

A background image showing a view from a helicopter cockpit. The rotor blades are visible in the foreground, and the landscape below, including a river and fields, is seen through the windshield. The text is overlaid on this image.

HOW TO STRENGTHEN THE „HUMAN FACTOR“ IN HELICOPTER OPERATIONS & MAINTENANCE - *PERSONNEL DEVELOPMENT IN AVIATION* -

11th EASA Rotorcraft Symposium, Köln
Prof. Dr. Bettina Schleidt

SRH University of Applied Sciences, Heidelberg
www.Human-Factors-Consult.com / www.ready-for-take-off.de

Bettina Schleidt



- Professor Business Psychology & Human Factors
SRH University of Applied Sciences, Heidelberg
- Diplome Psychology & Doctor Degree
Engineering Psychology
- Commercial Helicopter Pilot
- QM for Part-145 Companies and Heli Operators
- Consultant, Coach and Trainer re/
Human Factors, CRM, Personnel Development..

Agenda

- What is the “Human Factor” in Heli Ops and Maintenance?
- How is the HF related to Safety?
- What is Personnel Development?
- Tools for Personnel Development
- Accident Analysis
- Conclusions

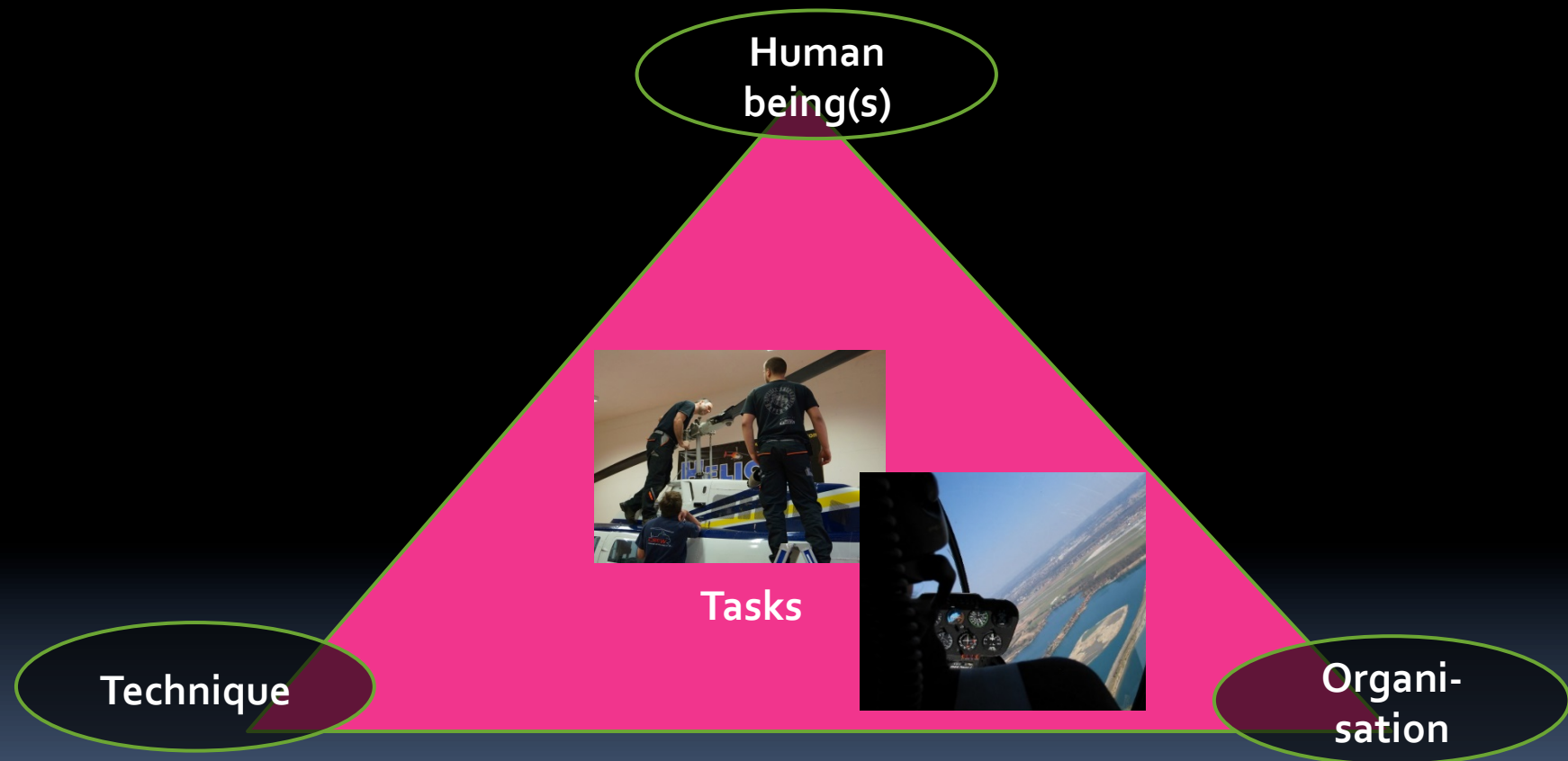


The Human Factor(s)...

- The CORE of every helicopter operation and maintenance..
- Thinking, feeling, acting of the human being in the context of the whole product lifecycle, in the (potential) stress field of man, technology and organisation
- In interaction with a complex socio-technical system

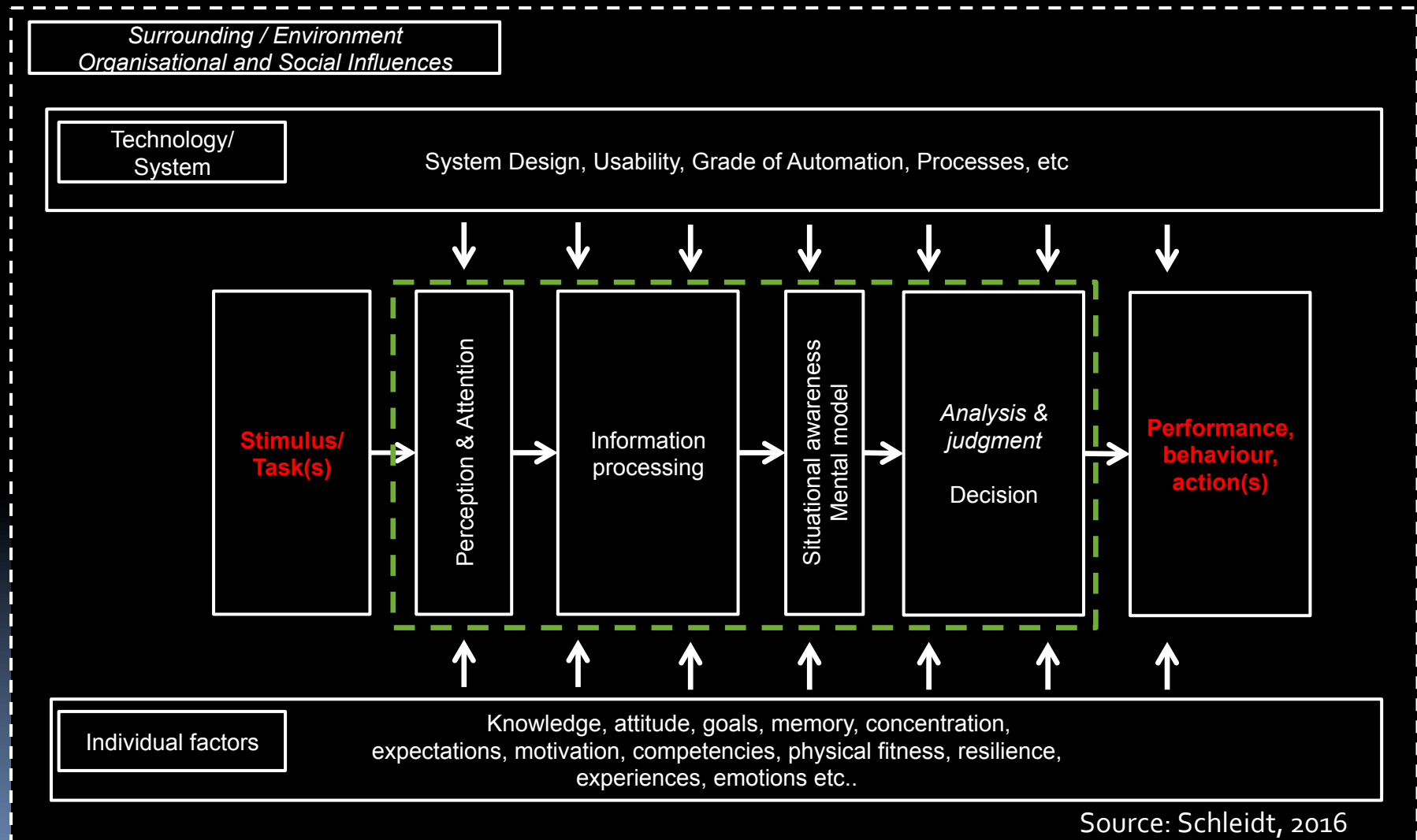


The Human Factor(s)...

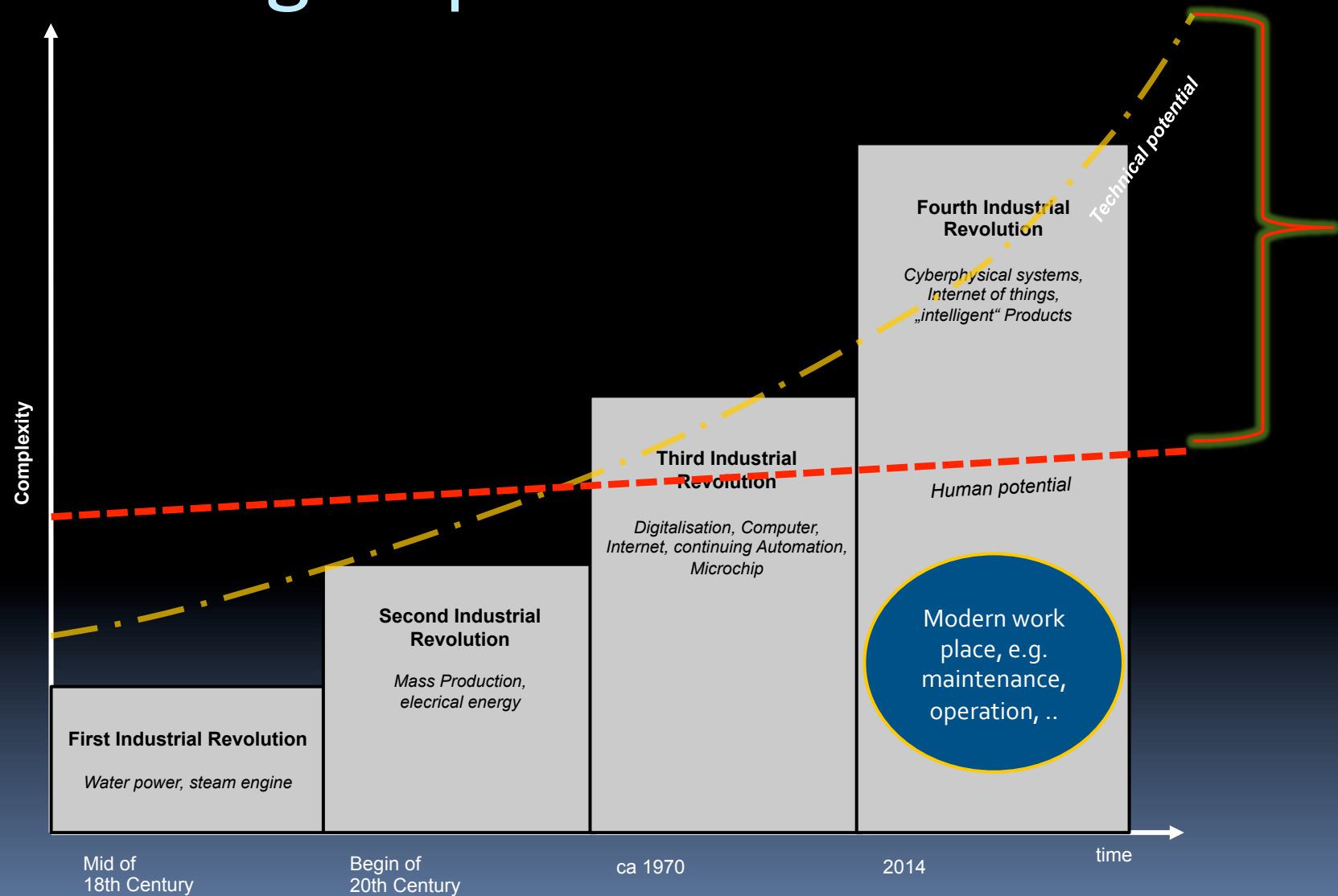


.. Influence of information processing, attention, awareness, personality, learning, experience, communication...
.. Human thinking and behaviour...

Human Factors Frame Work

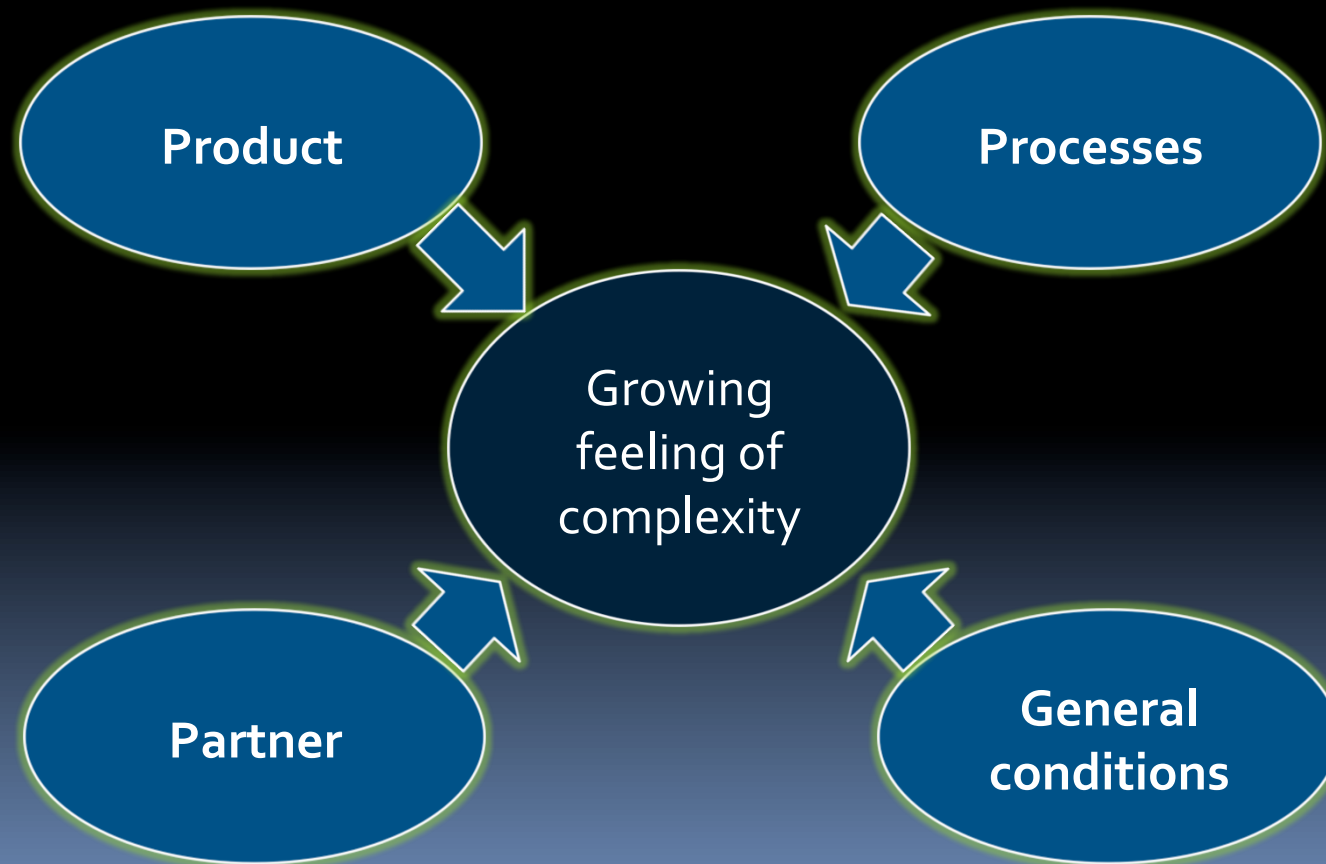


Growing Gap



Source: Schleidt, 2016

How about the feelings of the human being..



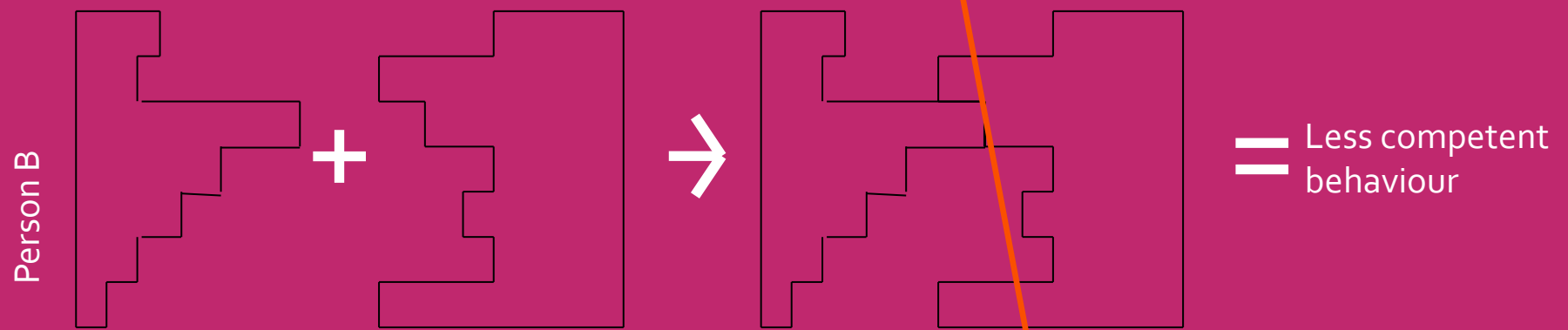
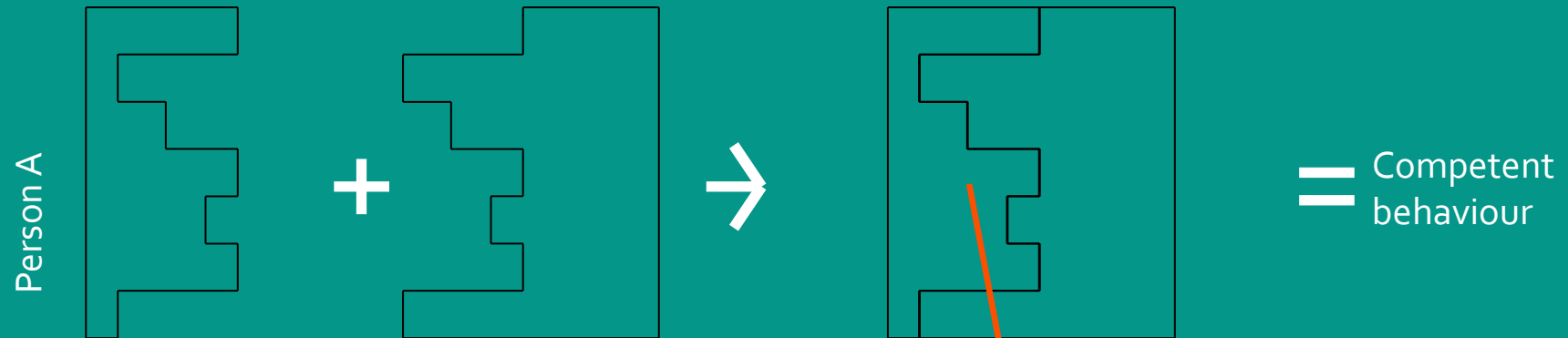


We can not change the
circumstances...

... but we can focus more on the human being...

... this is where structured people development
comes in...

Person-Workplace-Fit

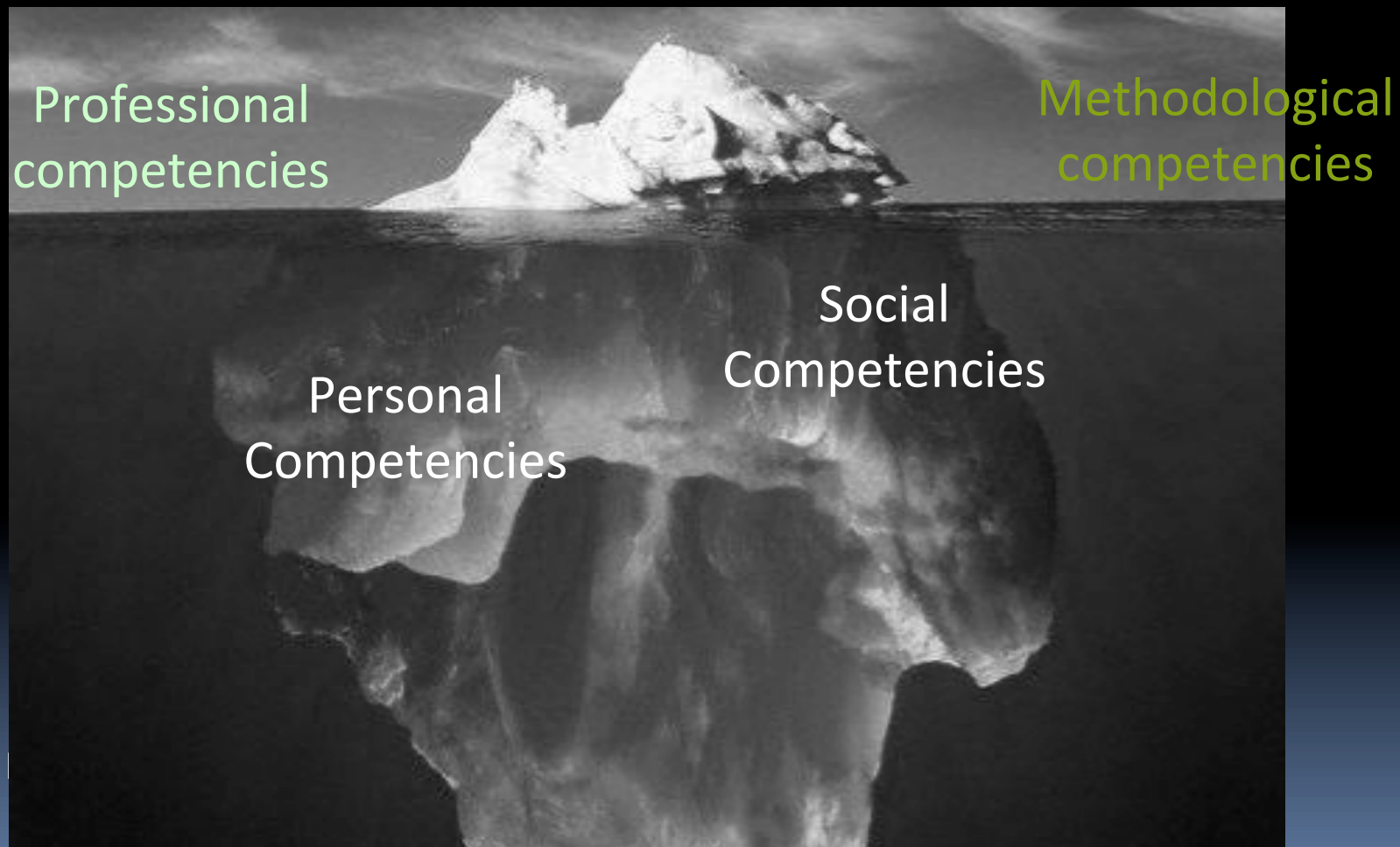


Working
conditions

Competencies

Good FIT

Competency orientation

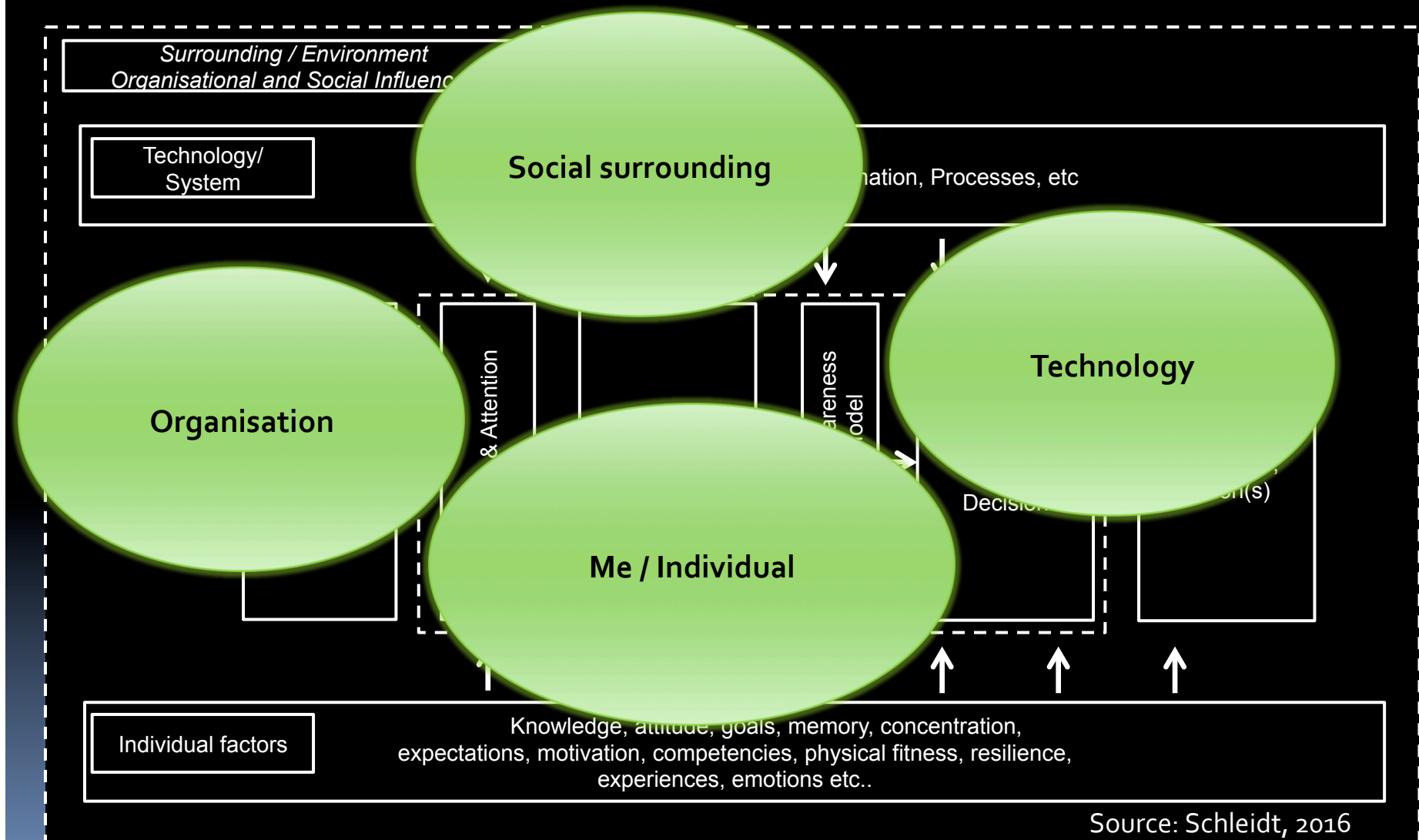


Personnel development

- Systematic support of people in an organisation, e.g. by
 - Seminars or Trainings
 - Coaching & Mentoring
 - Peer supervision and consultation
 - Self reflection and Resource Management
- Goals are to strengthen competencies, to raise the awareness for resources that are available at the single workplace and to enhance safe and healthy decision making and behaviour

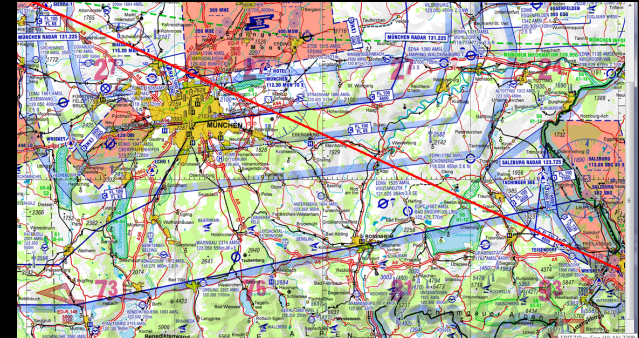
CRM and HF trainings are in place

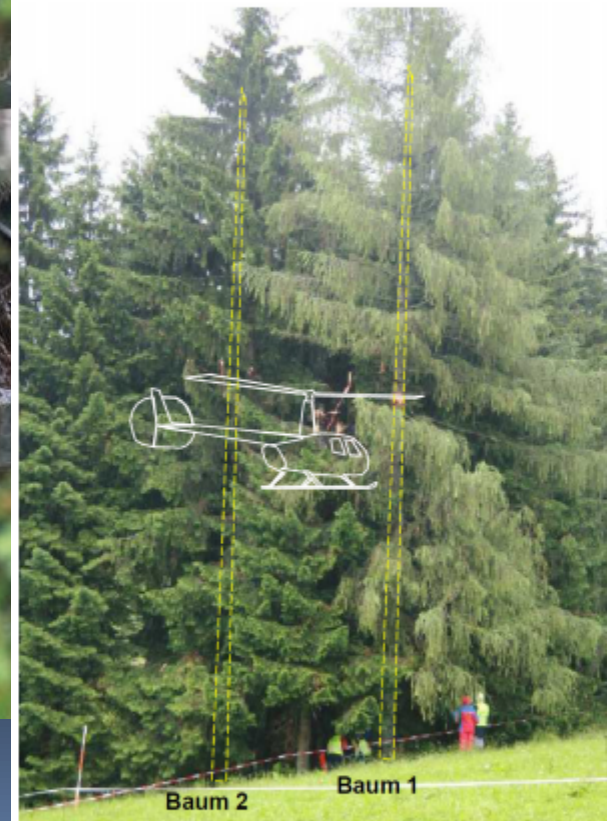
Personal Resources...



Case Study

- 9th of June, 2012
- R44, 1 pilot, 3 pax on board
- Flight path: Augsburg to Salzburg
- At 16:11 hrs LT departure to the south east
- At 17:01 contact between PIC and Tower Salzburg
- 17.06: Area of Traunstein -> change of direction to the south
- Approximately 2 min later flight in low altitude along the highway A8, heading to the east
- At approx. 17:11 Uhr the helicopter flew in deep clouds in raising terrain into forest
- Helicopter completely destroyed, four people lost their lives

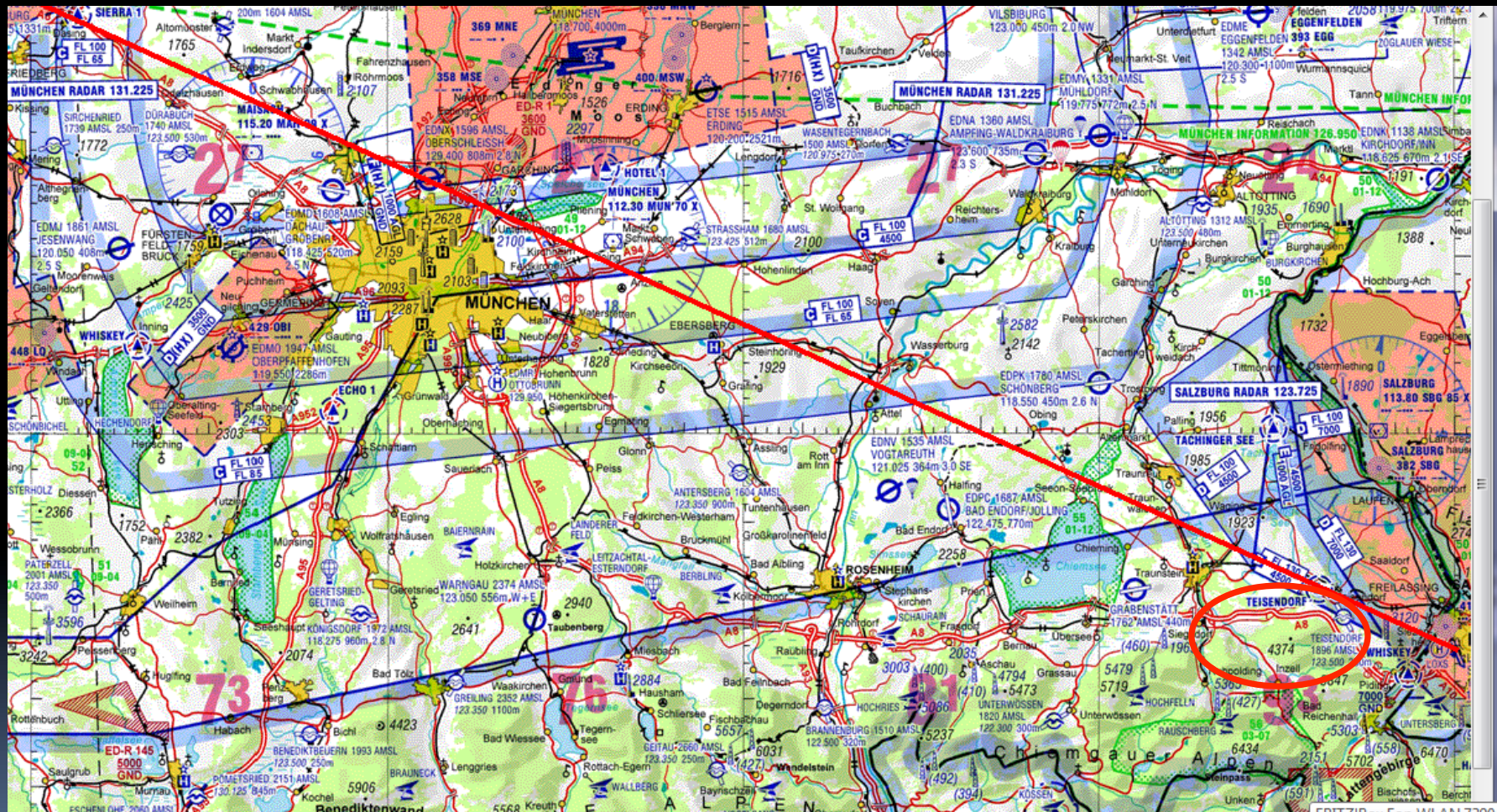


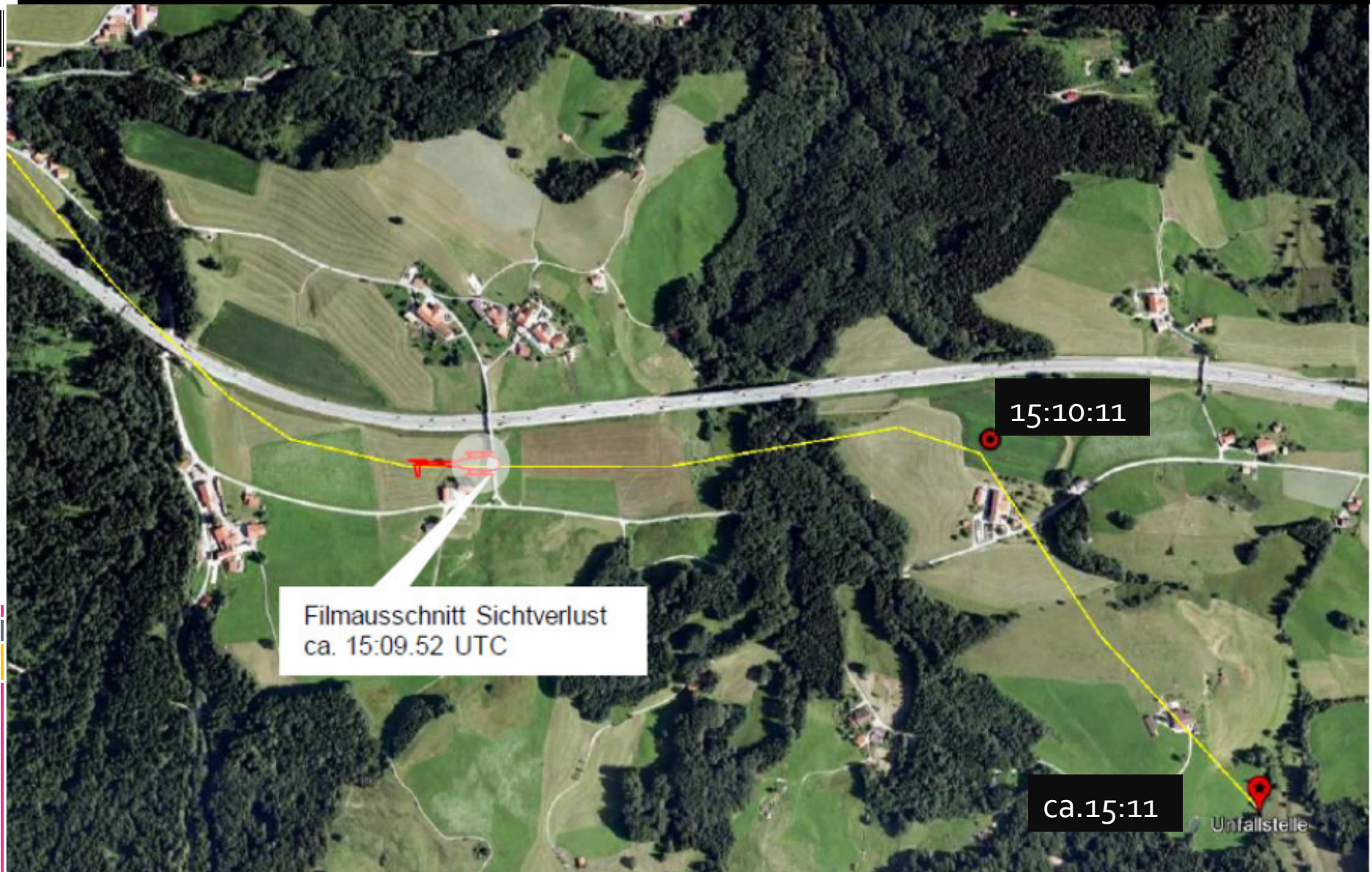


Darstellung der Einfugstelle des Hubschraubers in den Wald

Foto: BFU

Flight path





Source: https://www.bfu-web.de/DE/Publikationen/Untersuchungsberichte/2012/Bericht_12_CX011_R44_Teisendorf.pdf?__blob=publicationFile

Video Recording

- The video recording of one passenger showed that the helicopter flew close to the accident with approx. 80 kts along the highway A8, deep „hanging“ or overlaying clouds and the point where he flew into clouds approx. 1100 m before the accident happened.

Approx. 1 minute flight
without outside visual
orientation/references – no
terrestrial navigation possible
anymore..

Open questions..

- Why did the PIC not continue to fly direction east in plain area?
- How did the pilot understand the communication with the Tower in Salzburg?
- Why did the pilot not make a safety landing (land & live)?
- Why did the pilot not turn around?
- Why did the pilot not stick to the minimum safe altitude over long times?

SN Robinson: „...LOSS OF VISIBILITY CAN BE FATAL... You must take corrective action BEFORE visibility is lost..

Contributing factors

In the
situation

- Experience on the type very low (incl. type rating 13 hrs)
- First time PIC on R44
- (Pilot knew the flight path & approach to Salzburg)
- High workload (navigation, communication, handling of the helicopter..)
- Friends on board..
- Probably no plan „B“ and completely „lost“ in the situation

Contributing factors...

.. personnel development perspective..

- Massive **mismatch** of competencies the pilot gained during basic training and competencies he needed in the described situation

Basic training (private pilot) GER	First experiences as (private) pilot
Insufficient (in flight) training re/ personal competencies like e.g. judgement, decision making, self reflection..	No designated person (e.g. a mentor) to discuss and to learn from
Insufficient training in executing unplanned safety landings	no possibilities to fly as second pilot and so to gain experiences step by step (systematic approach)

Professional Pilot (CPL)

... learning by doing = the opposite of systematic personnel development..

Conclusions

- The circumstances people are facing at the modern workplace **can not be changed**. Human beings follow technology – at least at the moment.
- The way people are trained and how they can be supported systematically to show safe behaviour and to stay healthy and happy 😊 **can change**.
- Let us think beyond existing training approaches!

Sources

- BFU Accident Report: https://www.bfu-web.de/DE/Publikationen/Untersuchungsberichte/2012/Bericht_12_CX011_R44_Teisendorf.pdf?__blob=publicationFile
- Schleidt, B. (2016). Personal Resource Management in der modernen Produktentwicklung. In R. Stelzer (Hrsg.), Entwerfen Entwickeln Erleben 2016. Beiträge zur Virtuellen Produktentwicklung und Konstruktionstechnik (213-222). Dresden: Verlag der Wissenschaften.

