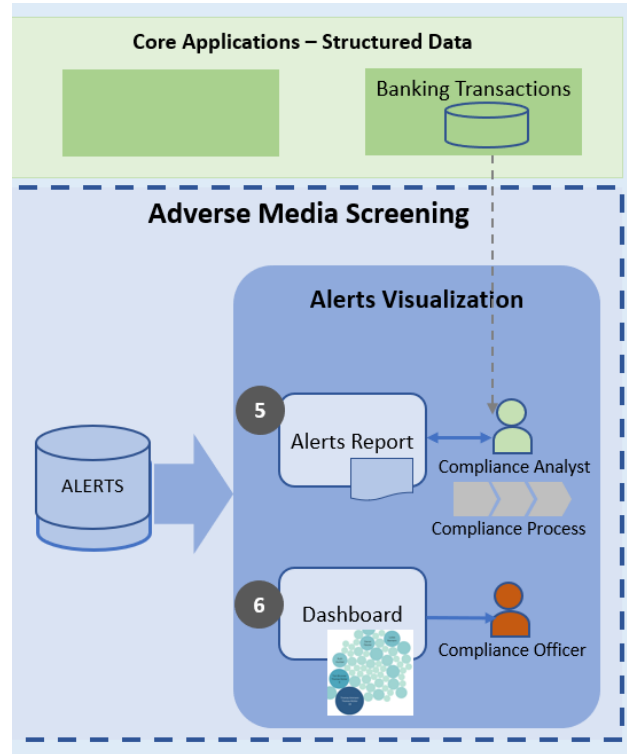
Die SBB stossen Land und Gebäude ab – und bessern damit ihr Jahresergebnis auf.

Die **SBB** hat seit 2007 Land und Immobilien im Wert von über 1,5 Milliarden Franken verkauft. Alleine im letzten Jahr stiess die SBB Immobilien im Wert von knapp 204 Millionen Franken ab, berichtet der «Sonntagsblick». Die Verkäufe hätten dazu beigetragen, die Jahresergebnisse zu verbessern – und vielleicht sogar dazu beitragen können, Bonus-relevante Ziele zu erreichen, so die Zeitung.

Die SP-Nationalrätin Jacqueline Badran **spricht von** «Veruntreuung von Volksvermögen». Es störe sie, dass viele Immobilien an kommerzielle Privatanleger verkauft würden.



# ALERTS VISUALIZATION



## Alerts Report

Alerts are pushed as soon as they are generated.

User: Compliance Analyst (Client Advisor)

Content:

- Client
- Client Advisor
- News Article
- Alert

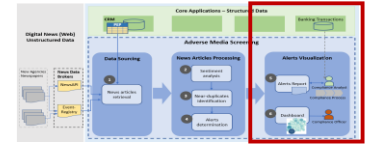
## Alerts Dashboard

Display of complete collection of Alerts at any time.

User: Compliance Officers and Senior Managers

Dimensions:

- Specific Client Advisor
- Period of Time
- Specific PEP Client
- Alerts Keywords





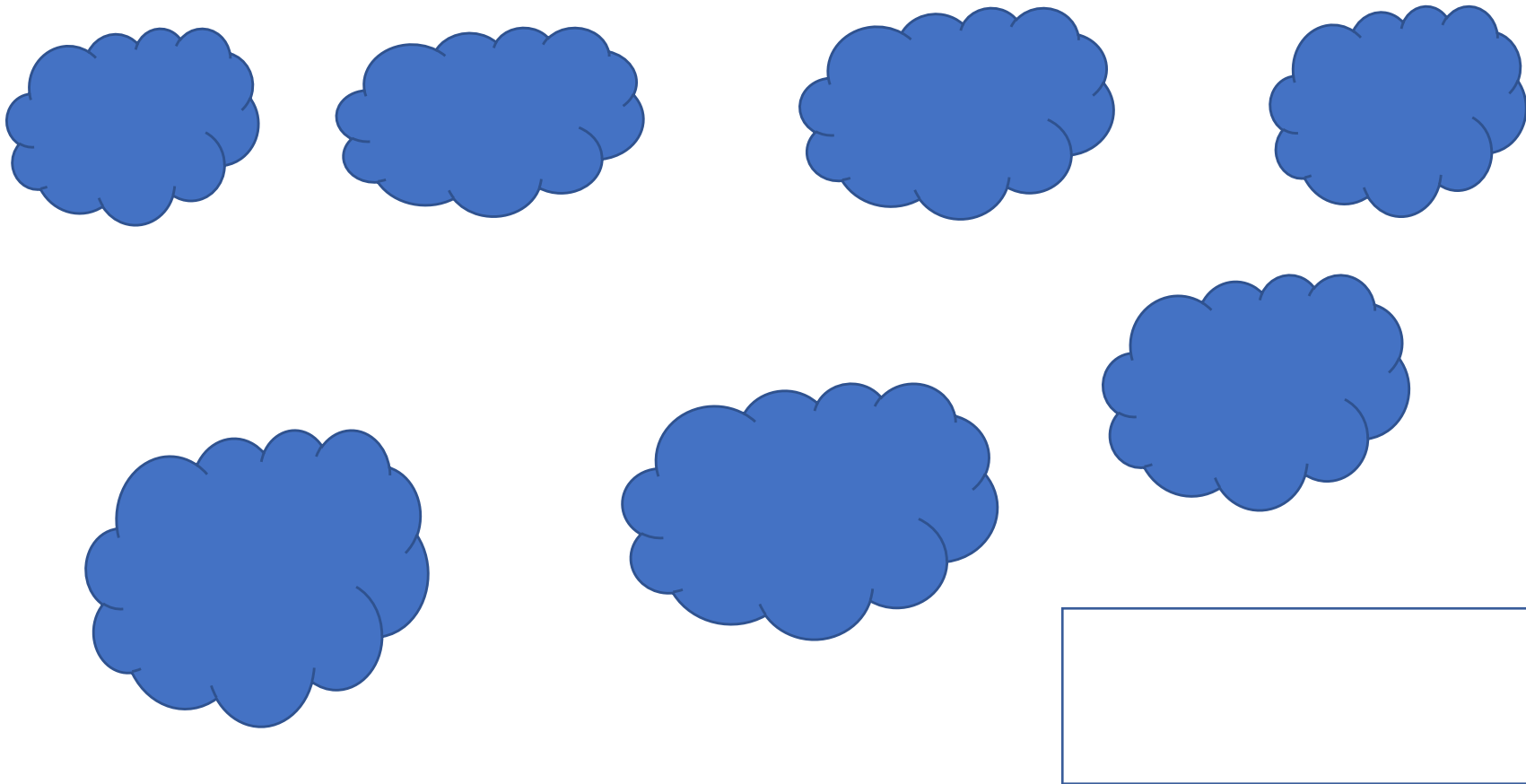
# ADVERSE MEDIA SEARCH

## Content

- Introduction
- Target Solution - Requirements
- **Technical solution**
- Dashboard
- Implementation in Finnova
- Future enhancements

# TECHNICAL SOLUTION





# WHAT DOES HARVESTING NEWS ARTICLES HAVE TO DO WITH HARVESTING HAY?






LIKE COLLECTING HAY ON A HOT DAY,  
COLLECTING NEWS ARTICLES CAN BE A LOT OF WORK!





# NOT ENOUGH TIME TO WRITE A WEB CRAWLER. SOLUTION IS TO USE A NEWS BROOKER API SERVICE.

 <b>Developer</b> <b>\$0</b> totally free, start now	 <b>Business</b> <b>\$449</b> per month, billed monthly	 <b>Enterprise</b> <b>\$849</b> per month, billed monthly
For all non-commercial projects (including open-source) and in-development commercial projects.	For smaller live commercial projects.	For enterprise projects that require exceptional resources and support.
Get live top headlines and search all articles ? New articles available with 15 minute delay ? Search articles up to a month old ? Short article snippet or description provided ?	Get live top headlines and search all articles ? New articles available in <b>real-time</b> ? Search articles up to <b>12 months</b> old ? <b>Full article content</b> available ?	
1,000 requests per day ? No extra requests available ?	250,000 requests per month included \$44.90 per 25,000 extra requests ?	250,000 requests per month included \$44.90 per 25,000 extra requests ?

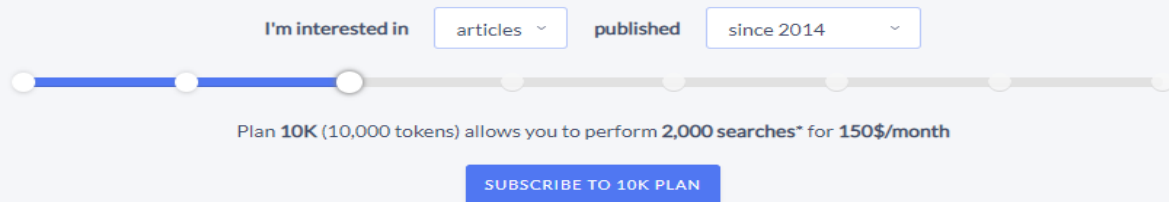
# FINAL SOURCE WAS EVENTREGISTRY.ORG

eventregistry

## Pricing information for API data access

The plans below are for users who *would like to get API access to Event Registry data*. The number of monthly searches that you can make with each plan depends on the *data type* (search for articles or events) and the *time-span* (access to the last month's data only or full archive access).

Use the settings and the slider below to find the plan with the desired number of monthly searches for you.



\* With each search you can retrieve up to 100 articles per result page.

### Ways to access the data



The data from Event Registry can be accessed in different ways. If you use Python or Node.js programming languages then we suggest using [Python](#) and [Node.js](#) SDKs which significantly simplify data access. Alternatively, you can also check our [documentation page](#) where you find also how to make direct HTTP requests if needed.





NOW THAT WE HAVE A PLACE TO DO THE HARVESTING,  
WE NEED A GOOD TOOL TO DO THE WORK.



# WHAT IS PYTHON?

*“Python is an interpreted, high-level, general-purpose programming language. Created by Guido van Rossum and first released in 1991, Python has a design philosophy that emphasizes code readability, notably using significant whitespace. It provides constructs that enable clear programming on both small and large scales.”*

*[https://en.wikipedia.org/wiki/Python\\_\(programming\\_language\)](https://en.wikipedia.org/wiki/Python_(programming_language))*

# PYTHON HAS A VERY EXTENSIVE COLLECTION OF LIBRARIES.

- Psycopg : for connecting, reading, and writing to a Postgres data base.
- Requests: for sending requests to and receiving data back from a Web Sites API.
- JSON: for with JSON objects.
- OS.Environ: retrieve configuration variables from environment variables.
- Traceback: Exception handling / error messages.
- Logging: logging errors and exceptions.
- EventRegistry: EventRegistry.org wrapper for API calls.
- Bs4.BeautifulSoup: Scrape and format html text from URL.
- TextBlob-de: German version NLP TextBlob, used for sentiment analysis.

# WHERE CAN OUR NEW PET SNAKE LIVE?



*“AWS Lambda is an event-driven, serverless computing platform provided by Amazon as a part of the Amazon Web Services. It is a computing service that runs code in response to events and automatically manages the computing resources required by that code. It was introduced in November 2014.*

*The purpose of Lambda, as compared to AWS EC2, is to simplify building smaller, on-demand applications that are responsive to events and new information. AWS targets starting a Lambda instance within milliseconds of an event.”*

[https://en.wikipedia.org/wiki/AWS\\_Lambda](https://en.wikipedia.org/wiki/AWS_Lambda)

# HOW DO WE GET OUR PET SNAKE TO HIS NEW HOME?

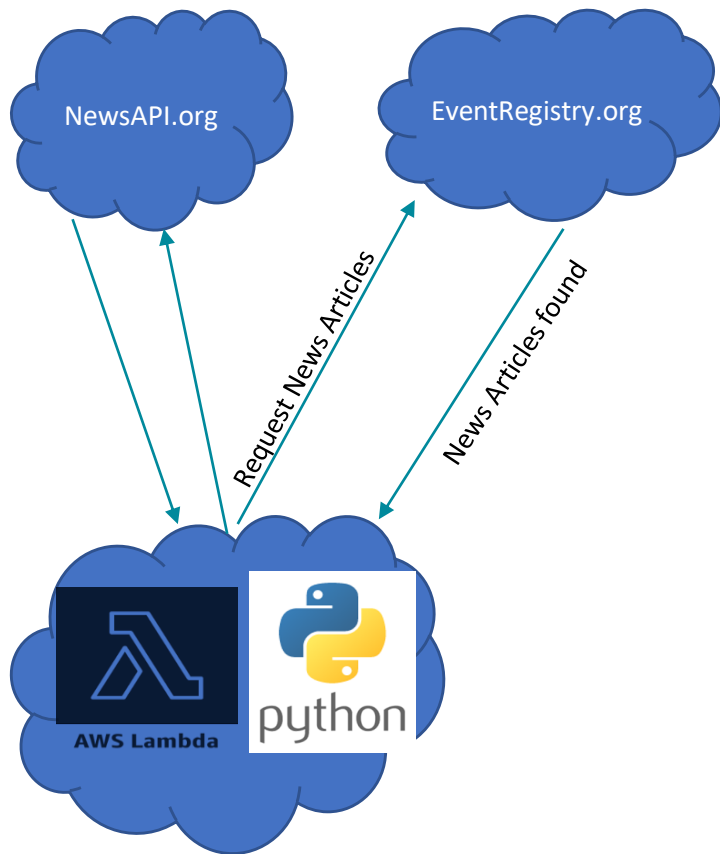


# FOR OUR PYTHON SNAKE THE SERVERLESS FRAMEWORK WAS USED.

*“The Serverless Framework is a free and open-source web framework written using Node.js. Serverless is the first framework that was originally developed for building applications exclusively on AWS Lambda, a serverless computing platform provided by Amazon as a part of the Amazon Web Services. Currently, applications developed with Serverless can be deployed to other function as a service providers, including Microsoft Azure with Azure Functions, IBM Bluemix with IBM Cloud Functions based on Apache OpenWhisk, Google Cloud using Google Cloud Functions, Oracle Cloud using Oracle, Kubeless based on Kubernetes, Spotinst and Webtask by Auth0.”*

*[https://en.wikipedia.org/wiki/Serverless\\_Framework](https://en.wikipedia.org/wiki/Serverless_Framework)*





# EVENT REGISTRY RETURNED UP TO 100 ARTICLES PER REQUEST AS ONE JSON OBJECT WITH EMBEDDED JSON OBJECTS

```
{"sim": 0, "uri": "1054718434",  
  "url": "https://www.suedostschweiz.ch/politik/2019-02-01/nationalratskommission-gegen-frauenquote-im-bundesrat",  
  "wgt": 286733400,  
  "date": "2019-02-01",  
  "lang": "deu",  
  "time": "16:10:00", "image":  
  "https://www.suedostschweiz.ch/sites/default/files/styles/np8_full/public/media/2019/02/01/20190201163723180.jpg?itok=5zVk3E1W",  
  "title": "Nationalratskommission gegen Frauenquote im Bundesrat", "shares": {},  
  "source": {"uri": "suedostschweiz.ch", "title": "suedostschweiz.ch", "dataType": "news"},  
  "authors": [{"uri": "agentur_sda@suedostschweiz.ch", "name": "Agentur Sda", "type": "author", "isAgency": false}],  
  "dataType": "news", "dateTime": "2019-02-01T16:10:00Z",  
  "eventUri": null, "location": null, "storyUri": null, "sentiment": null,  
  "categories": [{"uri": "news/Politics", "wgt": 78, "label": "news/Politics"}], "isDuplicate": false}
```

# EACH ARTICLES HAD A «CONCEPTS» JSON OBJECT

```
{
  "uri": "http://en.wikipedia.org/wiki/Cédric_Wermuth",
  "type": "person",
  "label": {
    "eng": "Cédric Wermuth"
  },
  "score": 4
},
{
  "uri": "http://en.wikipedia.org/wiki/Politician",
  "type": "wiki",
  "label": {
    "eng": "Politician"
  },
  "score": 4
},
{
  "uri": "http://en.wikipedia.org/wiki/Switzerland",
  "type": "loc",
  "label": {
    "eng": "Switzerland"
  },
  "score": 4,
  "location": {
    "type": "country",
    "label": {
      "eng": "Switzerland"
    }
  }
},
{
  "uri": "http://de.wikipedia.org/wiki/Offizialdelikt_(Deutschland)",
  "type": "wiki",
  "label": {
    "eng": "Offizialdelikt (Deutschland)"
  },
  "score": 3
},
{
  "uri": "http://de.wikipedia.org/wiki/Aline_Trede",
  "type": "person",
  "label": {
    "eng": "Aline Trede"
  },
  "score": 3
},
{
  "uri": "http://en.wikipedia.org/wiki/Fokus",
  "type": "org",
  "label": {
    "eng": "Fokus"
  },
  "score": 3
},
{
  "uri": "http://en.wikipedia.org/wiki/Corruption",
  "type": "wiki",
  "label": {
    "eng": "Corruption"
  },
  "score": 3
},
{
  "uri": "http://en.wikipedia.org/wiki/National_Council_(Switzerland)",
  "type": "wiki",
  "label": {
    "eng": "National Council (Switzerland)"
  },
  "score": 3
},
{
  "uri": "http://en.wikipedia.org/wiki/Strafgesetzbuch",
  "type": "wiki",
  "label": {
    "eng": "Strafgesetzbuch"
  },
  "score": 3
},
{
  "uri": "http://en.wikipedia.org/wiki/Good_governance",
  "type": "wiki",
  "label": {
    "eng": "Good governance"
  },
  "score": 3
},
{
  "uri": "http://en.wikipedia.org/wiki/Bribery",
  "type": "wiki",
  "label": {
    "eng": "Bribery"
  },
  "score": 3
},
{
  "uri": "http://en.wikipedia.org/wiki/Alliance_'90/The_Greens",
  "type": "org",
  "label": {
    "eng": "The Greens"
  },
  "score": 3
},
```

# HOW MUCH WAS HARVESTED?



- News articles were collected from the 1st of January 2014 till the 13th of March 2019.
- A total of 18,454 articles were downloaded from the Event Registry, of those 1557 had at least one of the alert words that were being searched for, that is 8.4% of the articles.
- Total number of words 10,282,691, which 1,989 were one of the alert words, of those only 179 could be associated with a PEP that was within 50 words of the alert word.
- The articles came from 357 different news sources, e.g. Aargauer Zeitung, Basellandschaftliche Zeitung, Frankfurter Allgemeine, etc.

# WHY ALL THIS TALK ABOUT HARVETING HAY? WE ARE LOOKING FOR SOMETHING.....



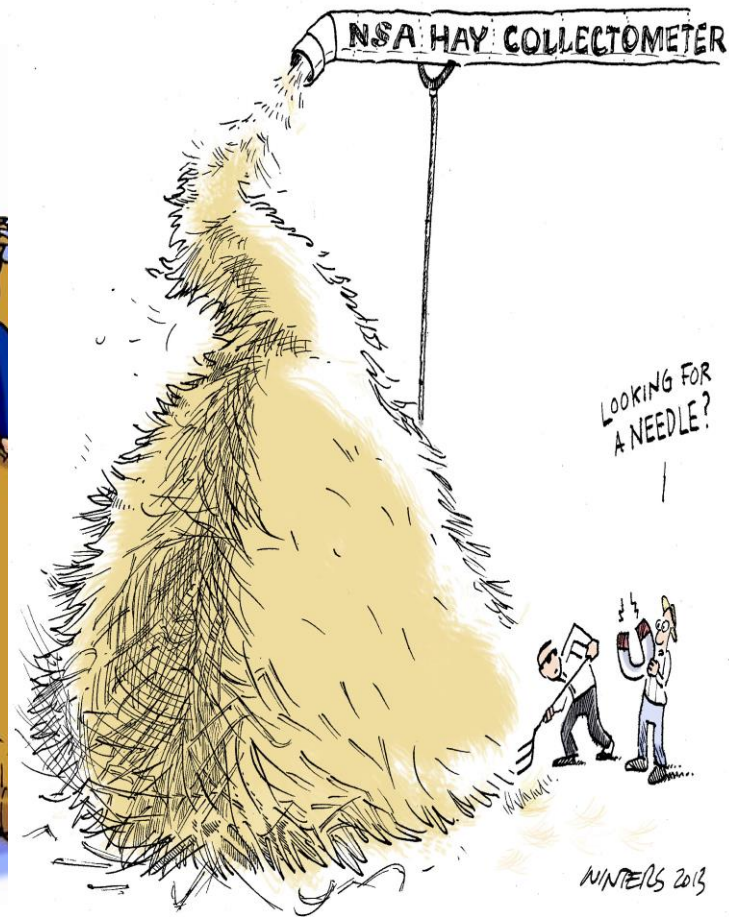




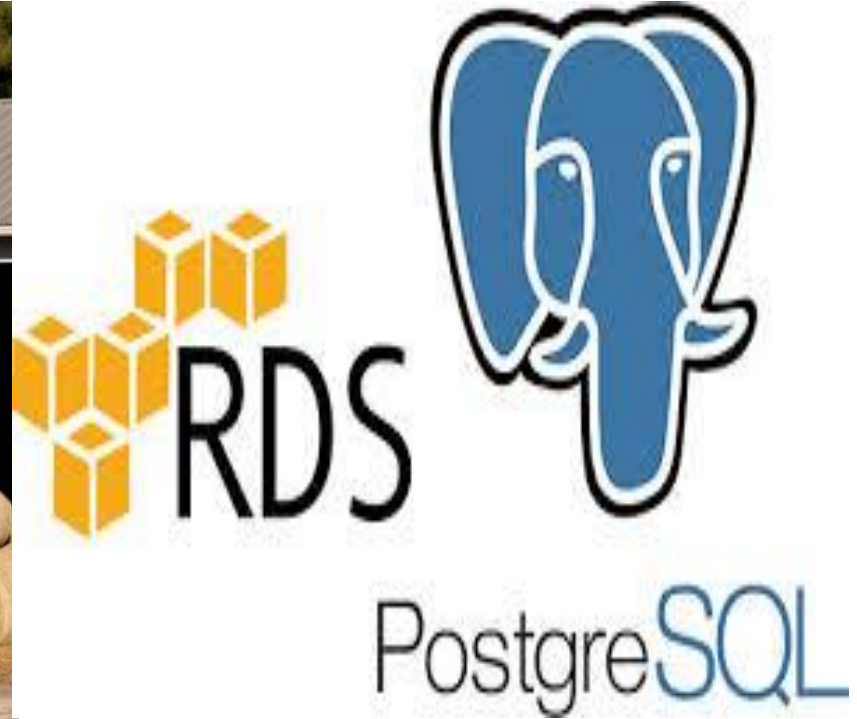
Haystacks. One more reason junkies hardly ever hang out in the country.



www.jolyon.co.uk



# AFTER HARVESTING, WHERE DO WE STORE WHAT GOT HARVESTED?





# WHAT DOES A BLUE ELEPHANT HAVE TO DO WITH ANYTHING?



*“PostgreSQL is a powerful, open source object-relational database system that uses and extends the SQL language combined with many features that safely store and scale the most complicated data workloads. The origins of PostgreSQL date back to 1986 as part of the Postgres project at the University of California at Berkeley and has more than 30 years of active development on the core platform.”*

*<https://www.postgresql.org/about/>*

# REASONS POSTGRES WAS SELECTED:

- Open Source no licence fees.
- Atomicity, Consistency, Isolation, Durability (ACID) Compliant.
- Traditional Relational Data Base Management System (RDMS).
- Support for NoSQL JSON Data Types.
- Support for Full Text Searches.
- Special Full Text Indexing: GiST and GIN Indexing.
- Support for Materialized Views.
- Support for User Defined Stored Functions.

# DATA BASE DESIGN - TABLES

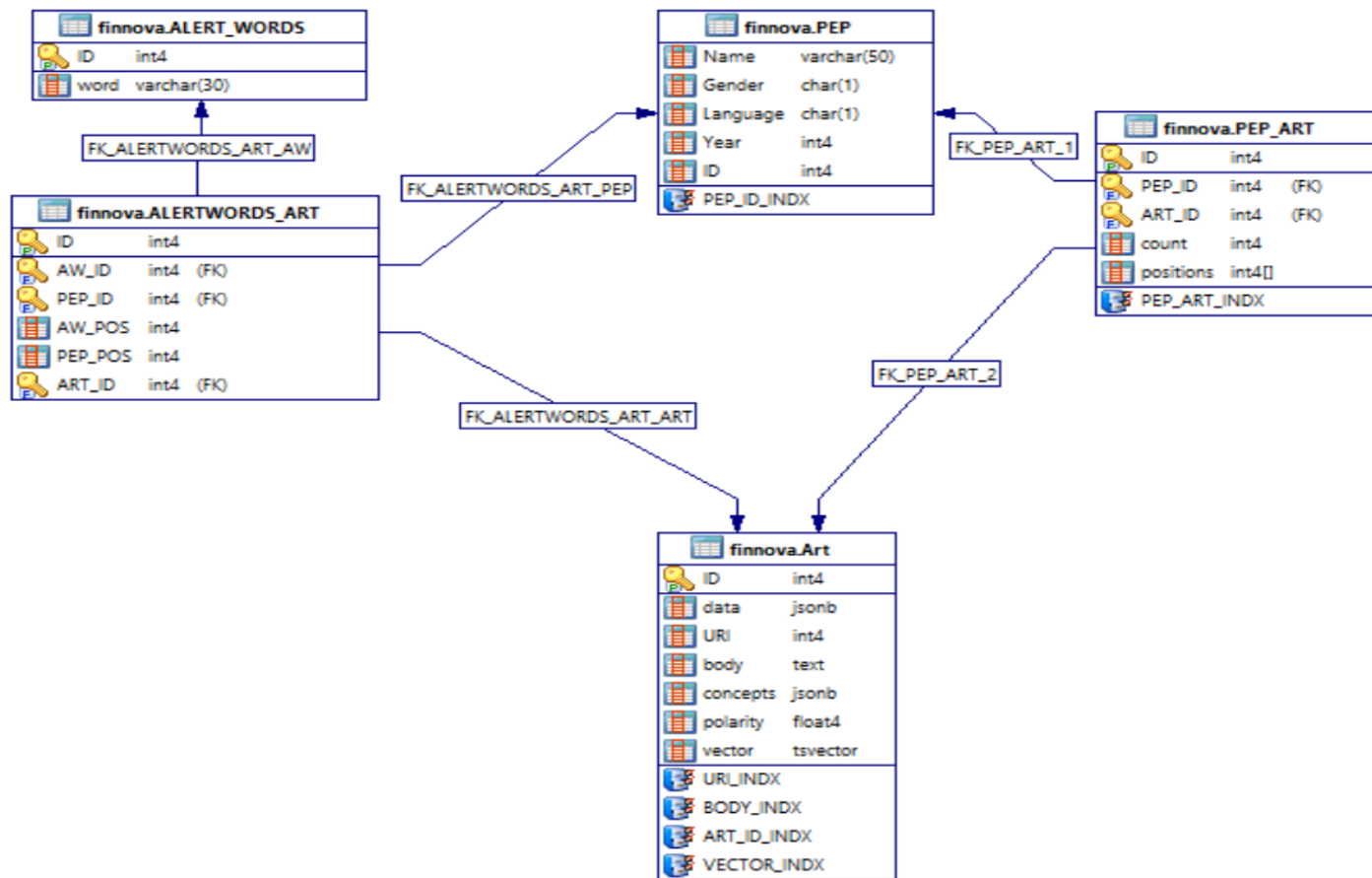
finnova.ALERT_WORDS	
ID	int4
word	varchar(30)

finnova.PEP	
Name	varchar(50)
Gender	char(1)
Language	char(1)
Year	int4
ID	int4
PEP_ID_INDX	
pep_name_idx	

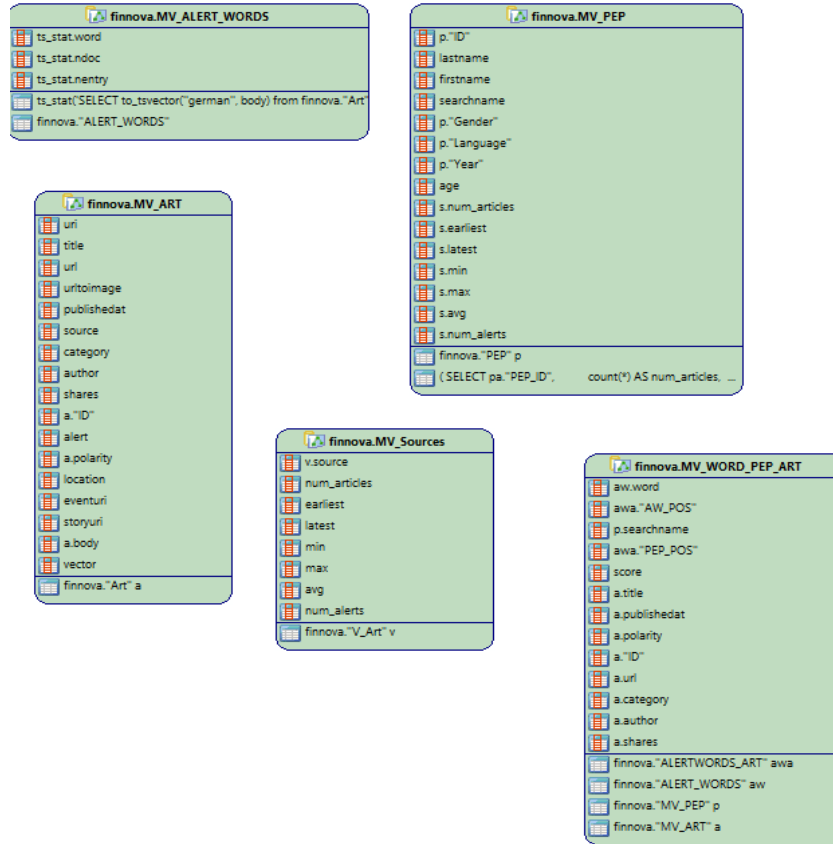
finnova.PEP_ART	
ID	int4
PEP_ID	int4 (FK)
ART_ID	int4 (FK)
count	int4
positions	int4[]
PEP_ART_INDX	

finnova.ALERTWORDS_ART	
ID	int4
AW_ID	int4 (FK)
PEP_ID	int4 (FK)
AW_POS	int4
PEP_POS	int4
ART_ID	int4 (FK)
alertwords_art_aw_id_idx	
alertwords_art_pep_id_idx	
alertwords_art_art_id_idx	

finnova.Art	
ID	int4
data	jsonb
URI	int4
body	text
concepts	jsonb
polarity	float4
vector	tsvector
BODY_INDX	
ART_ID_INDX	
VECTOR_INDX	
URI_INDX	



# DATA BASE DESIGN – MATERIALIZED VIEWS



# DATA BASE DESIGN – USER DEFINED STORED FUNCTIONS

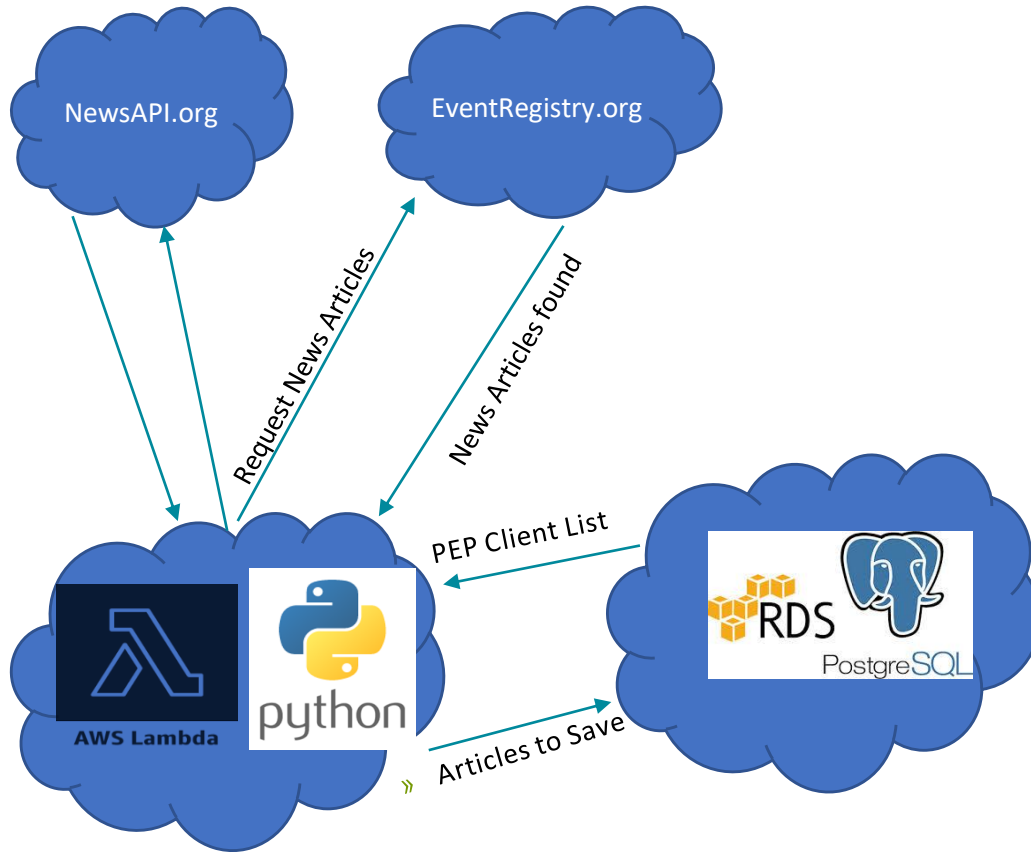
PL/pgSQL was used to write the following user defined stored functions for the project:

- **AddArticle** – With a PEP\_ID and an articles JSON object that was returned from EventRegistry will try to add the article to the data base. First checks if any existing articles are 80% or more similar to the new one. If a similar article is found, the new one will not be added, the PEP\_ID will be associated with the existing article that is most similar to the new one. If no similar articles are found the article will be inserted into the “Art” table.
- **UpdatePep\_Art** – Used to make sure all PEPs within an article are correctly associated with the article in the PEP\_ART table along with the number of times they appear in the article and their word positions in the article.
- **Find\_PEP\_Art** - is used to find the closest PEP to an alert word within an article, at the end the “ALERTWORD\_ART” table is updated with the IDs of the alert word, the PEP, and the article. The word positions of the PEP and alert word within the article is also written to the table.
- **Lexeme\_Occurrences** – is used to find how often where a word appears within a tsvector. It returns the count of how often it appears and an integer array of its positions.



# WE HAVE GREATLY REDUCED THE SIZE OF THE HAYSTACK.





# WHAT GOOD IS DATA, IF NO ONE CAN SEE IT?

Tableau Public was used to make charts and graphs of the collected data.

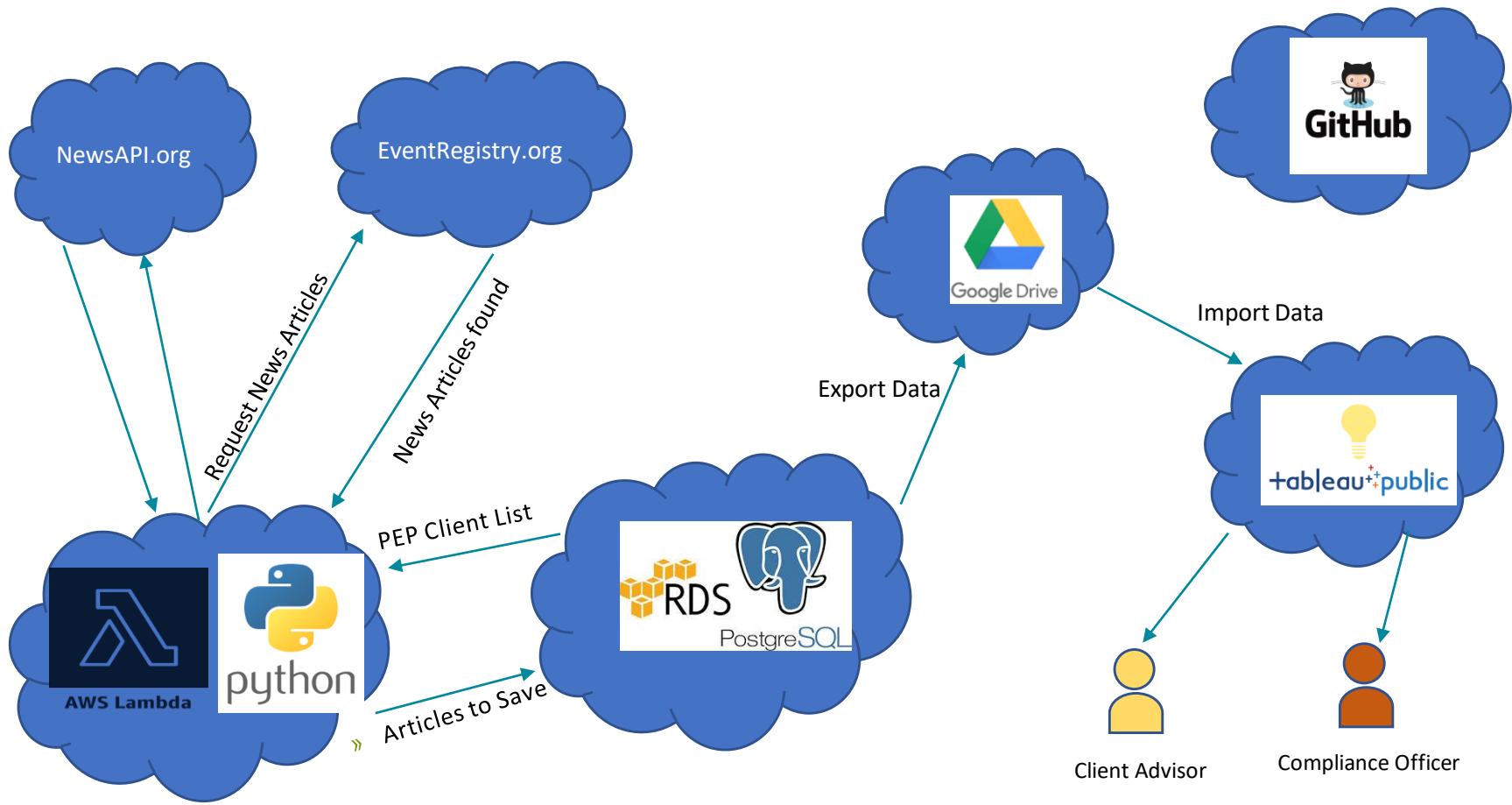
It is the «free» version of Tableau.

One of the big limitations of Tableau Public is it cannot connect to a data base.

Data has to be exported from the data base and imported to Tableau Public.

It can be configured to refresh views from Google Drive once a day.

So the solution is to export to Google Drive.



# ADVERSE MEDIA SEARCH

## Content

- Introduction
- Target Solution - Requirements
- Technical solution
- **Dashboard**
- Implementation in Finnova
- Future enhancements

# DOES ANYONE WANT TO SEE THE DATA??

<https://public.tableau.com/profile/bill.worthington#!/vizhome/AdverseMediaSearch/AdverseMediaSearch>

OR

<https://public.tableau.com/profile/bill.worthington>





# ADVERSE MEDIA SEARCH

## Content

- Introduction
- Target Solution - Requirements
- Technical solution
- Dashboard
- **Implementation in Finnova**
- Future enhancements

# IMPLEMENTATION PLAN I

## Alternative 1

1. Using the lexical approach and expanding Logic to avoid false alerts
2. Extension of the customer attributes with the attribute PEP
3. Extension of the customer connections/relationship with PEP
4. Installing a web crawler to collect the news
5. Sentiment analysis as described and performed in the POC
6. Detection of PEP
7. Key word list must be available, must be changed (deleted, added)
8. Exclusion list must be available, must be changed (deleted, supplemented)
9. Overview for customer advisors with the messages and alerts
10. Overview for the Compliance Manager with the messages and alerts



# IMPLEMENTATION PLAN II

## Alternative 2:

1. Installation of variant 1
2. Collecting data: different examples with alert are needed
3. Continuous cleanup of the data so that training data with results is available
4. As soon as enough data is available, the neural network is trained and the neural network is implemented as an extension to Adverse Media Search.



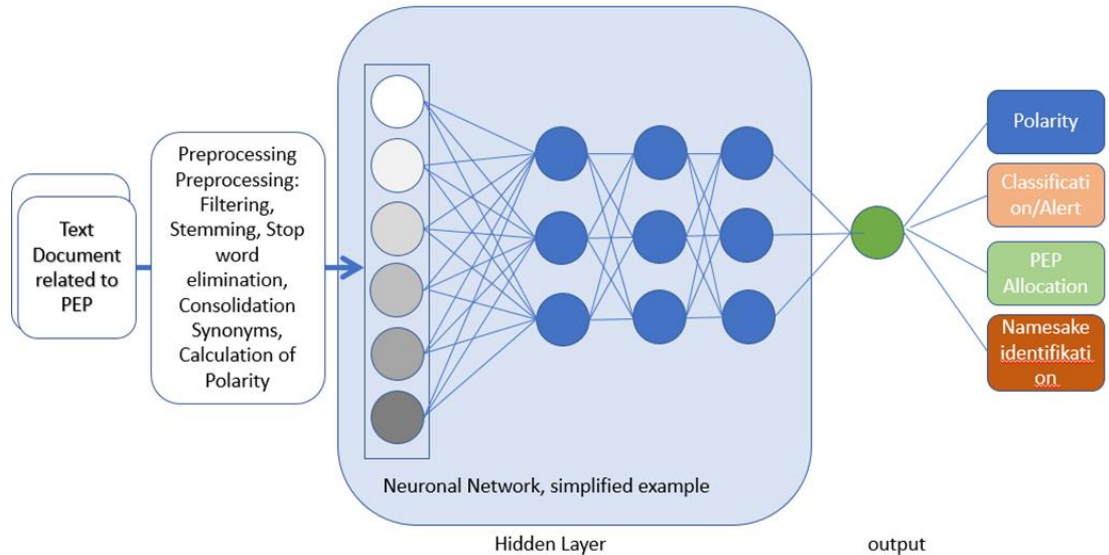
# ADVERSE MEDIA SEARCH

## Content

- Introduction
- Target Solution - Requirements
- Technical solution
- Dashboard
- Implementation in Finnova
- **Future enhancements**

# OPTIONS FOR FUTURE ENHANCEMENTS

With the collecting of enough data for training we can use a decision tree or a neuronal network for the analysis and the alerts



# FURTHER POSSIBLE USES OF TEXT ANALYSIS

## Analysis of News

- Background check for new customer
- Collect articles to own bank
- Collecting articles on the evolution of the stock market, individual stocks, or the economy
- Usage for the Customer advise like wedding, heritage
- Offer to third party companies such as artist agencies, who would like to be informed quickly about news about their clients

## Analysis of Text

- Evaluations of customer feedback and complaints
- Analysis of the text in payment orders to know the customer's use of the products such as mortgages, insurance, third-party investment products.
- Recognizing the purchase of a subscription / service that implies an investment plan, such as buying a home or car



Customer Advice relevant  
Information