

baa:

Bundesanstalt für Arbeitsschutz und Arbeitsmedizin

02.04.2014



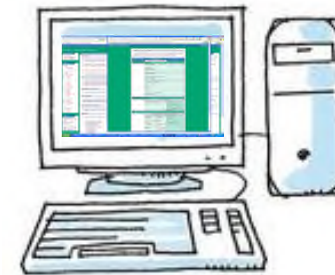
Background and aims of the ETEAM Project Dr. Martin Tischer

Overview

- Observations
- Some characteristics of Tier 1 models
- Methodological approach and goals of the ETEAM project
- Organisational setup

Some observations (1)

- ❖ Almost no measurement data provided in CSR
- ❖ Almost all quantitative exposure estimates provided in the CSR are based on generic models (esp. TRA)
- ❖ Other models are rarely used
- ❖ Predictions are sometimes used outside of the models recommended scope (e.g. aerosol exposure)

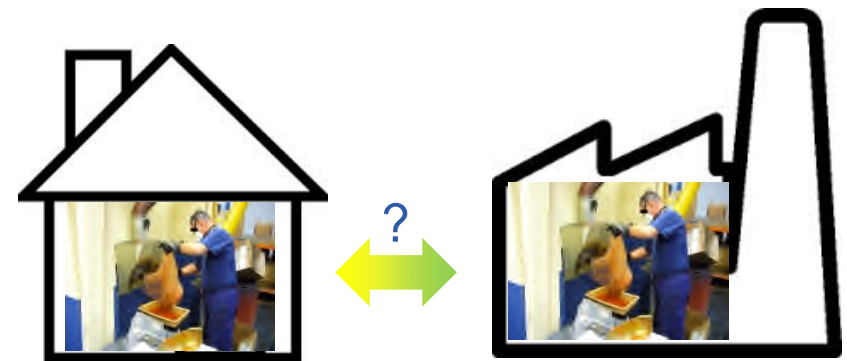


Some observations (2)

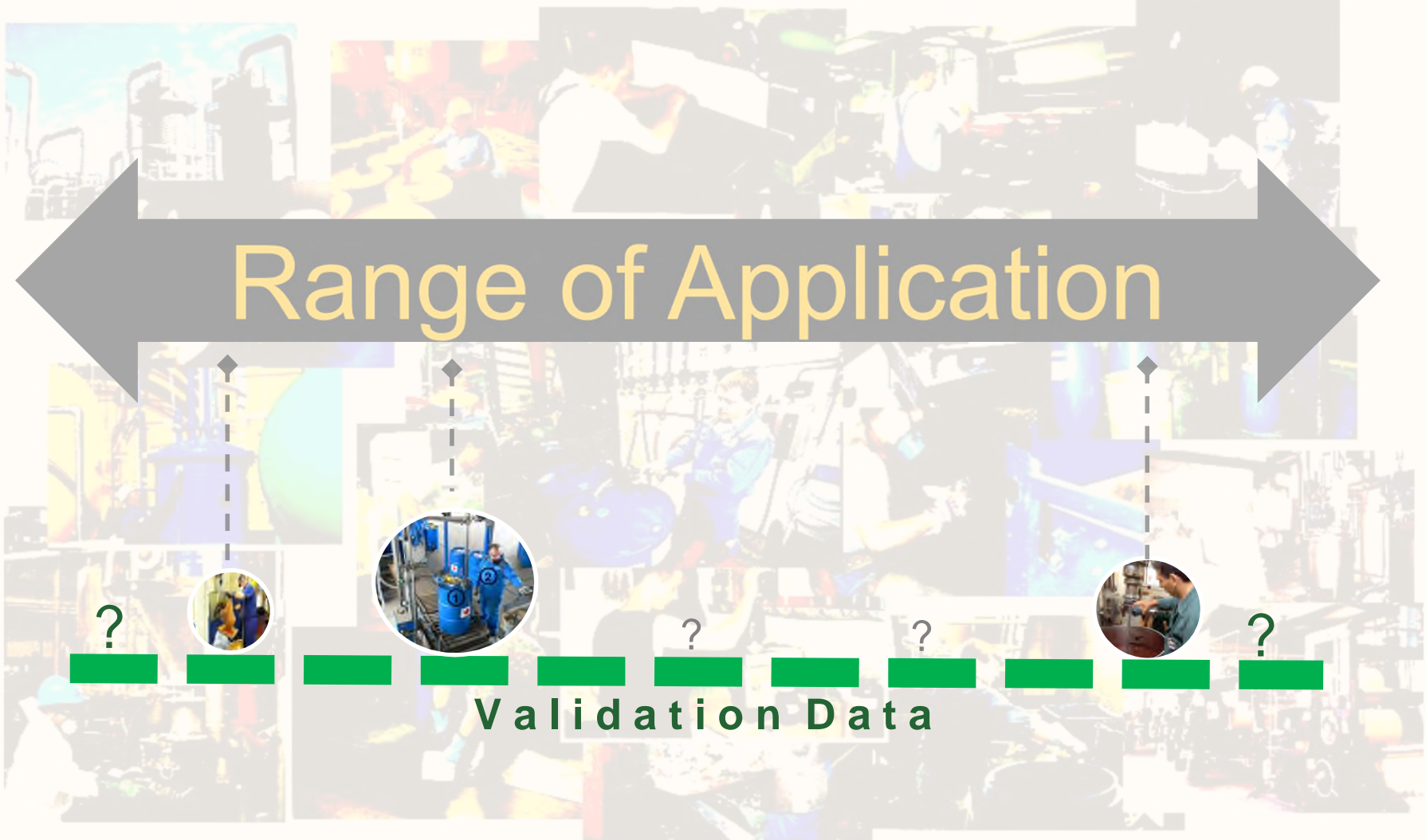
- ❖ Description of exposure scenarios is often too vague and not detailed enough



- ❖ Some PROCs are difficult to distinguish from each other (e.g. professional/industrial)



Broad range of application but limited validation



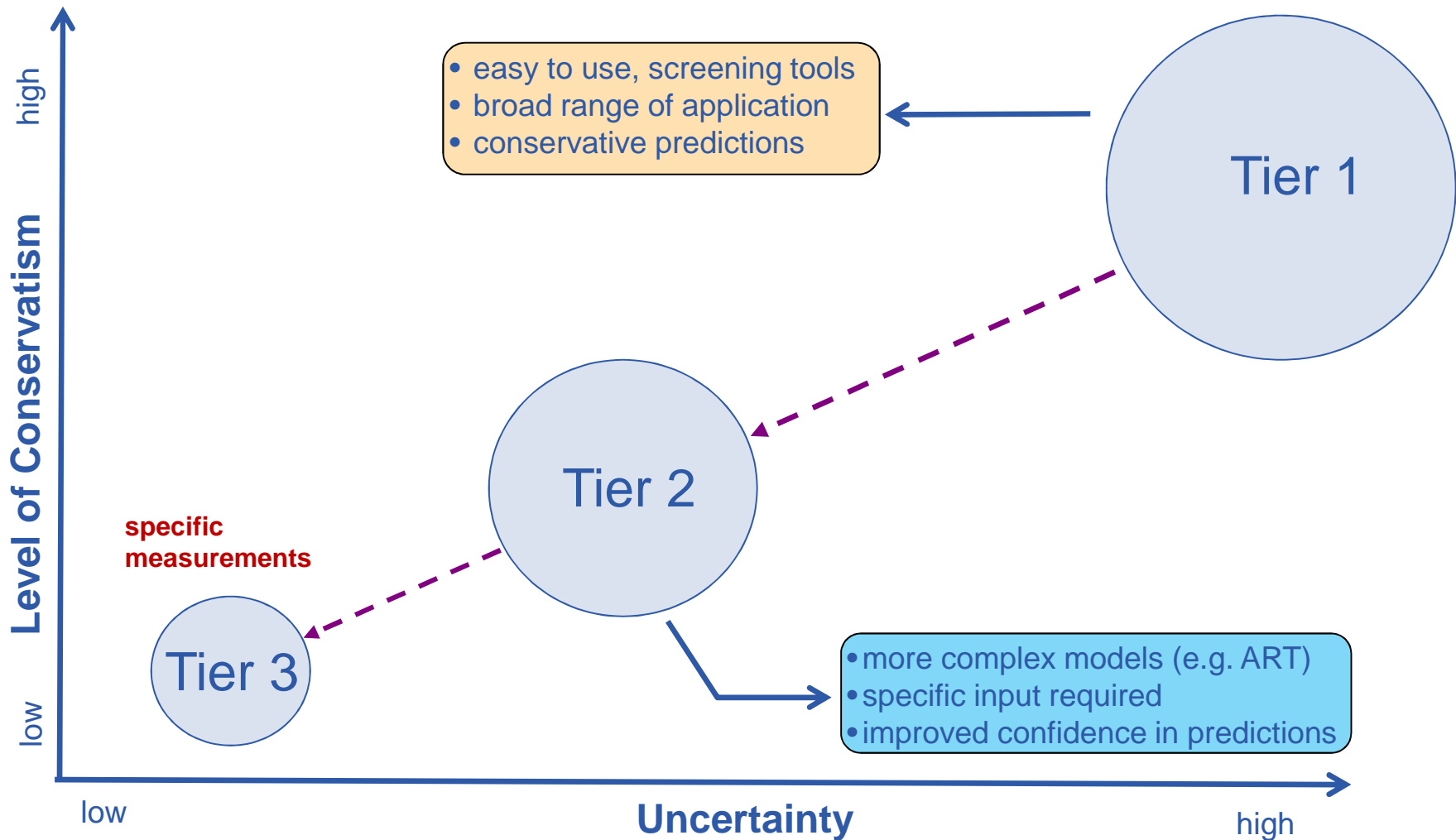
Generic determinants - an issue of uncertainty

Transfer of substance or preparation.. (PROC 8)

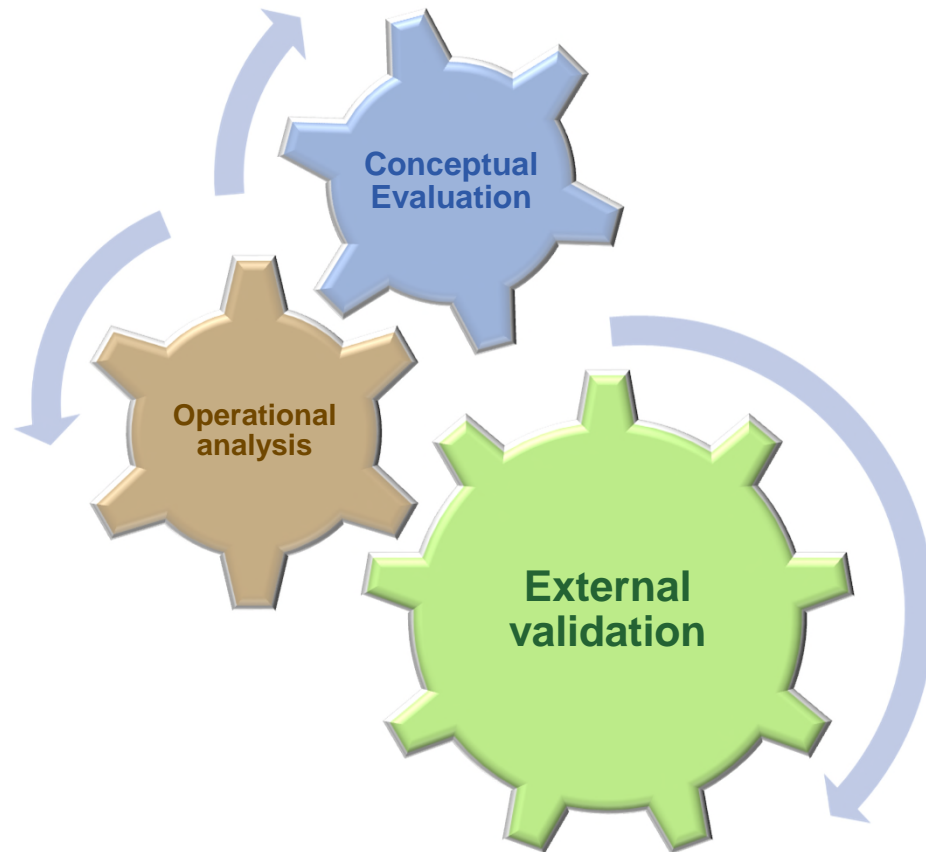
- Task / PROC
- Volatility of substance/
Concentration in a mixture
- Efficiency of ventilation/
local exhaust ventilation
- Frequency/duration of task



Tiered approach:



Methodological approach of ETEAM (Evaluation of Tier 1 Exposure Assessment Models)



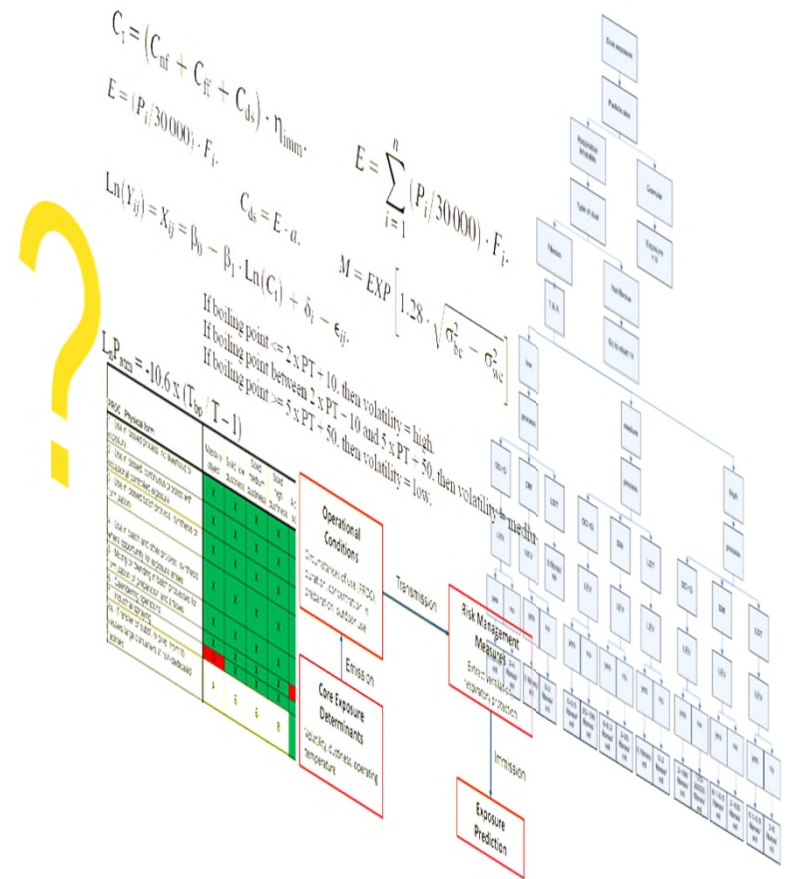
Conceptual Evaluation

Questions of concern:

- Are the model assumptions plausible and consistent with established knowledge and theories?
- How uncertain are the model assumptions and determinants?

Used Methodology:

- Critical analysis based on acclaimed literature knowledge



Operational analysis (human factor)

Questions of concern:

- Is the model understandable by, and of practical value to the target group?
- Do different users arrive at the same results (reliability)?

Used Methodology:

- Evaluation of questionnaires, interviews and workshops



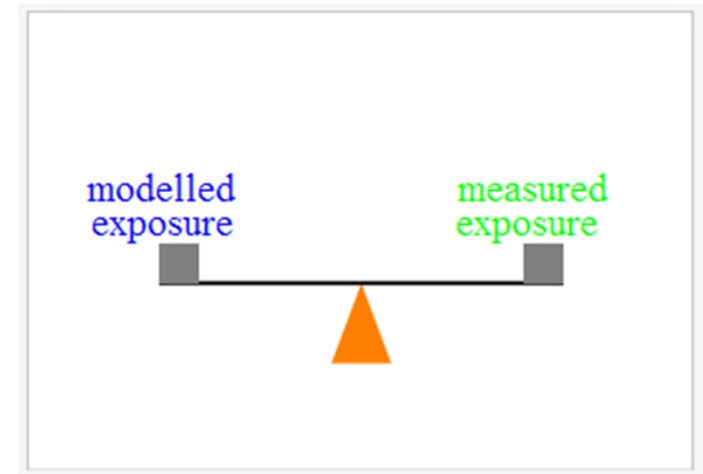
Assessment of the external validity

Questions of concern:

- Do the model estimates correspond with measured data?
- How accurate and precise are the model estimates?
- What's the level of conservatism?

Used Methodology:

- Comparison of model estimates with independent measurement results



Data providers



- IFA



- BAuA



- NIOSH (Eun Gyung (Emily) Lee)



- TNO/ArboUnie



- SUVA



- EBRC



- HSE



- IOM / Fraunhofer ITEM

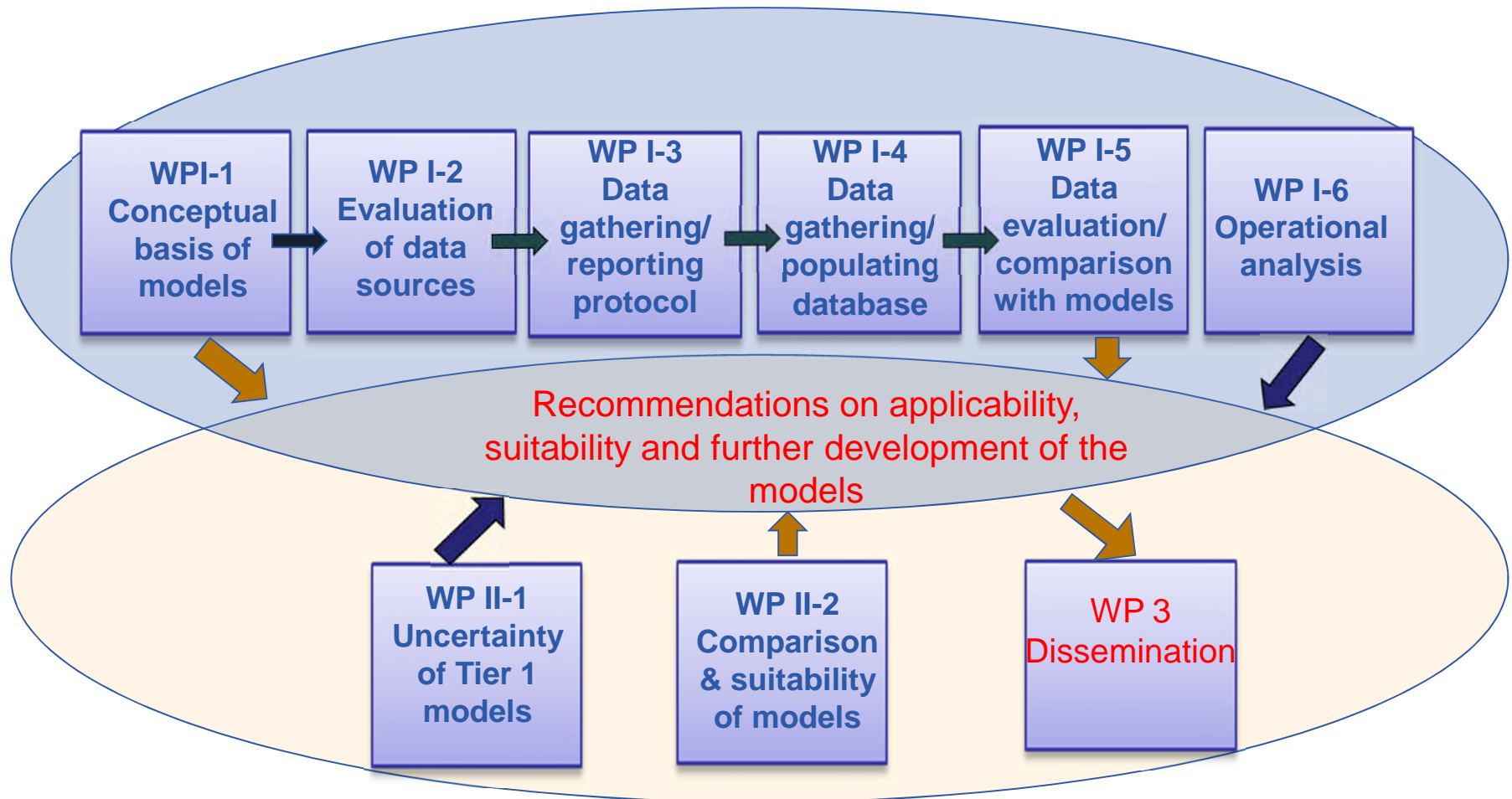


- Lund University

Models to be evaluated:

- ECETOC TRA Versions 2 & 3
(inhalation and dermal)
- Stoffenmanager Version 4.5
(inhalation)
- EMKG-Expo-Tool
(inhalation)
- RISKOFDERM Version 2.1
(dermal)
- MEASE Version 1.02.01
(inhalation and dermal)
- EASE (conceptual evaluation only)

Project overview



Project partners



Bundesanstalt für Arbeitsschutz
und Arbeitsmedizin

Sponsor:

Federal Institute for Occupational Safety and
Health, Dortmund, Germany

Martin Tischer, Urs Schlüter, Gudrun Walendzik, Ralph Hebisch



Contractors:

Institute of Occupational Medicine,
Edinburgh, United Kingdom

Martie van Tongeren, Judith Lamb,
John Cherrie



Fraunhofer Institute of Toxicology and
Experimental Medicine, Hannover, Germany

Susanne Hesse, Katrin Schroeder, Inge Mangelsdorf,
Stefan Hahn

Quality control

International advisory board consisting of

❖ Model developers:

ECETOC (Chris Money), TNO/ArboUnie (Hans Marquart, Henri Heussen, EBRC (Daniel Vetter)), BAuA (Martin Tischer)

❖ Major data providers:

IFA (Dorothea Koppisch), HSE (Christine Northage), SECO (Bojan Gasic)

❖ ECHA participated as observer (Andreas Ahrens)

Role of the Advisory Board

- provide details on scientific assumptions of tier 1 models
- provide measurement data
- review of project deliverables
- attend meetings/telephone conferences,
- ensure objectivity in the validation process.

Dissemination

- Project reports will be published on BAuA website
- Planned series of publications in the Annals of Occupational Hygiene
- Further presentations:
 - REACH Exposure Expert Group (REEG)
 - Dutch Occupational Hygiene Society Conference 2014
 - BOHS Conference 2014



**Thank
you
for your
Attention**

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Bundesanstalt für Arbeitsschutz und
Arbeitsmedizin

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