



On Chosen Complexity

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The distinctive concerns of software engineering are: [...]
How to maintain intellectual
control over complexity in large doses.

Frederick P. Brooks Jr.

The art of programming is the art of
organizing complexity.

Edsger W. Dijkstra

Our ability to **imagine complex applications** will always
exceed our ability to build them.

Grady Booch

Complex

Enabling constraints
Loosely coupled
probe-sense-respond
Emergent Practice

Complicated

Governing constraints
Tightly coupled
sense-analyse-respond
Good Practice

Chaotic

Lacking constraint
De-coupled
act-sense-respond
Novel Practice

Obvious

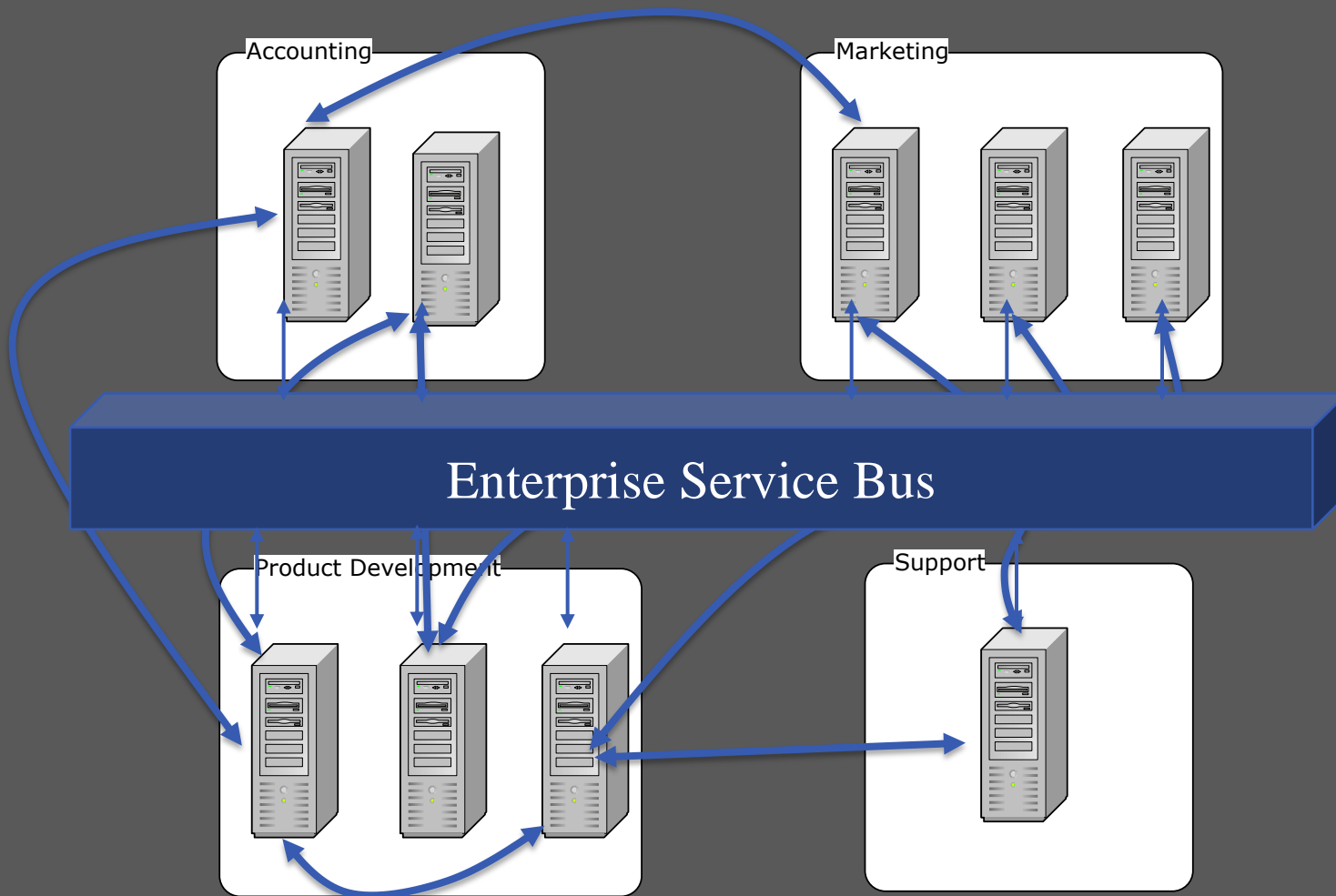
Tightly constrained
No degrees of freedom
sense-categorise-respond
Best Practice



Foto: Matthias Windischer

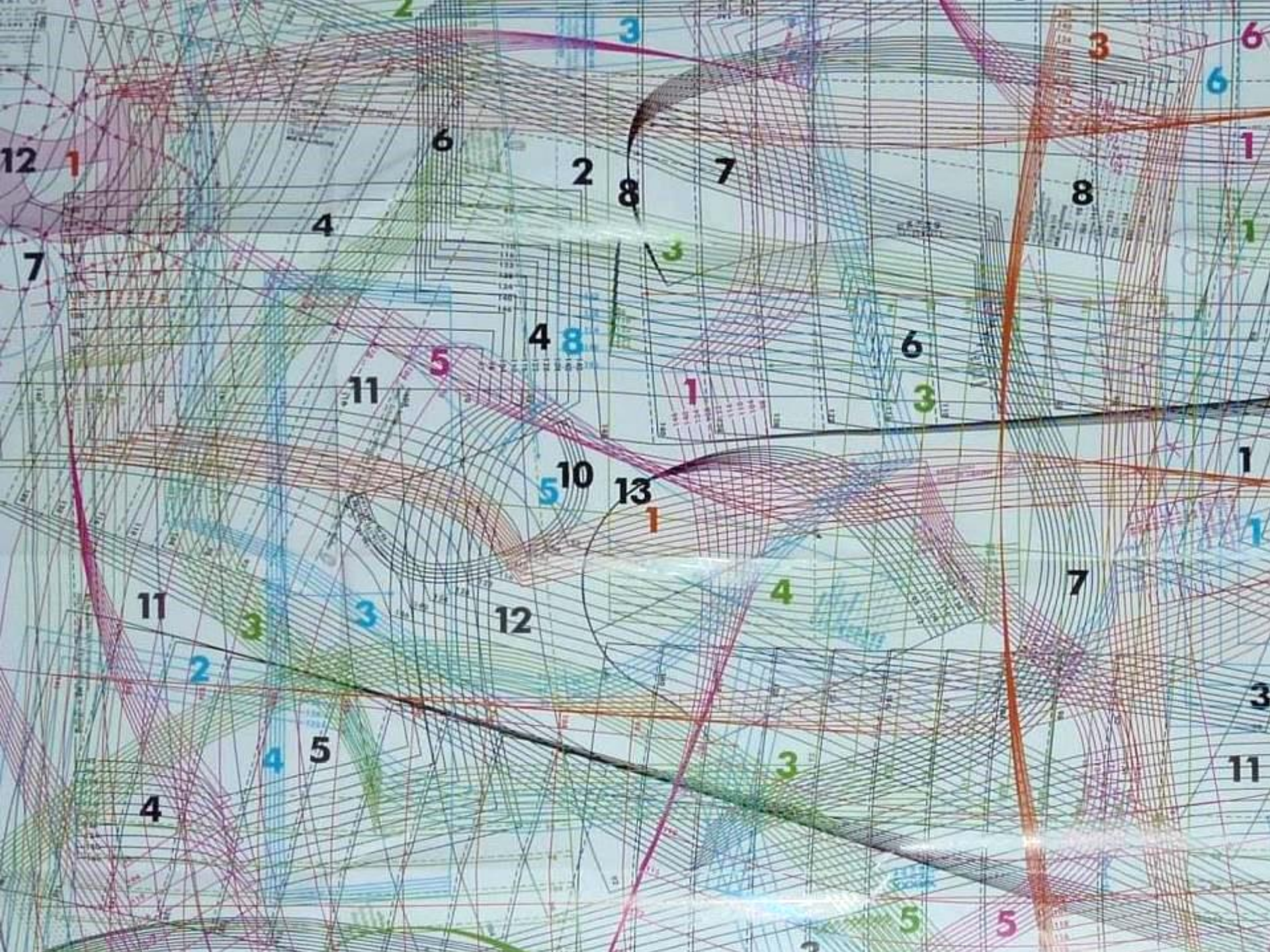
10/11/2014 [Brazilien]





Thanks to Jim Webber



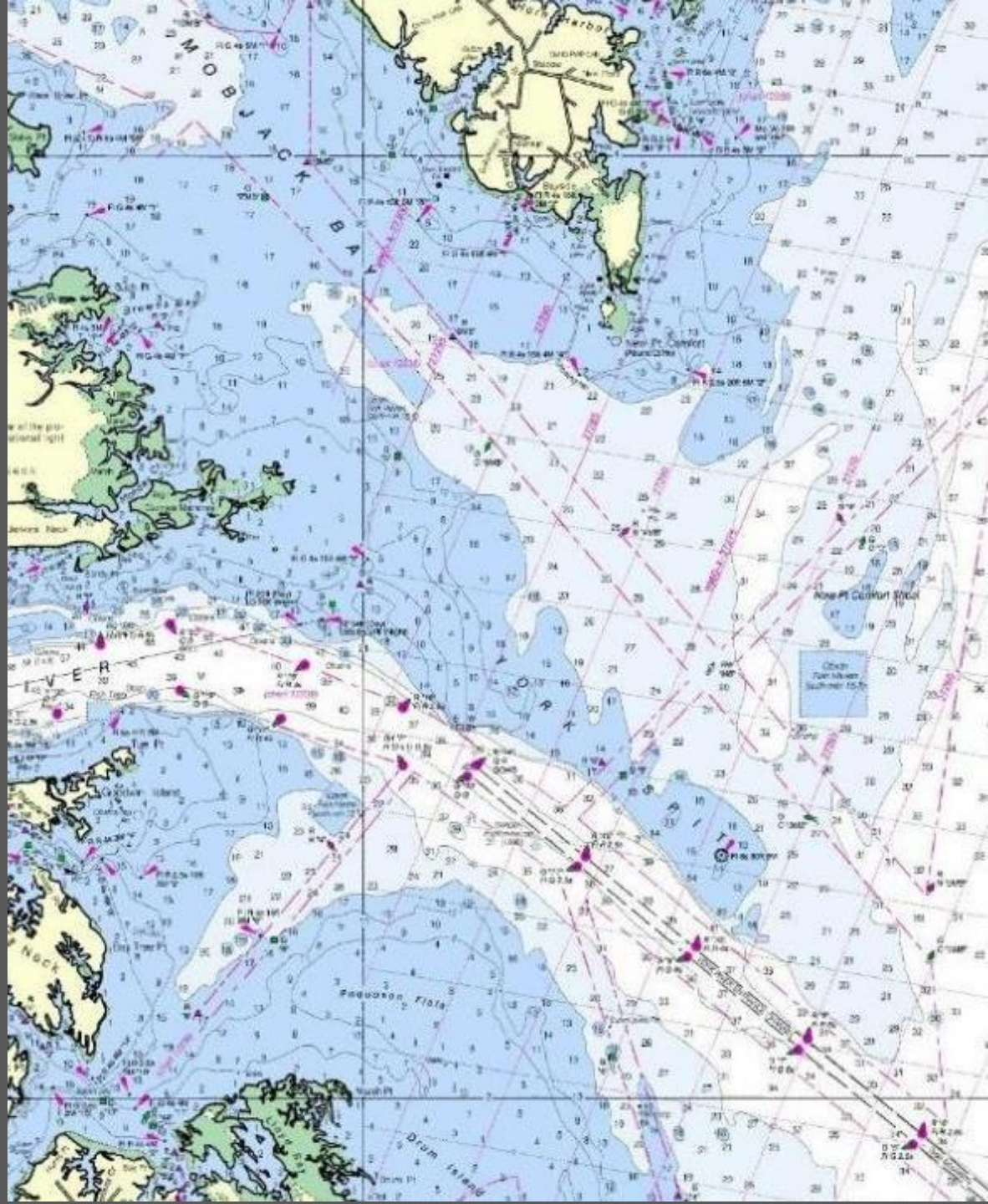




Lukas ist da !



Lukas ist da!





complexity is.

a hype indicates unresolved complexity.

size matters.

fear increases complexity.

becoming explicit about complexity reduces it.

mind the combinatorics. add a price tag.

use metrics to assess risk.

create trust, in the language of the fearful.

$$\text{Complexity} = C_{\text{intrinsic}} + C_{\text{chosen}}$$

$$C_{\text{intrinsic}} = f(\text{functions, scope, clients, laws\&rules})$$

$$\begin{aligned} C_{\text{Chosen}} = & P - K + 3(R_s + R_p) + 2(V_u + V_f) + \frac{1}{t} + S + \\ & 2\left(T_z + \frac{R}{3}\right) + B + 4(L + C_u) + Fr + 2\left(T_s - \frac{T_c}{3}\right) + \\ & 3(Sh + Pd + Pc) + \frac{I_c}{10} - (Ed + Et) + \frac{5}{C_f} + \frac{2}{K_p} + \left(Tu - \frac{T_f}{2}\right) \end{aligned}$$

Chosen Complexity



Team size, sites,
decision makers

Languages, cultures,
continents, time zones

**Variants, Options,
Compatibilities**

Competency, experience,
communication



Foto: Volker Knapp

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chosen complexity exceeds intrinsic complexity.

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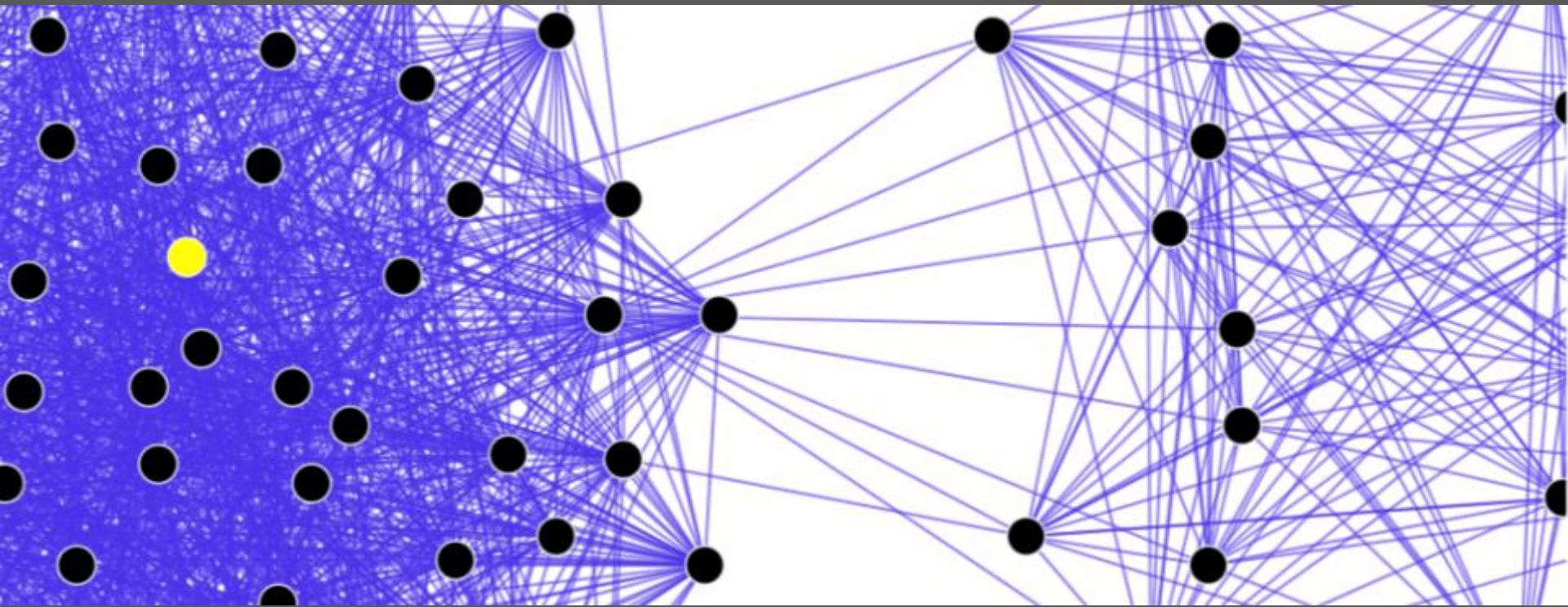
what you cannot measure, can still haunt you.

you can trade influence factors.

you need to.

opening option spaces decreases complexity.





"Social Network Diagram (segment)" by DarwinPeacock, Maklaan.

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your boss does not want to know.

complexity brings denial.

coping with complexity is an individual skill.

trust reduces social complexity.

experience reduces complexity.

openness and courage reduce complexity.

Foto: Kevlin Henney







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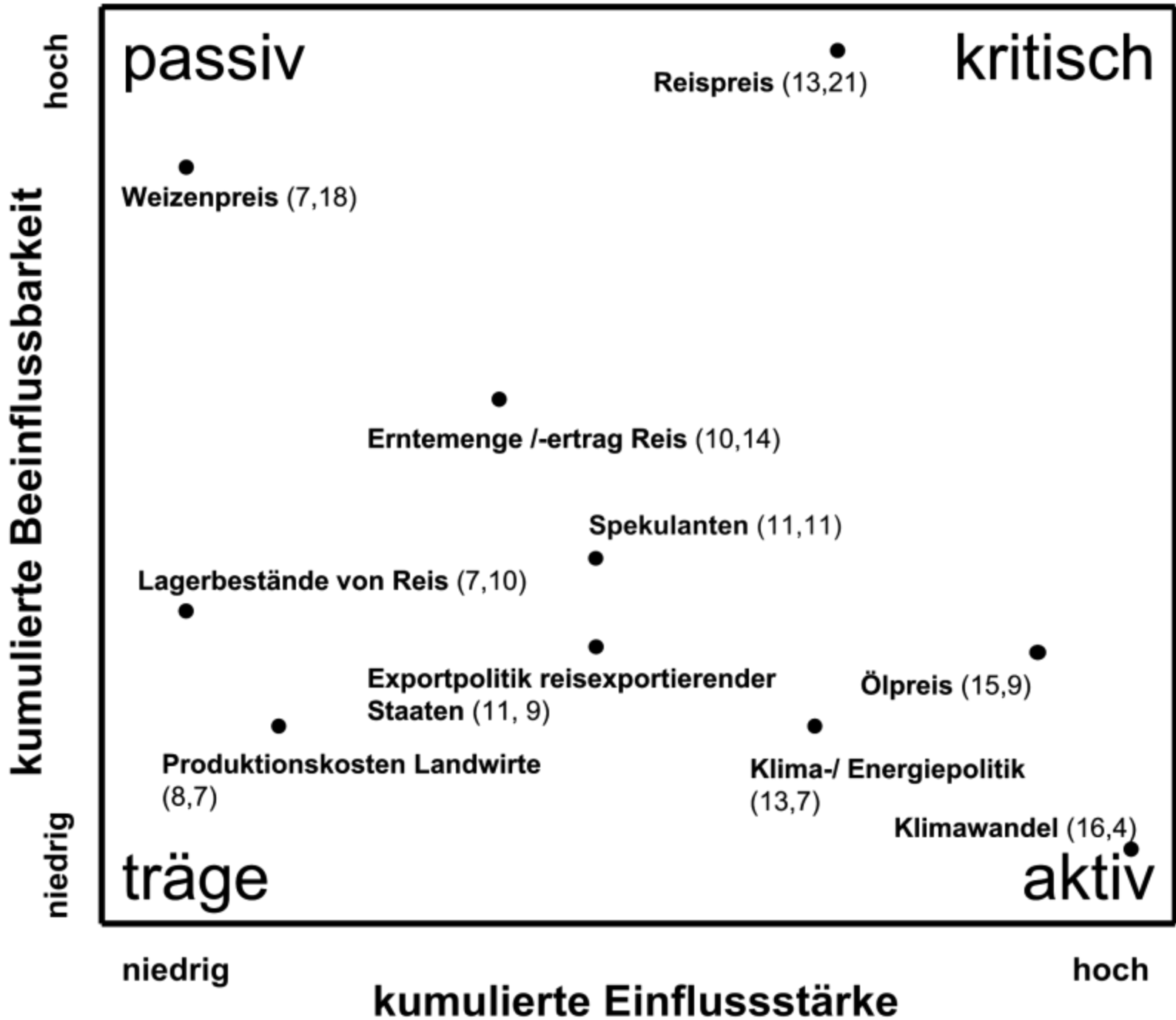
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complexity is yours. enjoy.



Turn implicit into explicit







Identify your influence factors



Negotiate your
chosen complexity



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