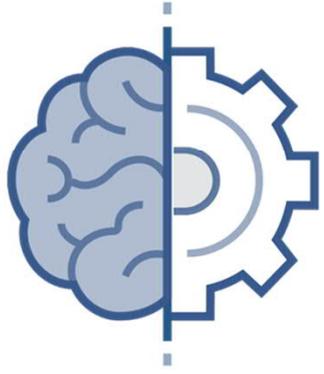


# Menschliche Aspekte von Safety-Projekten

Was Sie in der FuSi Schulung nicht hören

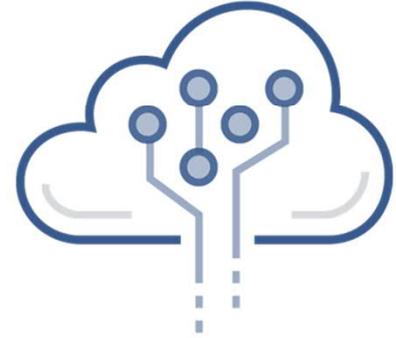
A. Stucki



**Complex Systems**  
DSP | GUI



**Critical Systems**  
Safety | Security



**Connected Systems**  
IoT

# Was Sie in der FuSi Schulung hören

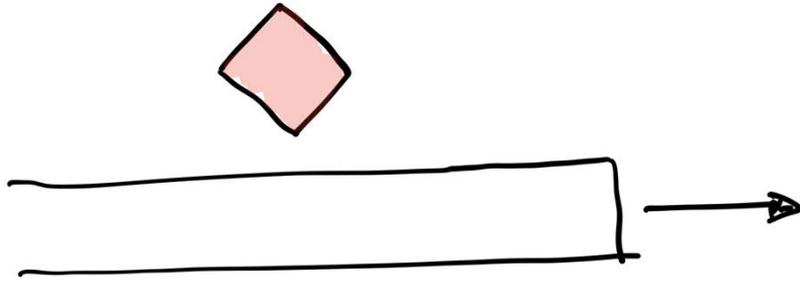
Bürokratie/ Dokumentation: «Papier»

Haftung

Metriken (FIT, SPFM... Coverage...)

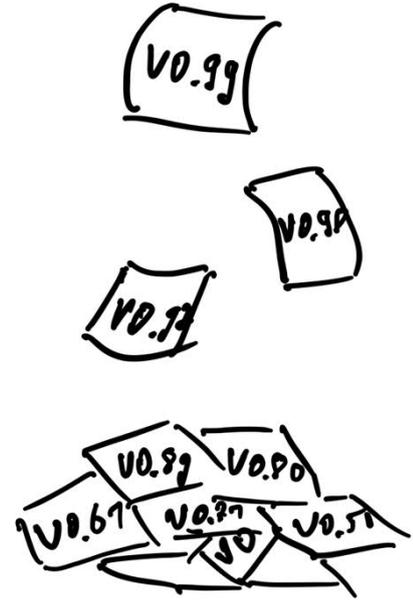
oder doch: gute Qualität/ Ingenieurs-Kultur: Ethik?

# Wo kann es klemmen?



I love deadlines.  
I love the whooshing noise  
they make as they fly by.

Douglas Adams



# Was erwartet Sie?

Wir:

Kultur: eine hilfreiche Definition

Kommunikation: Brücken für schwere Lasten bauen

Ich:

Autorenschaft: selbst (Selbst)Kontrolle übernehmen

Ich-Wir-Es:

Das magische Dreieck zur Zielerreichung

# Es: Funktionale Sicherheit, «sachlich» gesehen

Normen, Prozesse, Pläne, Dokumente, Werkzeuge?

Dann macht mal...

Oder ganz einfach saubere Entwicklung?

soll mal einer sagen, was sauber ist...

# Sicherheitskultur: Kultur?

Kultur :=  $\sum_{\text{Mitarbeiter}}^{\text{Vorstand}}$  Gewohnheiten

# Culture eats Safety for Breakfast...

Kultur :=  $\sum_{\text{Mitarbeiter}}^{\text{Vorstand}}$  Gewohnheiten

# Wir?

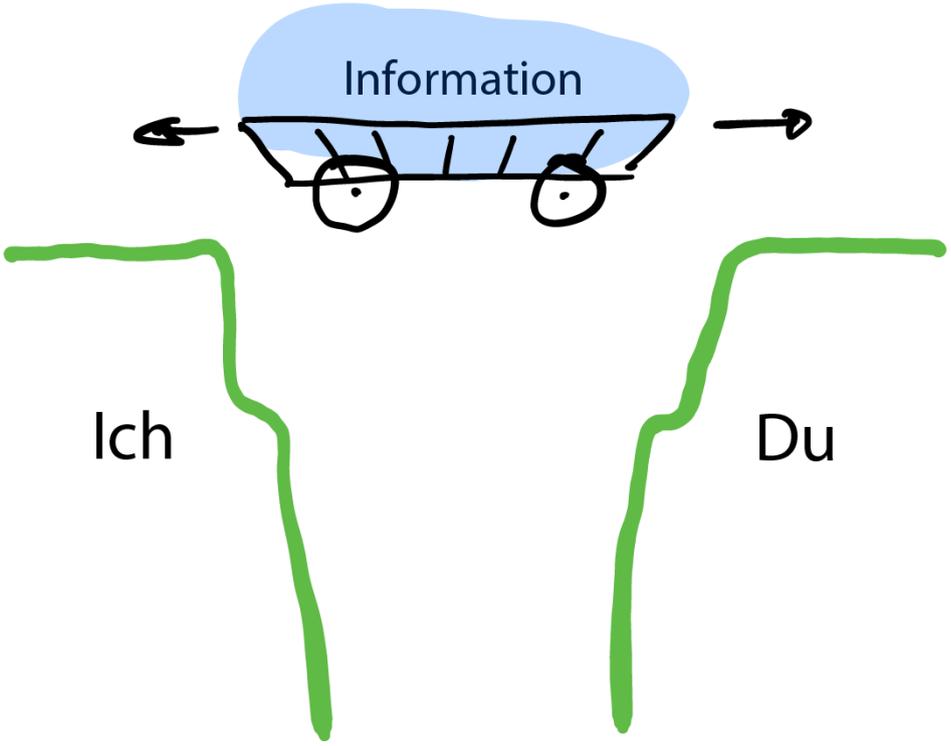
Wer gehört zu uns (Lieferkette, TÜV, Abteilung...)

Es: Dienstweg & Dokumente

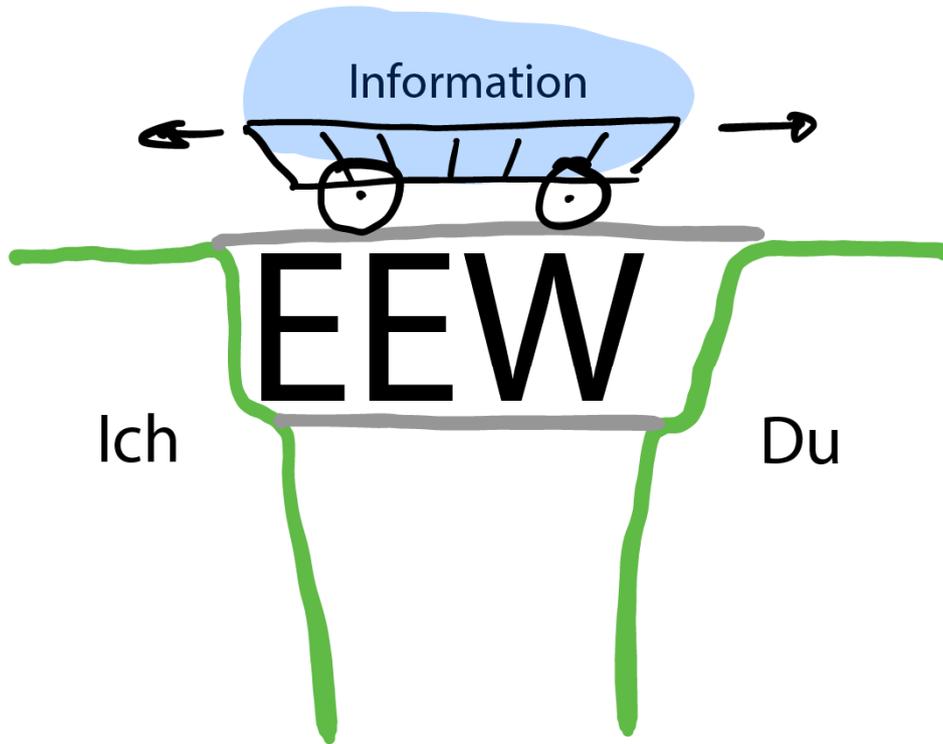
Qualität entspricht gefordertem Sicherheitslevel?

Konsens («engineering judgement»)

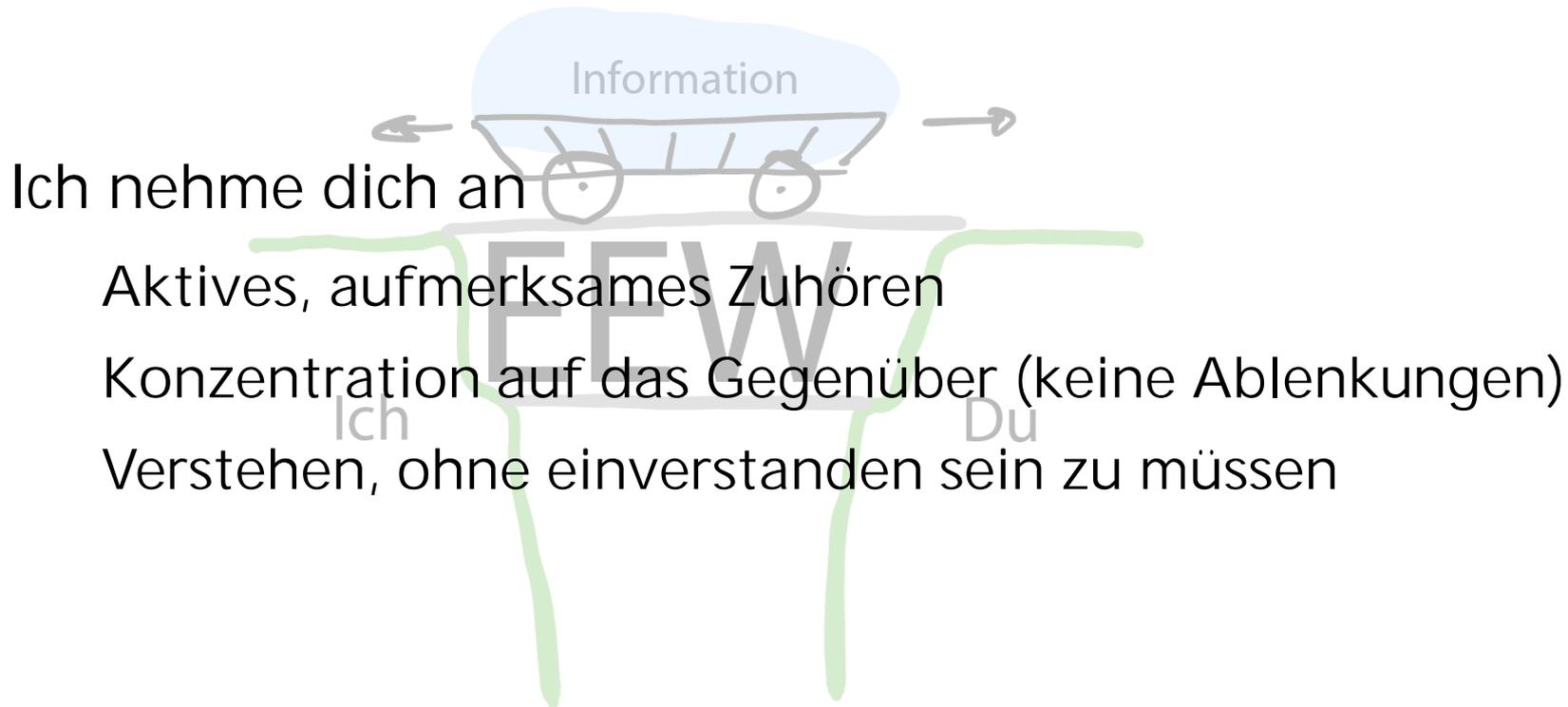
Konsens: «So tun wir es hier» = Gewohnheiten



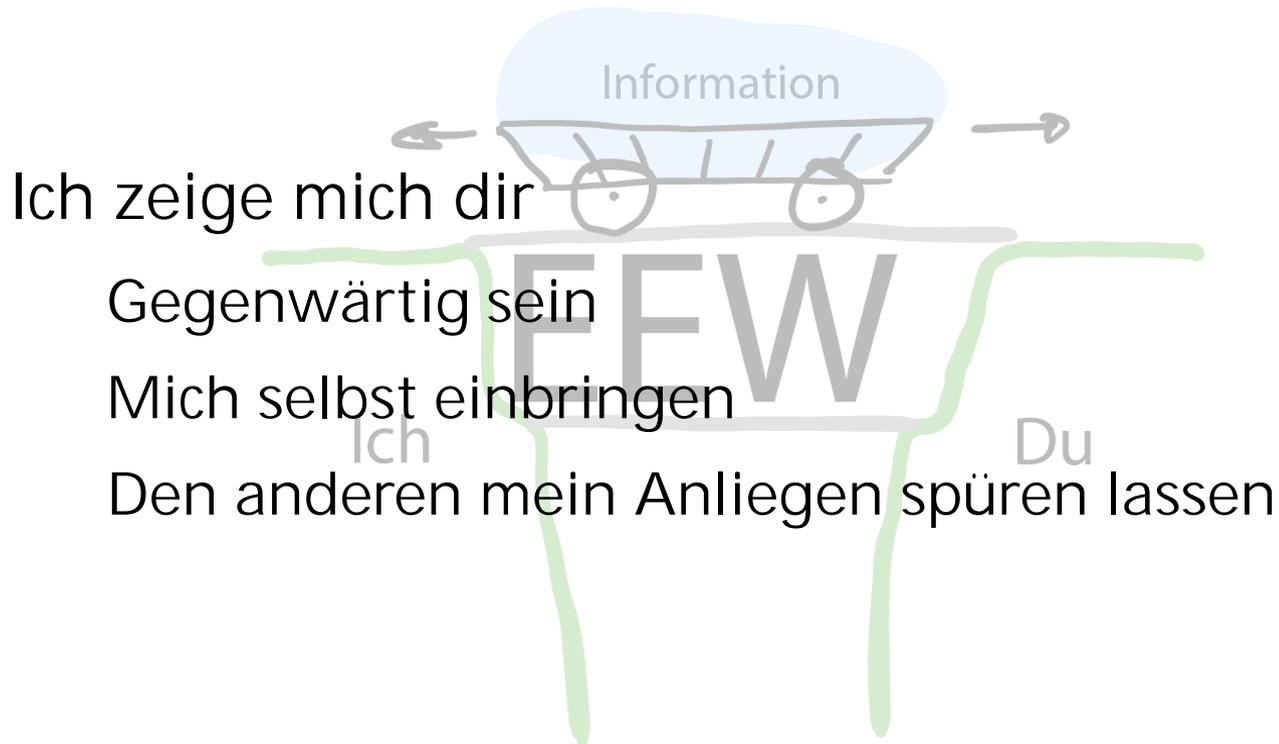
# Brückenbau



# Brückenbau: Empathie



# Brückenbau: Echtheit



# Brückenbau: Wertschätzung



Du hast einen (leistungsunabhängigen) Wert

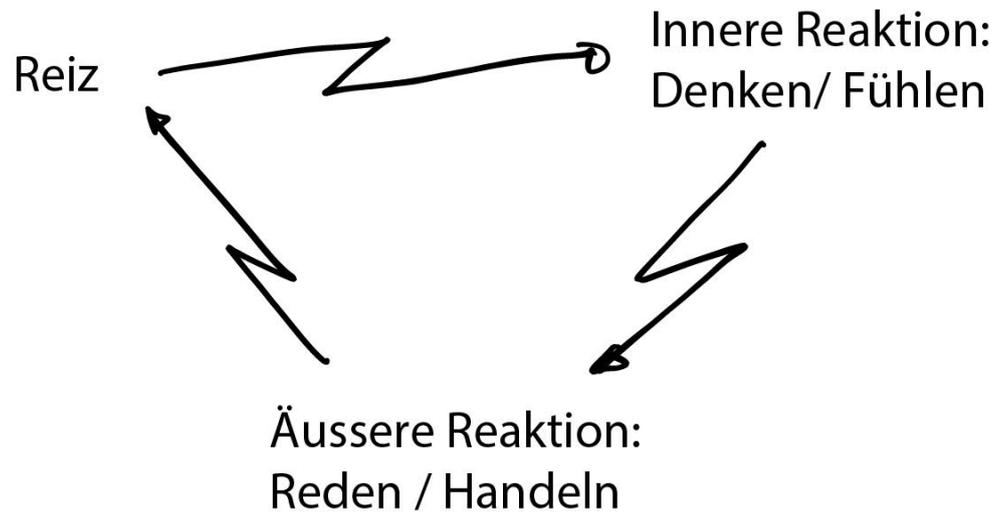
Den ganzen Menschen sehen, ihn nicht als Ding behandeln

Das Gegenüber bejahen

Taten sprechen mehr als Worte: z.B. ausreden lassen, danken,  
Vertrauen schenken...

# Reaktion auf Ereignisse/ Reize

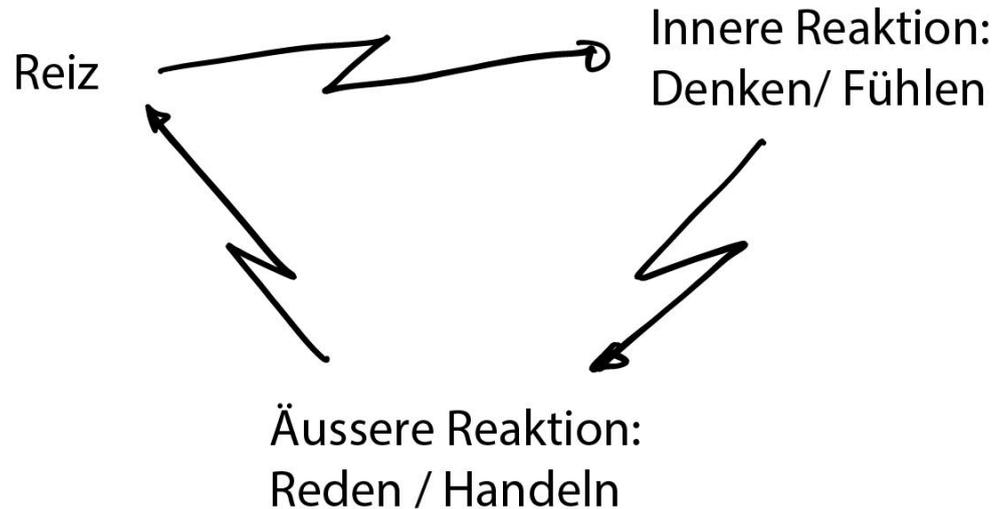
«Behaviorismus»



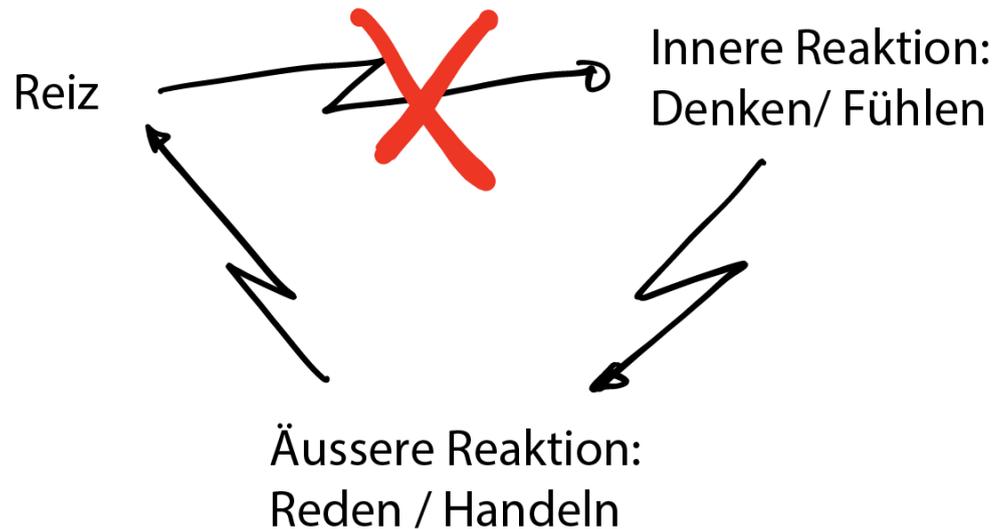
Will ich das sein?

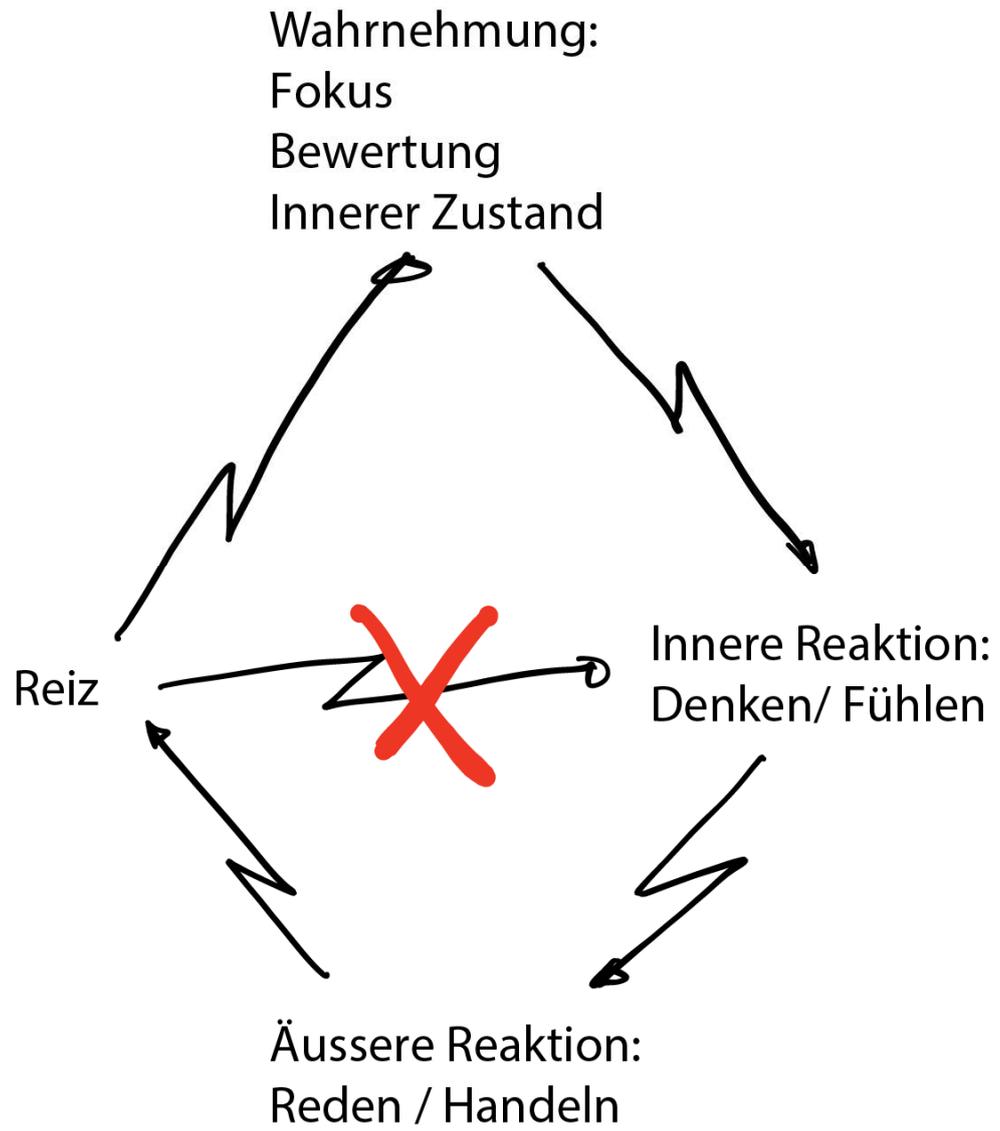
Reiz-Reaktions Maschine

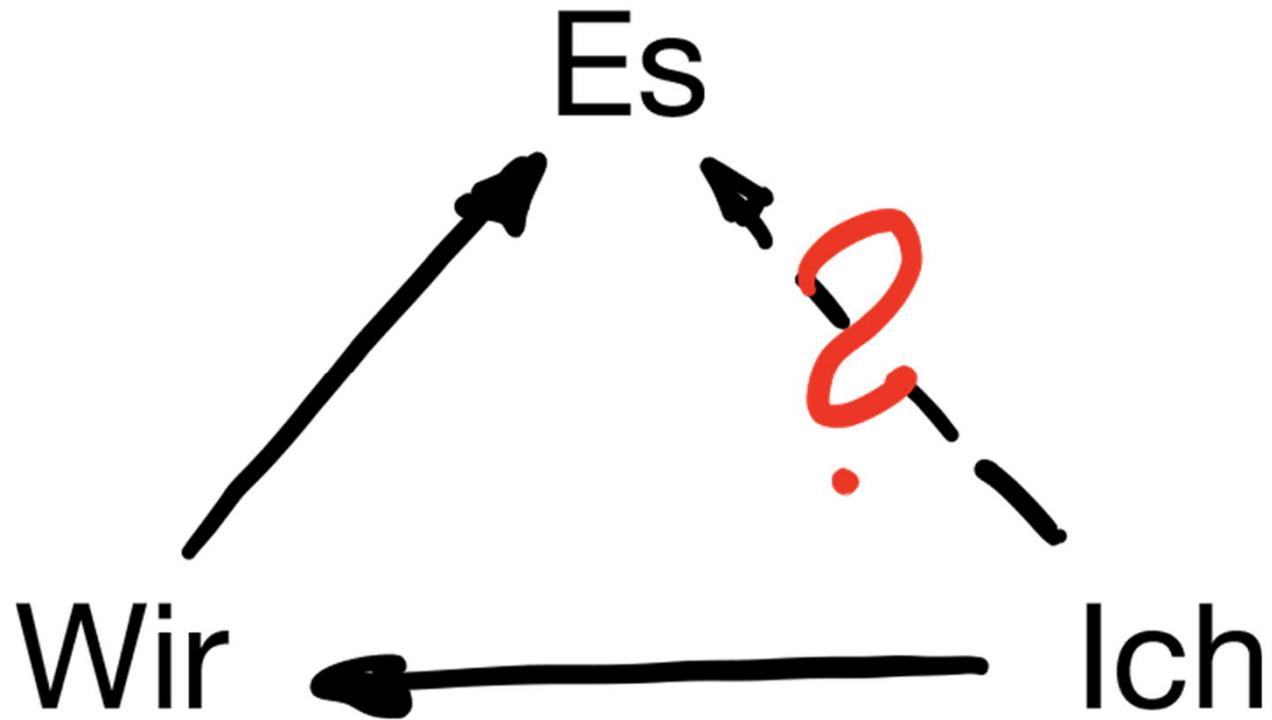
Opfer: «ich kann nicht anders»



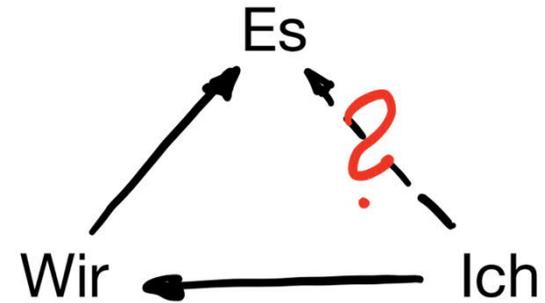
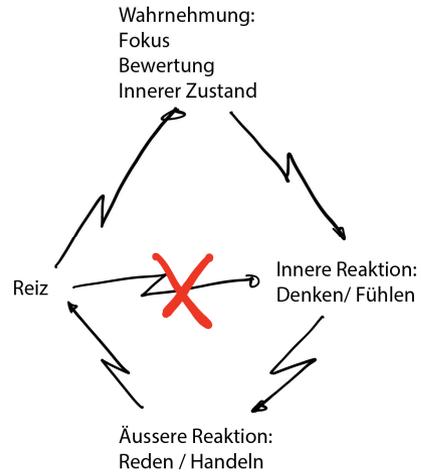
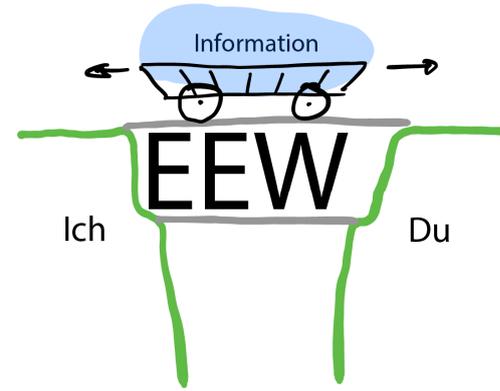
# Response-Ability





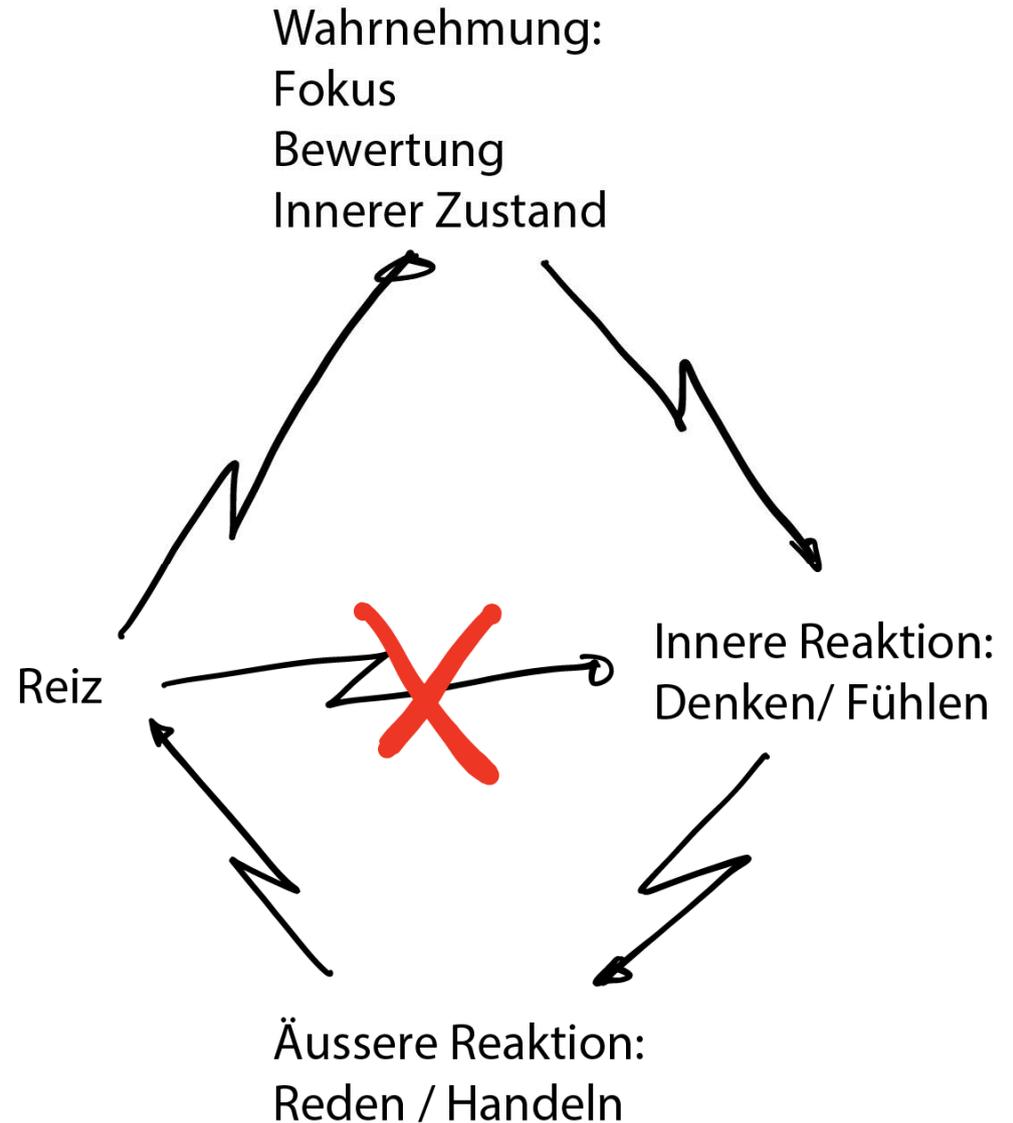


Kultur :=  $\sum_{\text{Mitarbeiter}}^{\text{Vorstand}}$  Gewohnheiten



# Modelle

all models are wrong,  
but some are useful



# Referenzen

A. Gorbach, J. Dannath-Schuh, F. Cusumano: "Orientierung für Führungskräfte", 2019, ISBN 978-3-648-12240-2

Manres AG, [www.manres.ch](http://www.manres.ch)

# Änderungsverzeichnis

Version	Entwurf/ für Review/ Freigegeben	Datum	Verantwortlich	Kommentare/ Änderungsverlauf
00.01	Für Review	2019-11-29	a2s	Erster vollständiger Draft
00.02	Für Review	2019-12-02	a2s	Kleine Typos & Korrekturen, wie gehalten
01.00	Freigegeben	2019-12-09	a2s	Pseudo-Animationen entfernt

**Table B.1 — Examples for evaluating a safety culture**

Examples indicative of a poor safety culture	Examples indicative of a good safety culture
Accountability is not traceable	The process assures that accountability for decisions related to functional safety is traceable
Cost and schedule always take precedence over safety and quality	Safety is the highest priority
The reward system favours cost and schedule over safety and quality	<p>The reward system supports and motivates the effective achievement of functional safety</p> <p>The reward system penalizes those who take shortcuts that jeopardize safety or quality</p>
Personnel assessing safety, quality and their governing processes are influenced unduly by those responsible for executing the processes	The process provides adequate checks and balances, e.g. the appropriate level of independence in the integral processes (safety, quality, verification, safety validation and configuration management)
<p>Passive attitude towards safety, e.g.</p> <ul style="list-style-type: none"> <li>— heavy dependence on testing at the end of the product development cycle,</li> <li>— management reacts only when there is a problem in the field</li> </ul>	<p>Proactive attitude towards safety, e.g.</p> <ul style="list-style-type: none"> <li>— safety and quality issues are discovered and resolved from the earliest stage in the product lifecycle</li> </ul>
The required resources are not planned or allocated in a timely manner	<p>The required resources are allocated</p> <p>Skilled resources have the competence commensurate with the activity assigned</p>