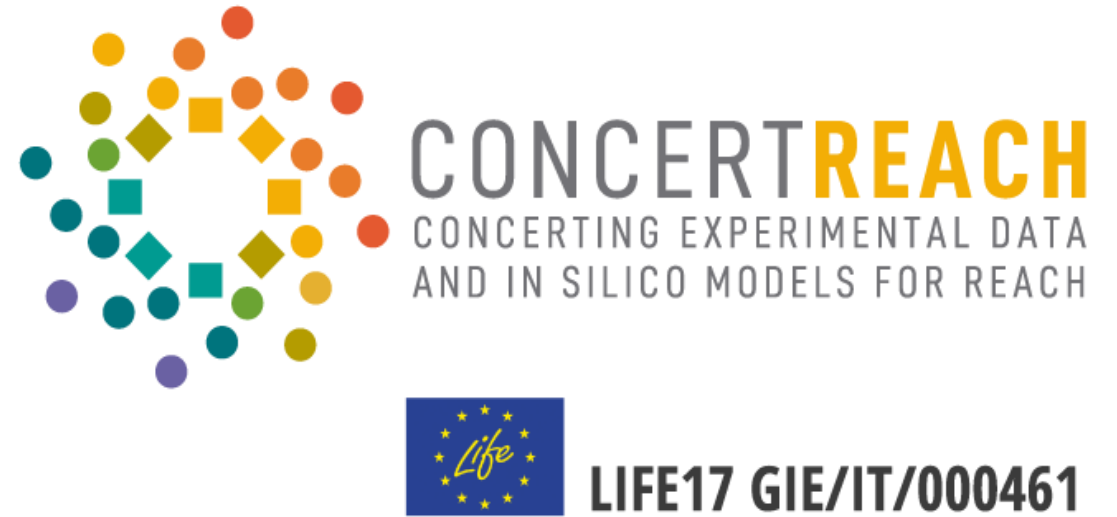


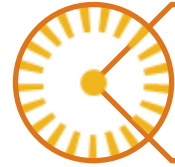
What will be done from here in the project



# ONGOING



Implementation in VEGA of the new models



Read across – new concept of similarity



New outcome of the models



Closer dialogue between NTM



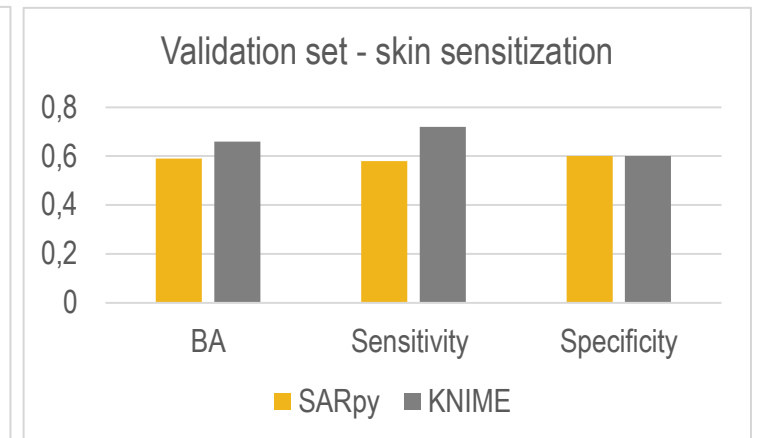
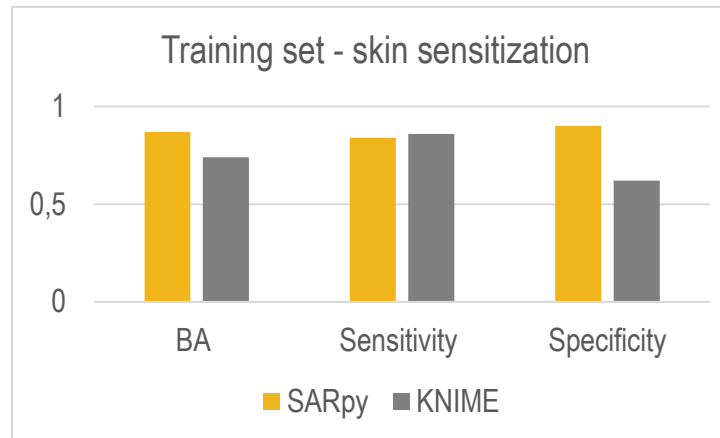
Networking between platforms

ONGOING

Statistics on public  
 and REACH data of  
 some models  
 among the new  
 best 12



## Implementation in VEGA of the new models



### OCHEM model on Vapour pressure endpoint

	R2	RMSE
Training set	0,962	0,69
Validation set	0,762	1,8

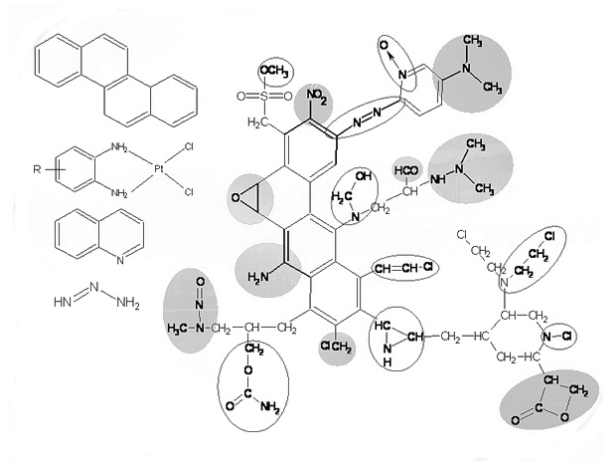
## ONGOING – Better read across



Read across – new concept of similarity

New similarity –  
endpoint specific associated to:

- ❖ Structural Alerts
- ❖ Structural info
- ❖ Phys-chem properties
- ❖ Toxicokinetic behaviour  
(permeation, adsorption..)



+

Struct.  
Simil.

+

MW,  
logP

...

+

MoA



# ONGOING – Exploiting the toDIVINE project, funded by German UBA

## Past experience only ecotox and ED




Read across – new concept of similarity

  
 COMBASE – Workshop, Milano, 17th October 2018  
**UBA-Project: toDIVINE**  
 FKZ 3717 65 417 0  
 Dr. Johann F. Moltmann  
 Section IV 2.3 - Chemicals  
 German Environment Agency (UBA)  
 Dessau-Rosslau (Deutschland)

  
 The UBA-Project "toDIVINE"  
**What does "toDIVINE" mean?**  
**to** Optimise **D**atabases and **I**nnovative **V**irtual Models:  
**I**ntegrating **N**on-testing Methods for **E**nvironmental Properties  
**toDIVINE** \*  
*Exploring the Knowledge Base for the Environmental Risk Assessment of Chemicals with Non-Testing Methods*  
 Istituto di Ricerche  
 Farmacologiche Mario Negri  
 KODE srl  
 IdeaConsult  
 Molecular Networks  


\*) to predict, to anticipate, to prophesy, to guess

  
 The UBA-Project "toDIVINE"  
**Global goals:**  
 Safe use of chemicals:  
 Less hazardous chemicals are found in the environment  
 Protection of man and environment:  
 Pollution with chemicals decreases  
**Context:**

- to reduce overall chemicals use;
- to reduce the use of hazardous substances;
- identification of new SVHC;
- to avoid animal testing and to promote alternative testing methods;
- to commonly regulate substance groups.

## ONGOING – New Applicability domain index



Read across – new protocol

- Dialogue between different elements of similarity
- Exclusion of substances not relevant for the presence of a similar substance with SA not present in the target
- Larger DB, not only model specific
- From ADI towards two tools: one for AD (internal for model) and one for read across

## ONGOING

### Further information to implement in the output of VEGA models:

- SA accuracy (on the whole population)
- Stability of the substance; Phys-chem (MW, logP, WS etc) predicted by VEGA
- Metabolism



### New outcome of the models

- Integrating results of different in silico models from VEGA based on experience within **JANUS**, funded by German UBA
- Pdf as output of read across
- QMRF checked
- More info for QPRF

## ONGOING – Full exploitation of the results

- Making available all elements
- Different organization of the components
- Transparency of the components
- Avoiding confusion
- Facilitating QPRF
- Identification of the key study: read across or in silico (elements of uncertainty)



Dialogue between NTM



# Three lines of evidence for non-testing methods (EFSA, WoE)

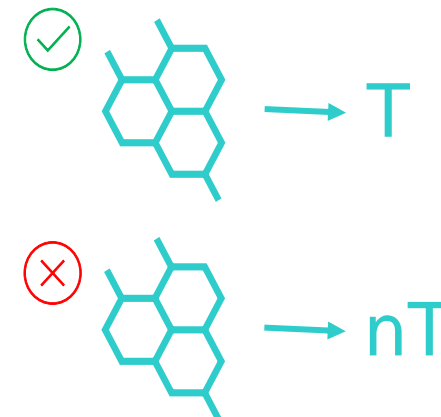
**Experimental data**



**In silico predictions**

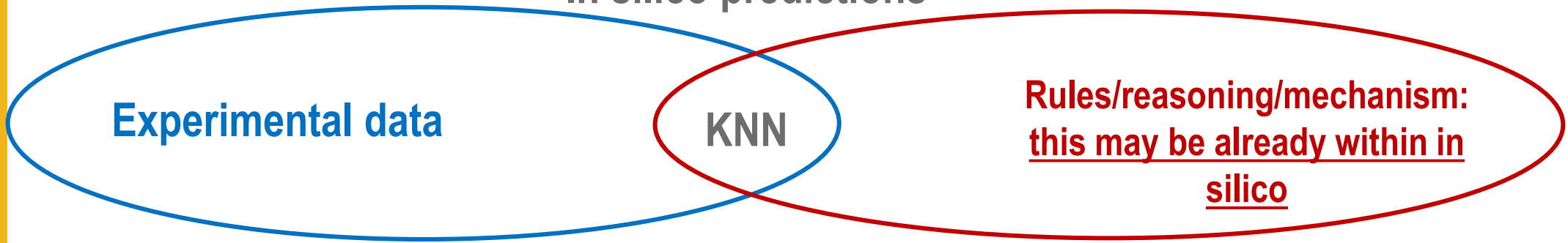


**Rules/reasoning/  
mechanism**

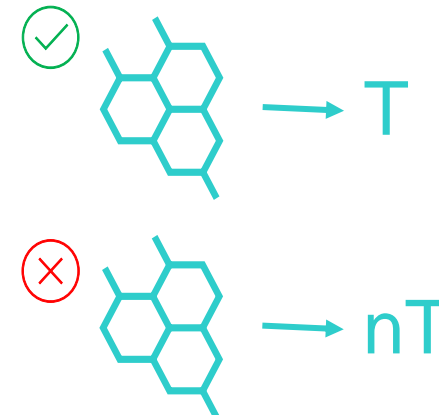


# Different categories of in silico models

In silico predictions



and read across



## DTU - What will be done from here in the project

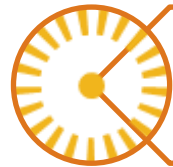
- Choose **more VEGA models** (depending on IRFMN answers to our questions) and **implement them in the Danish (Q)SAR Database**
- Contribute more to web portal: Training in the Danish (Q)SAR Database etc.
- Contribute more information on DTU non-confidential QSAR training sets to IRFMN, as needed
- Contribute to **webinars / e-meetings**
- Contribute to scientific dissemination (conferences / publications)
- Coordinate communication and dissemination task

## OCHEM from now until the project end

- **Interoperability with VEGA**
  - OCHEM models can be exported and used in VEGA
  - External models from VEGA can be supported (standalone version is required)
- **OCHEM will become open source**
- **Possibility to generate QMRF and QPRF will be considered**
  - **Inclusion of model interpretations using deep learning approaches (e.g., Layer wise Relevance Propagation)**
- **Better applicability domain definition and its interpretation (structural alerts)**

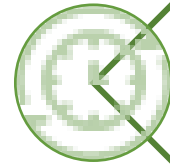
## ONGOING

1. Availability of VEGA within Danish QSAR TB, AMBIT, OCHEM
2. Read-across: support AMBIT and vice versa
3. Prepare a table with all the models available in the different platforms for the endpoints as in REACH (in the four areas: tox, ecotox, envir, phys-chem)
4. Guide to the user: Explain the differences between the different models; Explain different outputs; Help in the integration of results
5. Check QMRF for the same endpoints

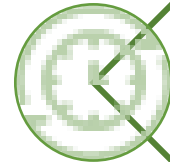


Networking between platforms

## What will be done



Dissemination activities: workshop for industries & for 3 for different sectors: cosmetics, pesticides, food ingredients and contaminants



Upgrading weight-of-evidence algorithm for integrating data from different sources and implementation in **ToxWeight** software.



Developing of a **web-based gateway** to guide users to integrate data from VEGAHUB, AMBIT and the Danish (Q)SAR database.



The use of the tools to characterize the reduction of the impact of substances related to REACH. The impact of the project, specifically on the improved access, usability and compliance with IUCLID scheme, will be evaluated



The socio-economic impact of the results of LIFE CONCERT REACH will be evaluated.

# THANKS

Does anyone have any questions?  
<https://www.life-concertreach.eu/>

