



Hoe levensvatbaar is jouw organisatie in een ecosysteem?

Een doorkijkje vanuit de theorie naar levensvatbare, dynamische subsystemen en hun betekenis in ecosystemen

Hoe levensvatbaar is jouw organisatie in een ecosysteem?

- Systemtheorie & recursie
- Feedback & Requisite Variety
- Cybernetics
- Viable Systems Model
- Levensvatbare enterprises?
- Levensvatbare ecosystemen?



*Niets zo praktisch
als
een goede theorie!*



[linkedin.com/in/hjpnouwens](https://www.linkedin.com/in/hjpnouwens)



Over Hans Nouwens MSc CGEIT



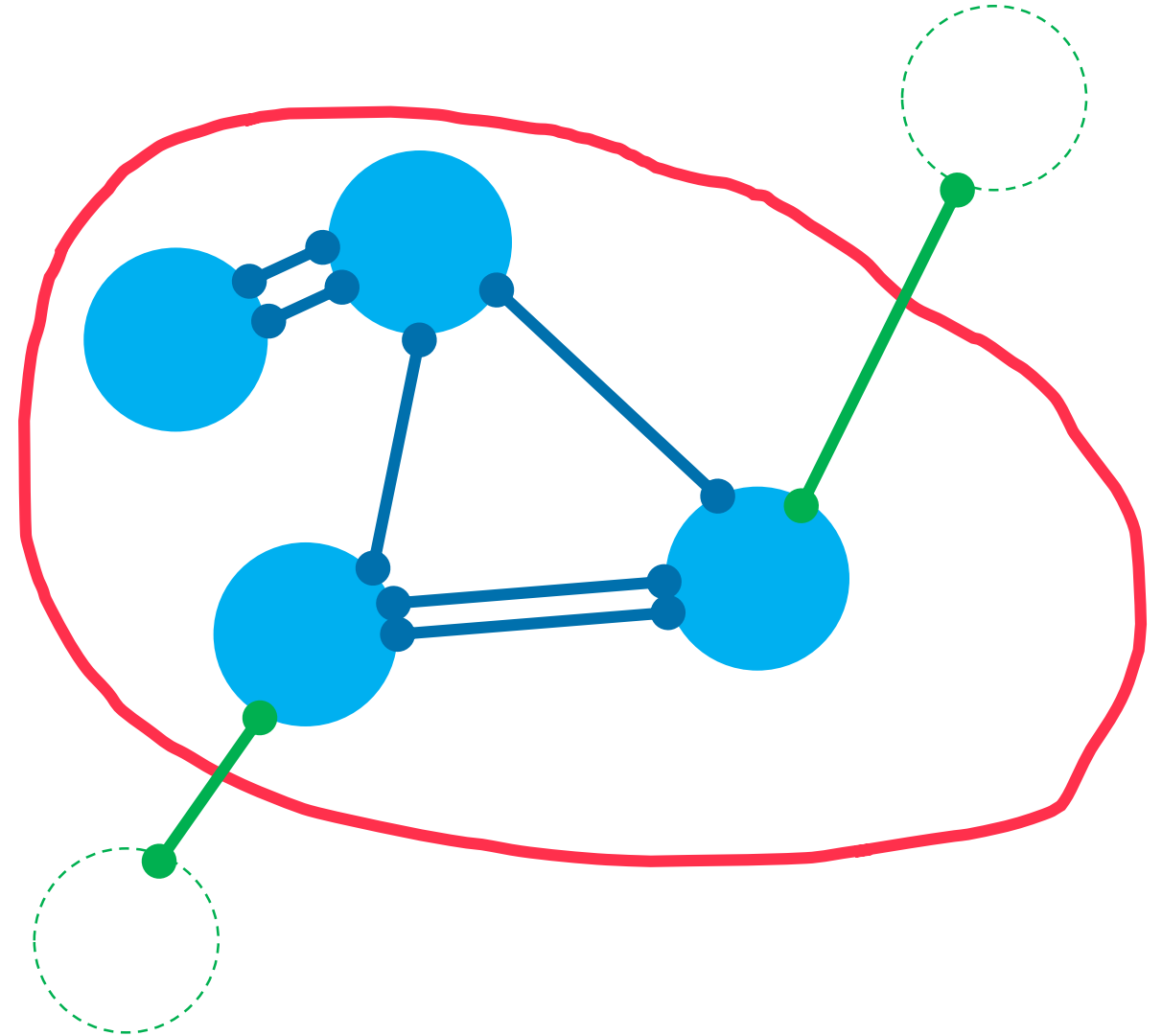
Er wacht een hele wereld op jou...



<https://Nouwens.org>

Systemtheorie

een (open) systeem bestaat uit een grens, elementen, hun onderlinge relaties én relaties naar buiten



Ludwig von Bertalanffy

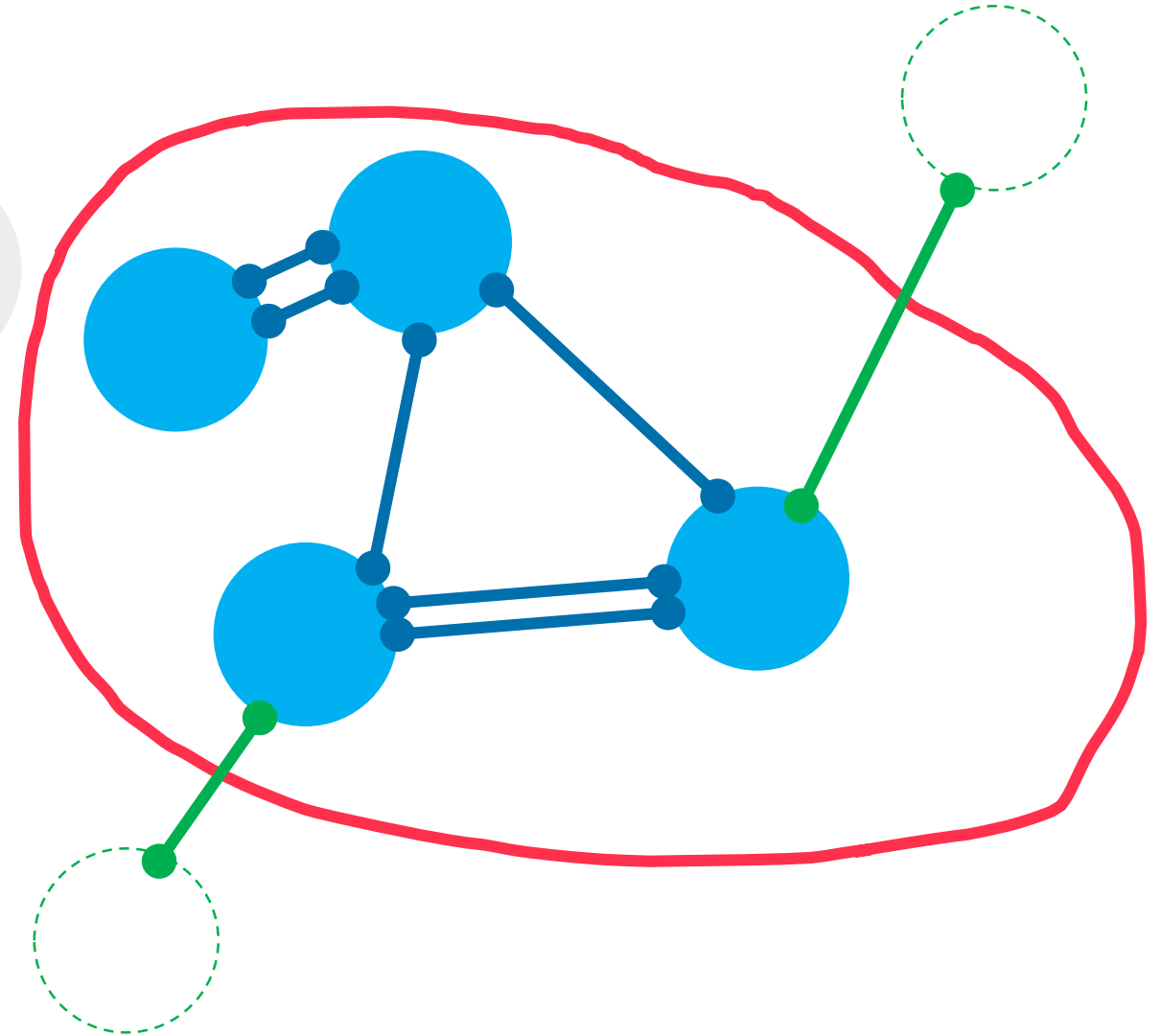
Algemene systeemtheorie ~1920

W. Ross Asby

"General systems theory as a new discipline." 1958

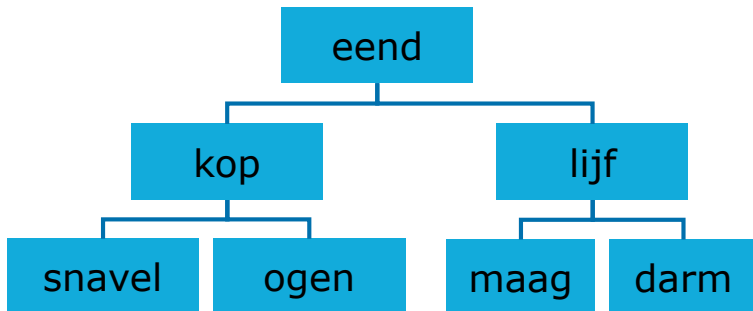
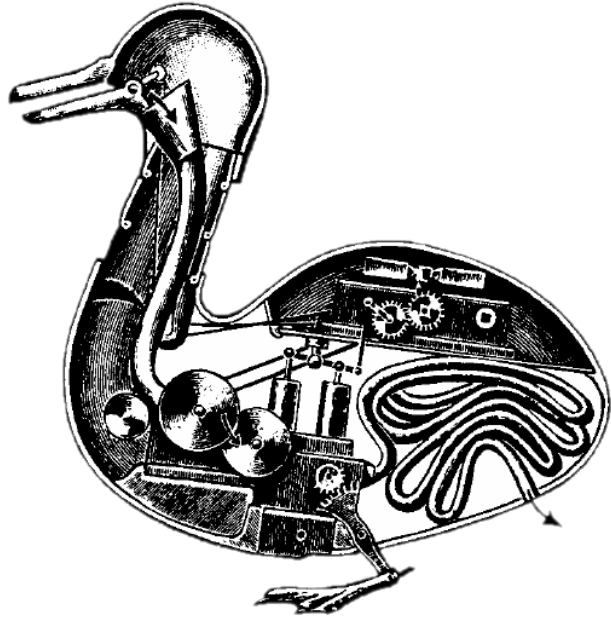
Architectuur

the fundamental organization of a system, embodied in its components, **their relationships to each other and the environment**, and the principles governing its design and evolution.



ISO/IEC/IEEE 42010-2011

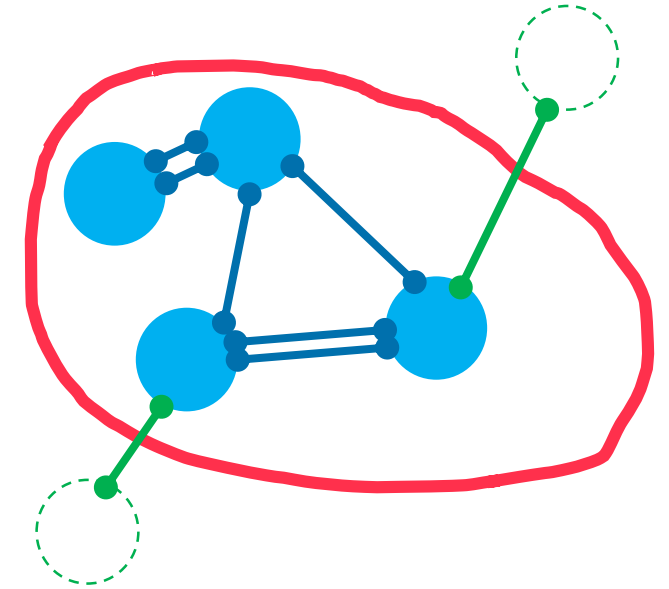
Reductionisme versus holisme



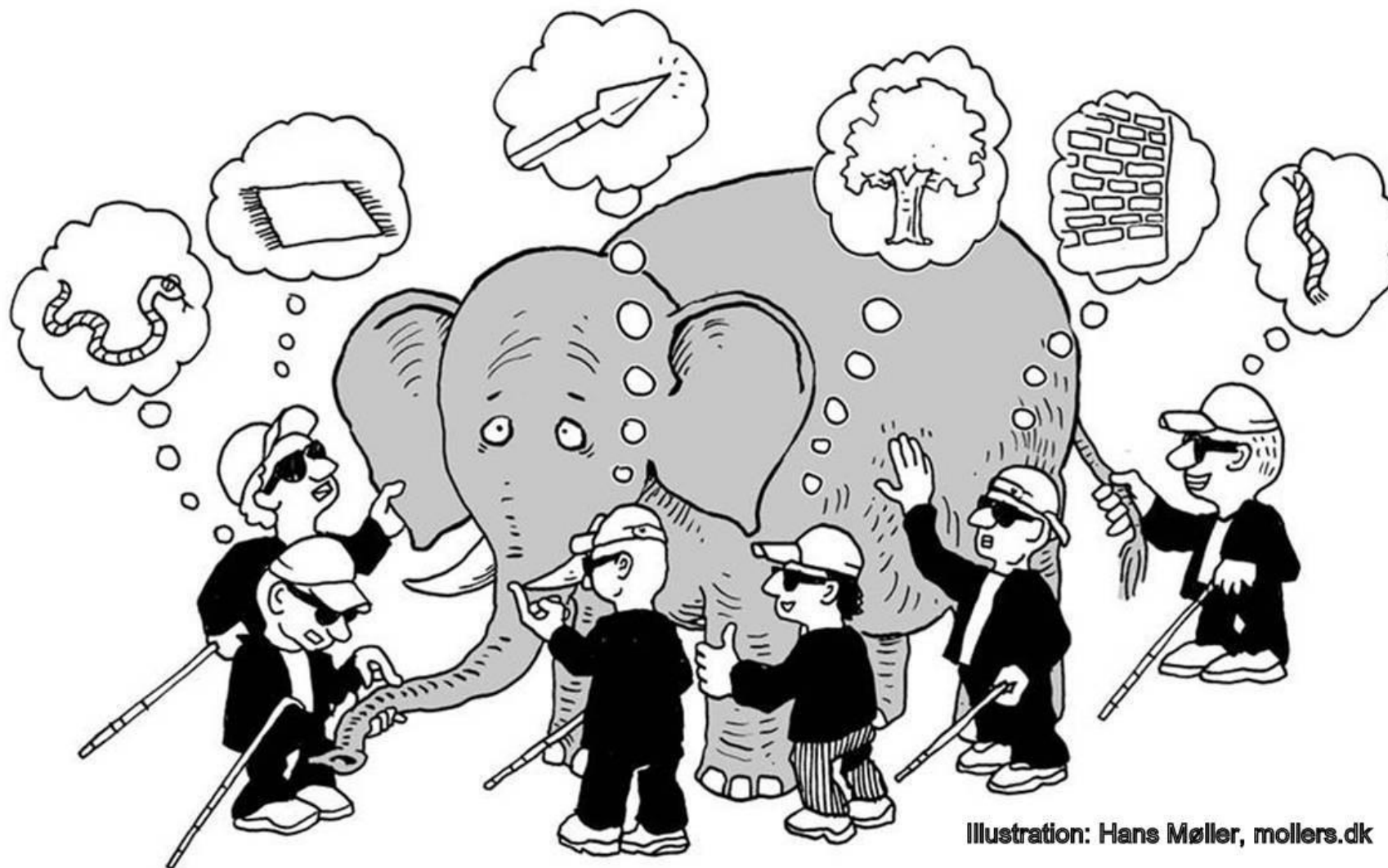
Opdelen
Structuur
Rationeel
Bewijs het!
Hierarchie
Categoriën
Precies
Statisch
Mechanisch

versus

Geheel
Creatief
Intutief
Alle opties
Synergie
Verbonden
Chaotisch
Dynamisch
Organisch



Reductionisme een risico voor architecten



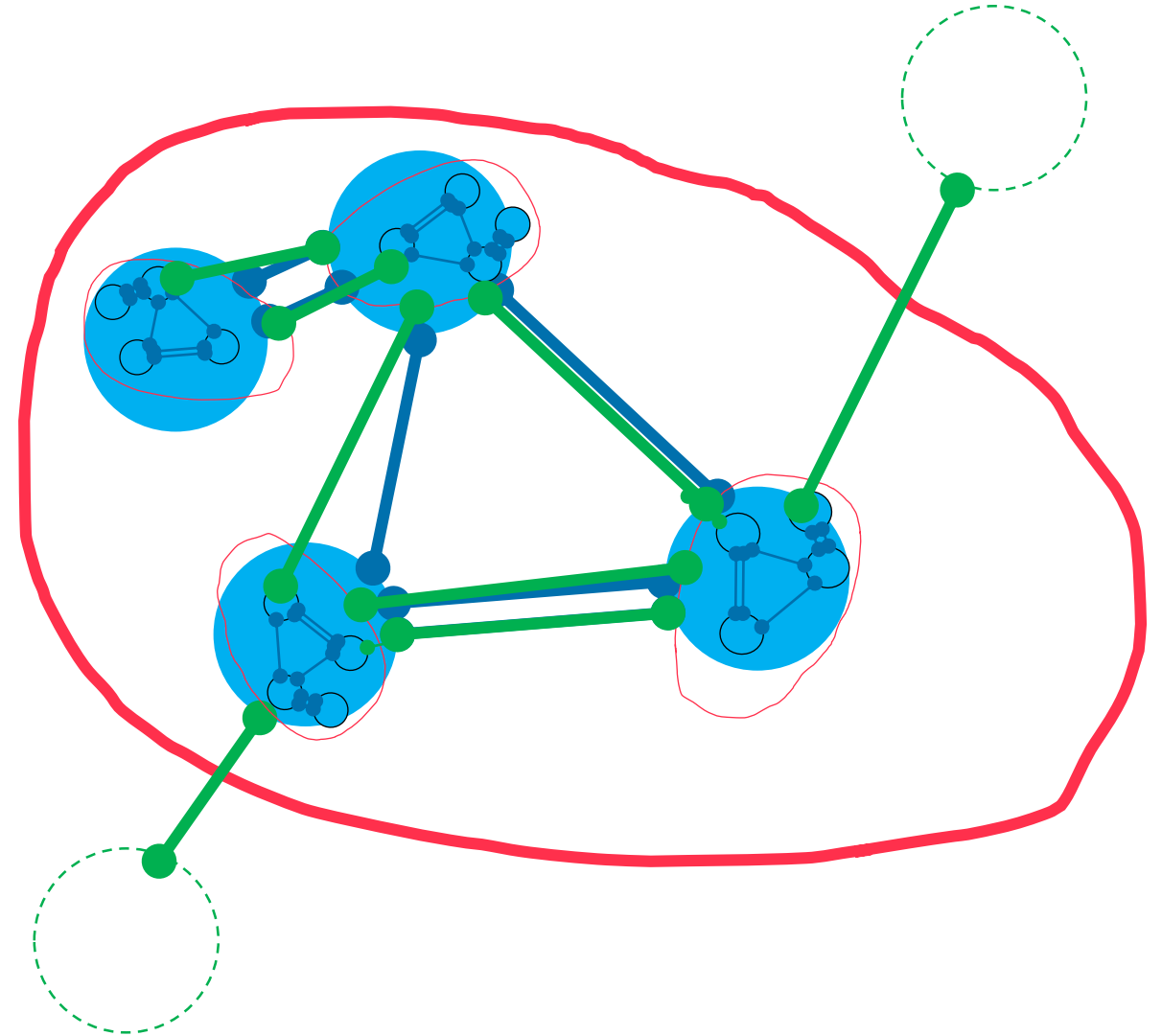
Systemtheorie - recursie

Ludwig von Bertalanffy

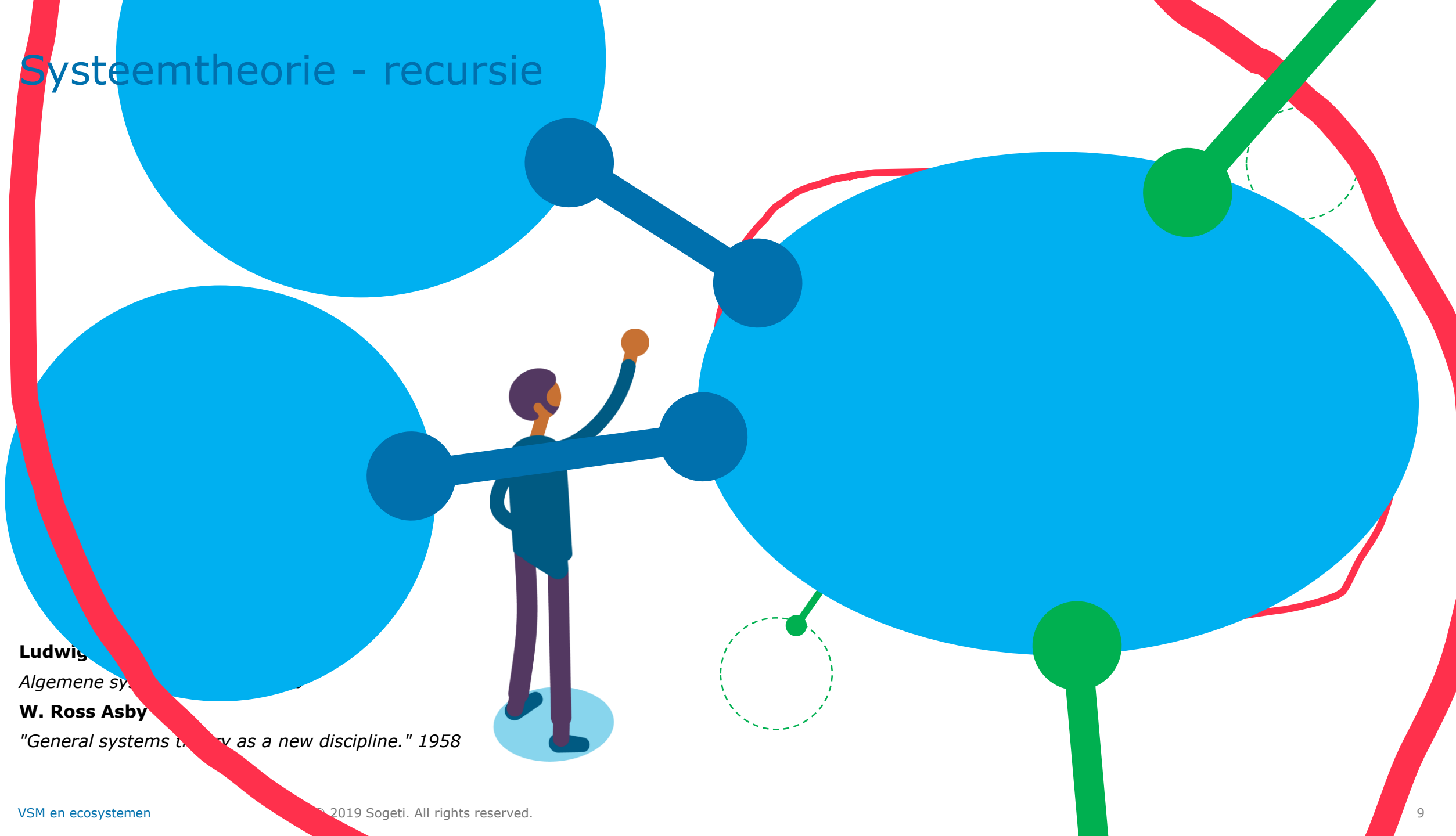
Algemene systeemtheorie ~1920

W. Ross Asby

"General systems theory as a new discipline." 1958

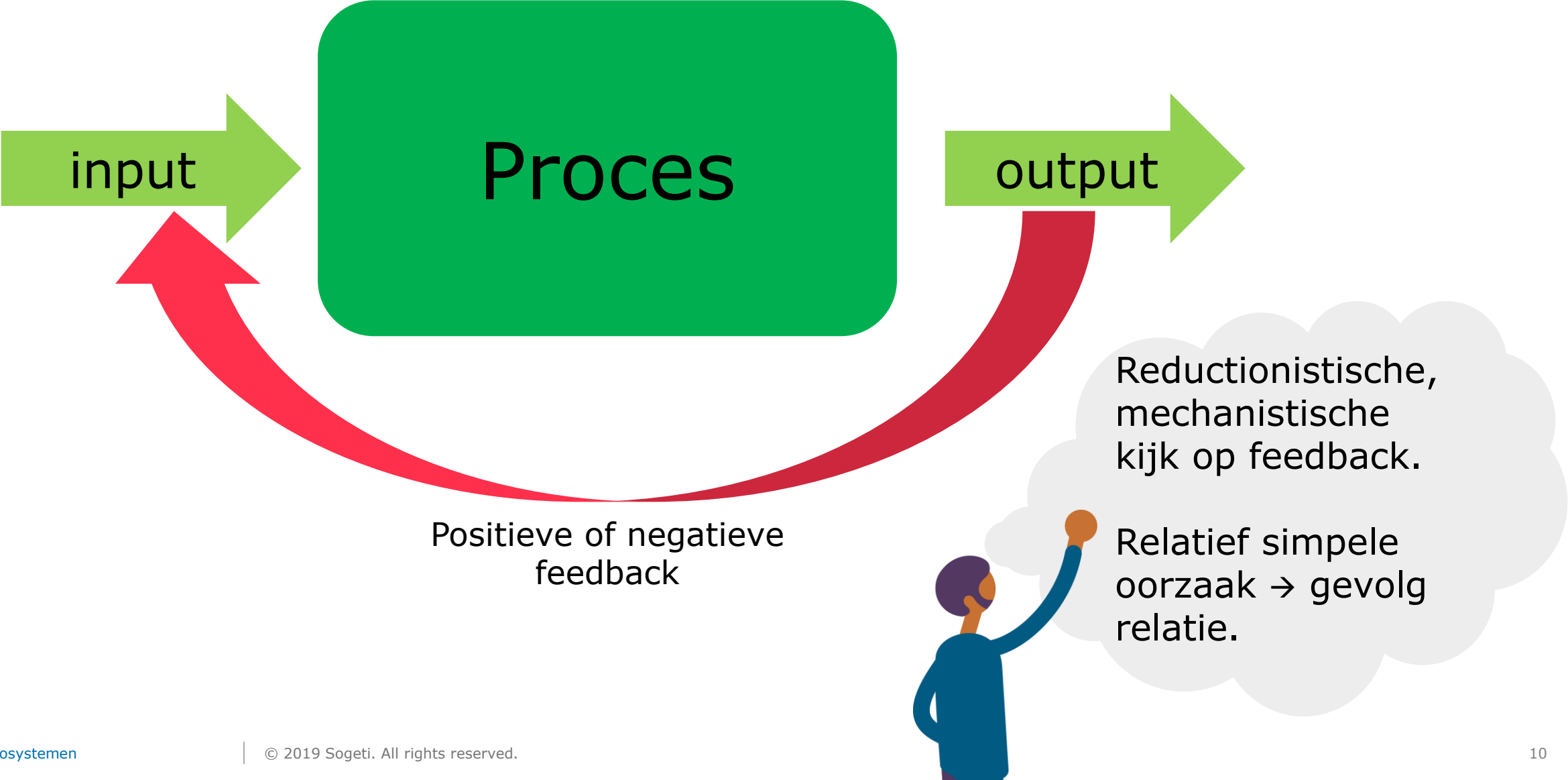


Systemtheorie - recursie

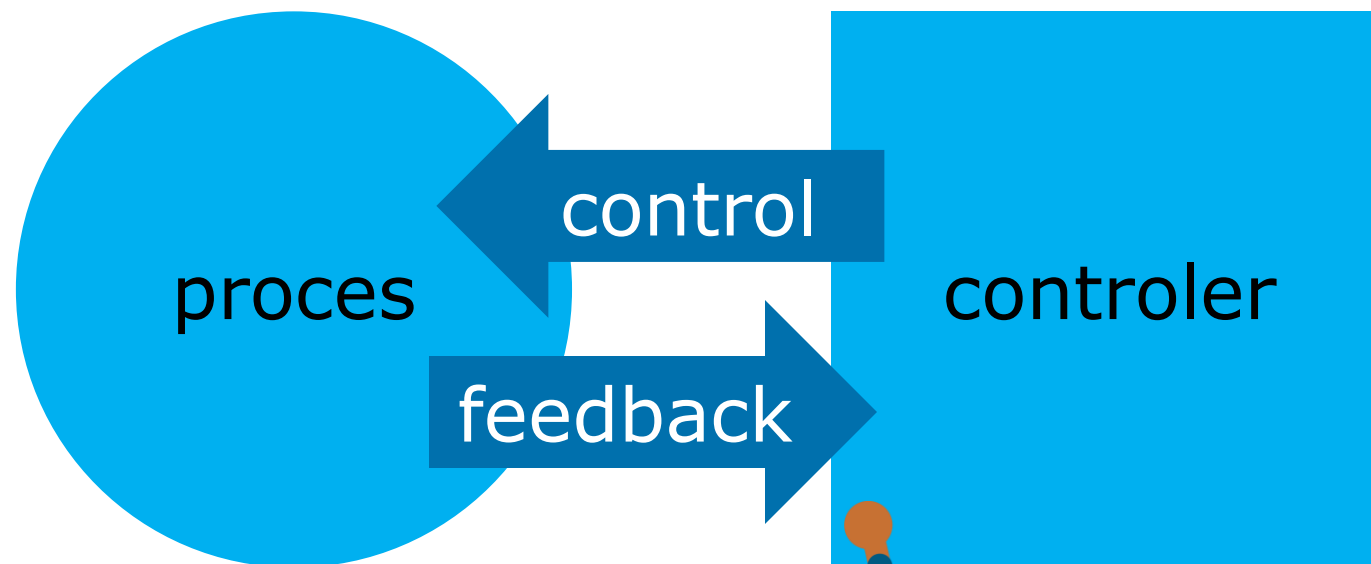


Ludwig von Bertalanffy
Algemene systeemtheorie
W. Ross Asby
"General systems theory as a new discipline." 1958

Feedback, oorzaak → gevolg



Cybernetics: control and communication in living things and machines

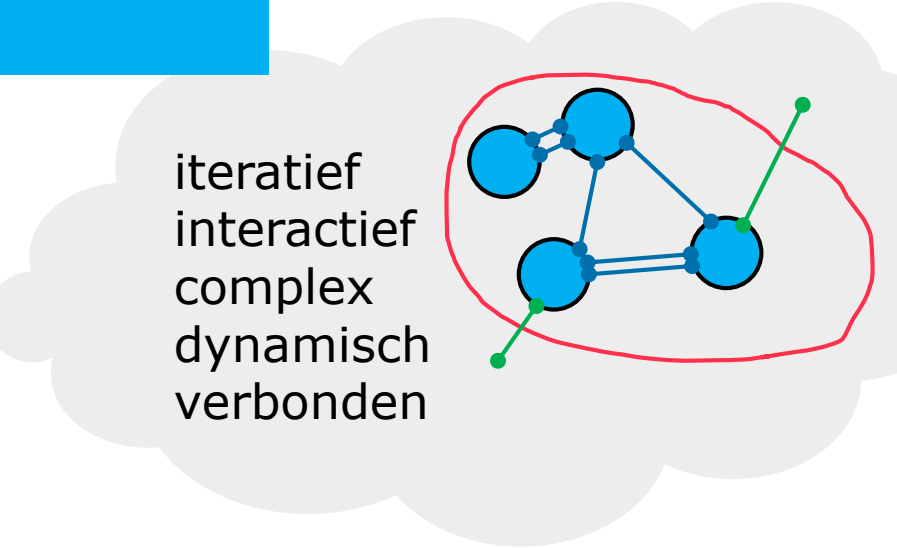


Pioneered in the late 1940s by a group of specialists in fields ranging from biology to engineering to social sciences, cybernetics was concerned with the study of communication and control systems in living beings and machines.

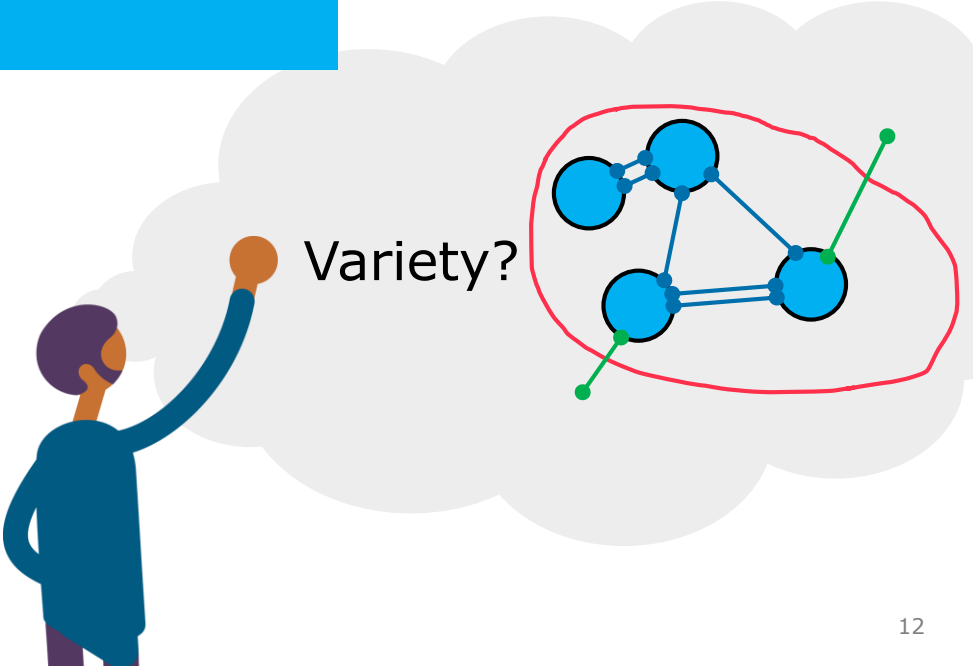
The interest in how systems work is reflected in the etymology of cybernetic, which comes from the Greek word *kubernētēs* (κυβερνήτης) (*kubernáō*), 'steersman', from *kubernan* 'to steer'.

[*oxforddictionaries.com*]

In English: govern, government, governance, etc.



First Law of Cybernetics: Law of the requisite variety

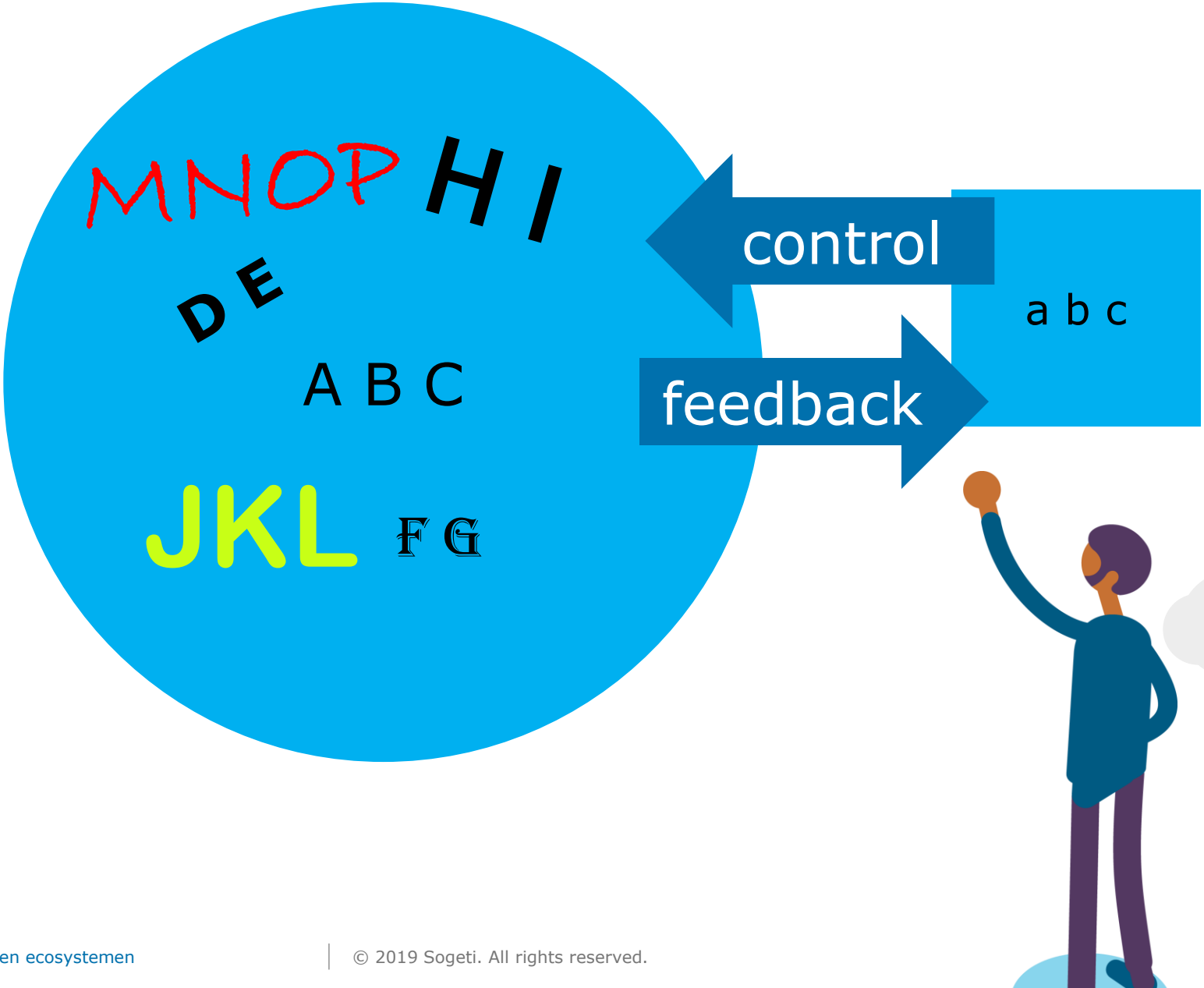


W. Ross Asby

An Introduction to Cybernetics 1956

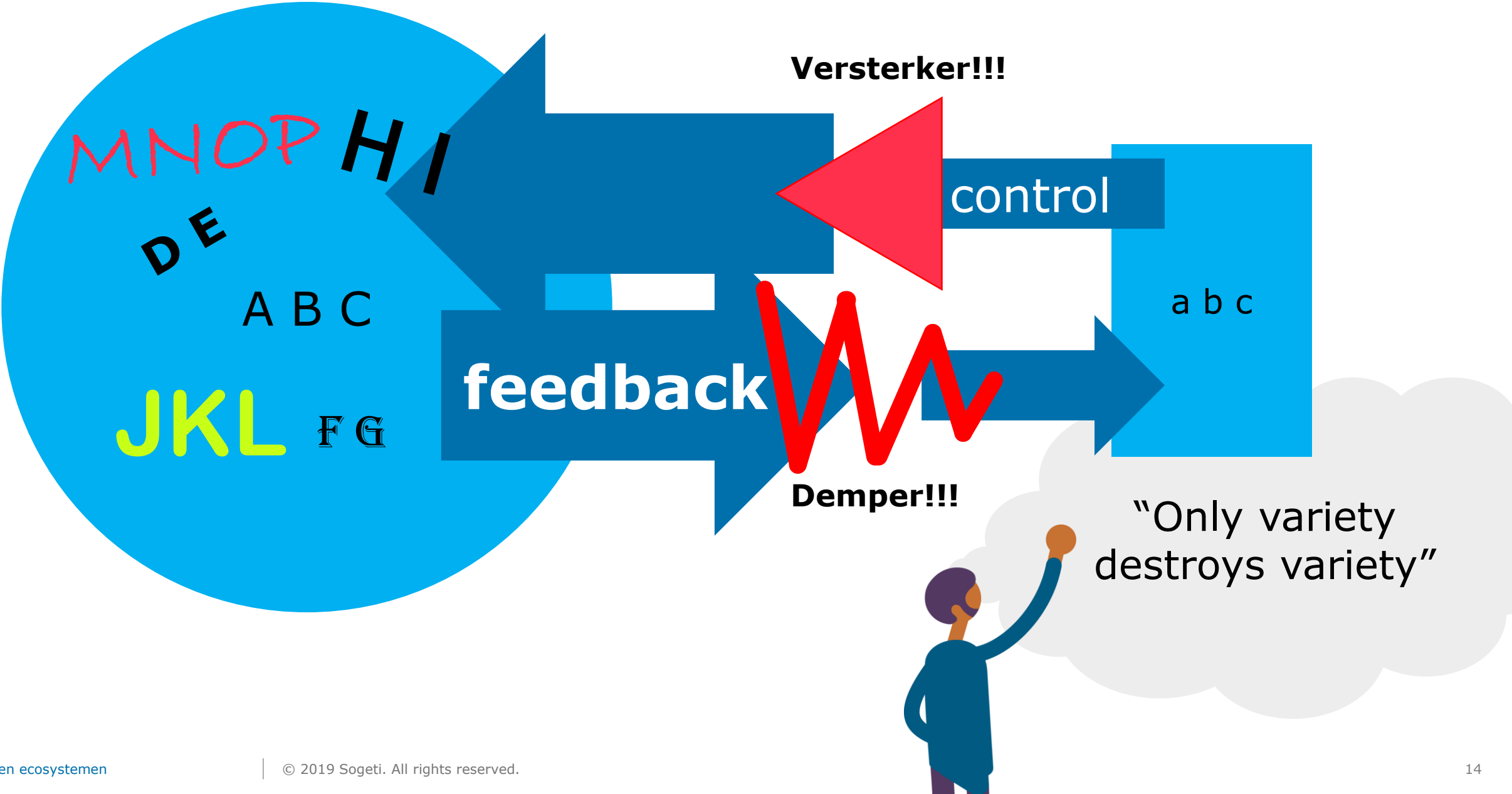
Free ebook:
(<http://pespmc1.vub.ac.be/ASHBBOOK.html>)

First Law of Cybernetics: Law of the requisite variety

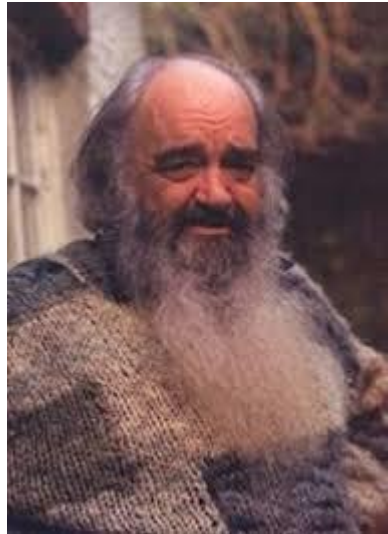


Variety
(verscheidenheid)
is
the total number
of possible states
of a system, or of
an element of a
system

First Law of Cybernetics: Law of the requisite variety



Viabile System Model

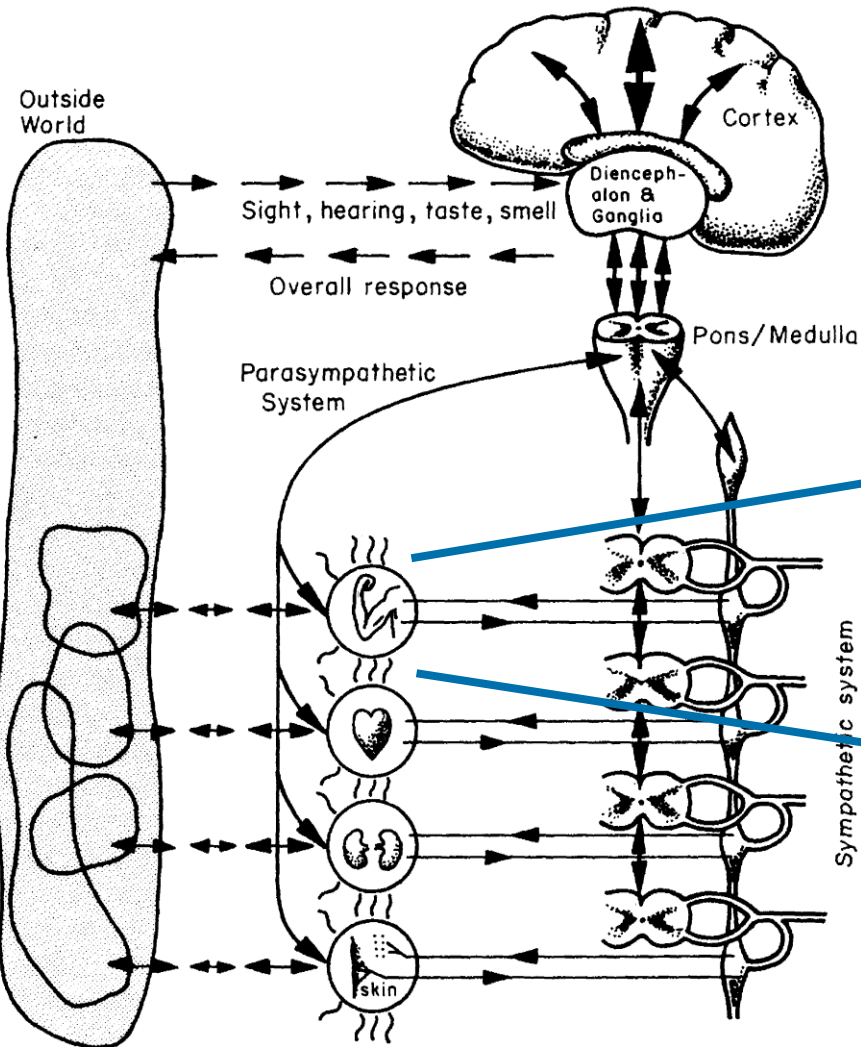


Stafford Beer

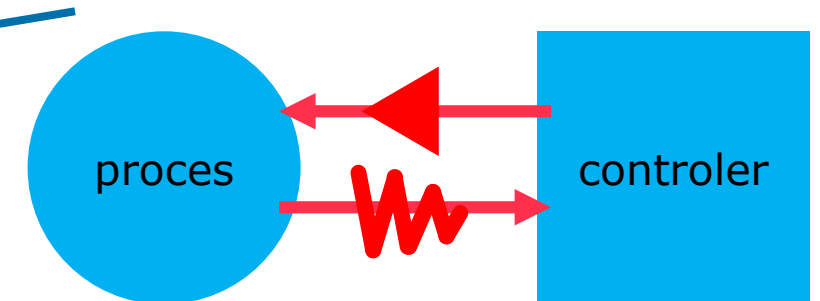
Brain of the Firm (1972)

The Heart of Enterprise (1979)

Diagnosing the System for Organizations (1985)



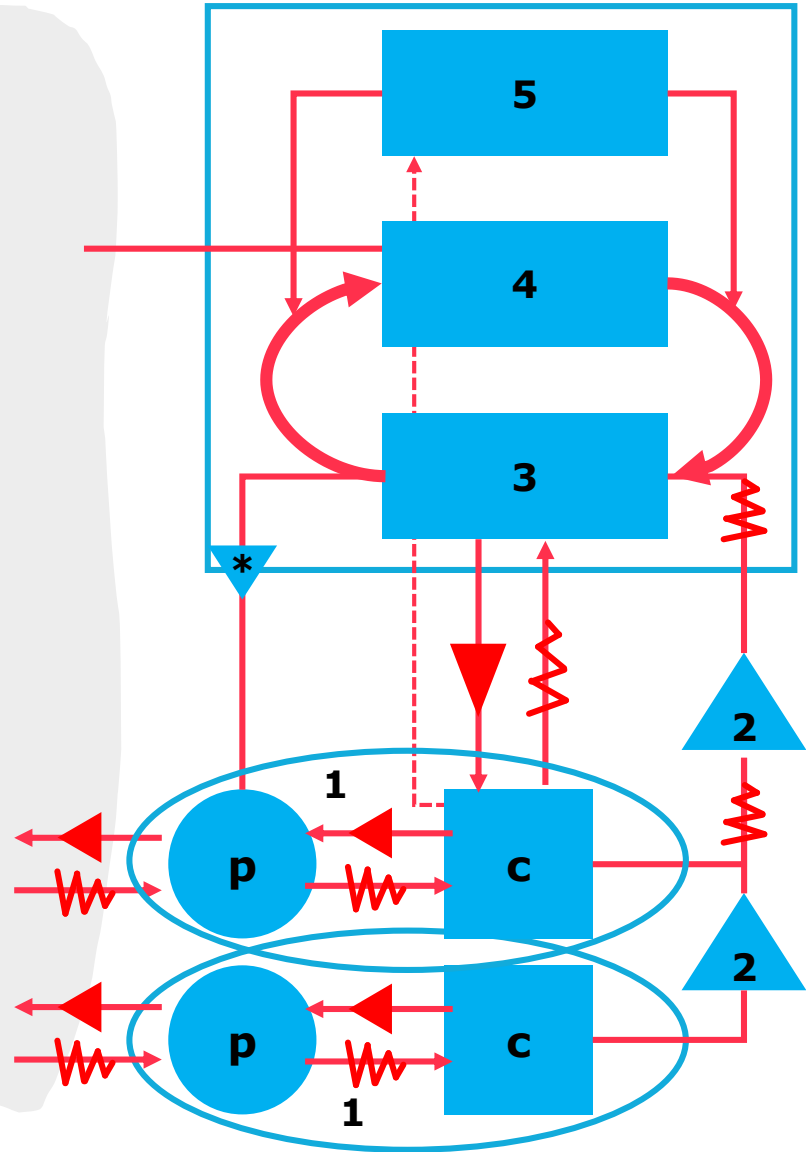
Organisational Cybernetics:
control and communication in
living things and machines
and ORGANISATIONS



Our institutions are failing because they are disobeying laws of effective organisation which their administrators do not know about, to which indeed their cultural mind is closed, because they contend that there exists and can exist no science competent to discover those laws.

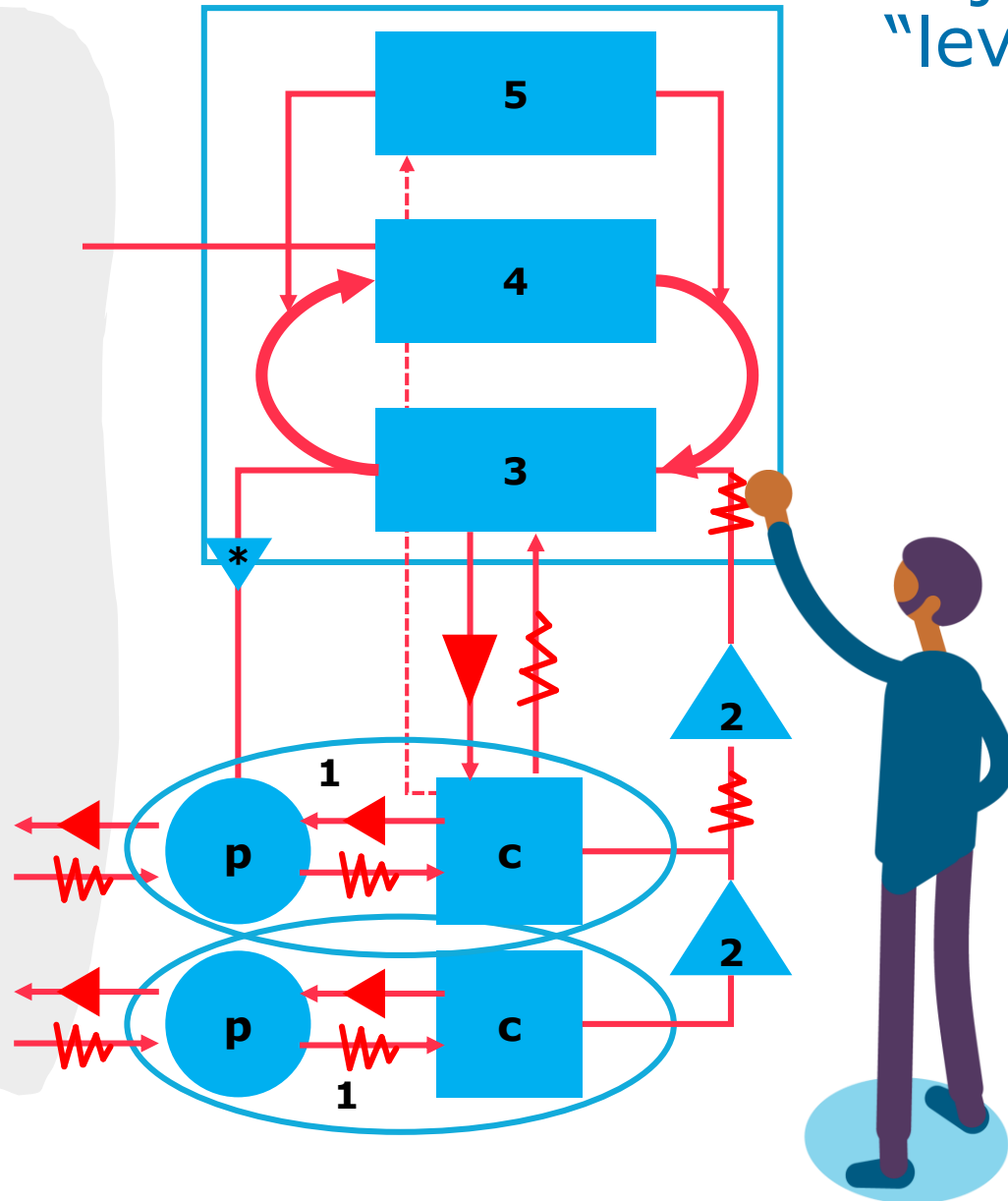
Beer (1974)

Viabale System Model van Stafford Beer...



Is jouw organisatie "levensvatbaar"?

volgens het model van
Stafford Beer..



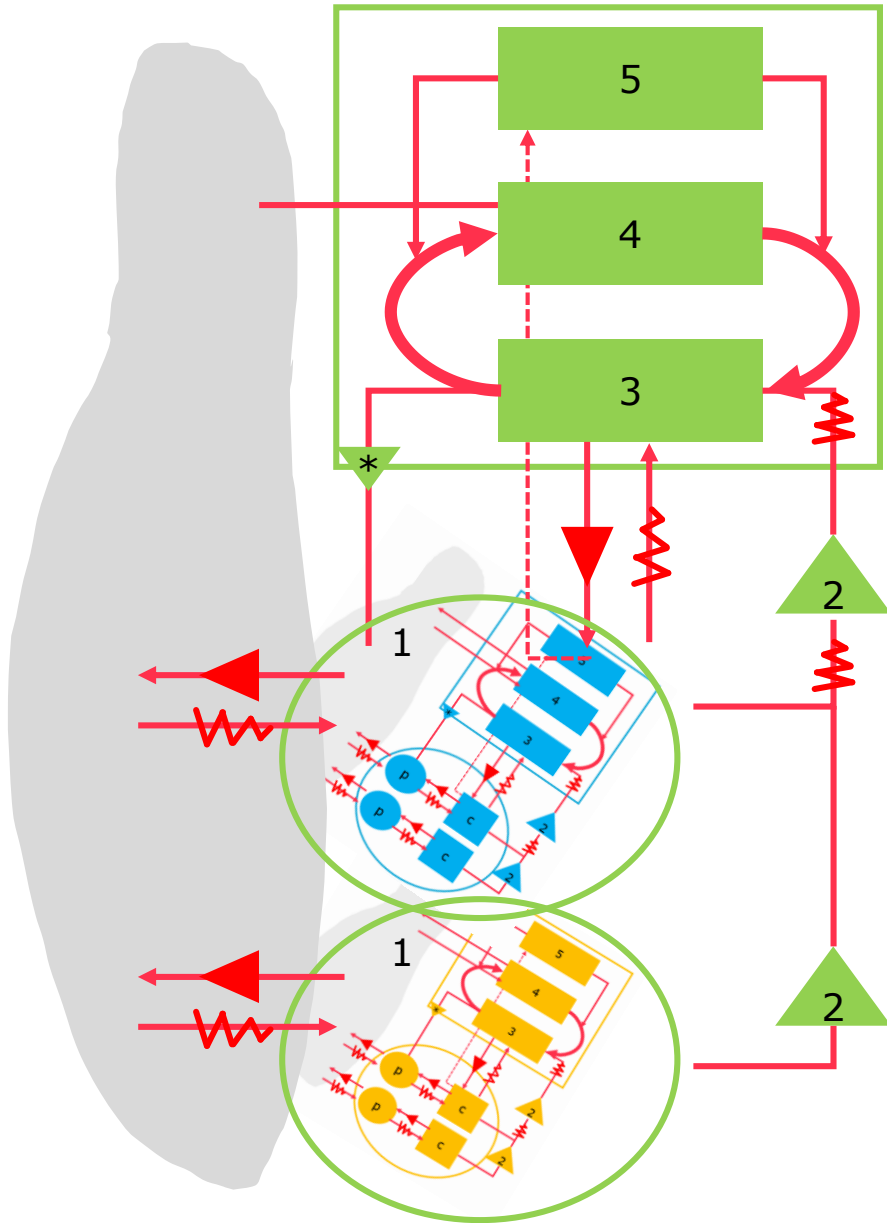
Waarneming: 3 heeft het erg druk, stuurt op details, geen vrijheid (autonomie) in 1

Diagnose: micromanagement (3 stuurt verkeerd).

Waarneming: Alleen maar handelen en brandjes blussen. Geen lange termijn verbeteringen.

Diagnose: 3 dominant dan 4, onvoldoende sturing door 5

etc...



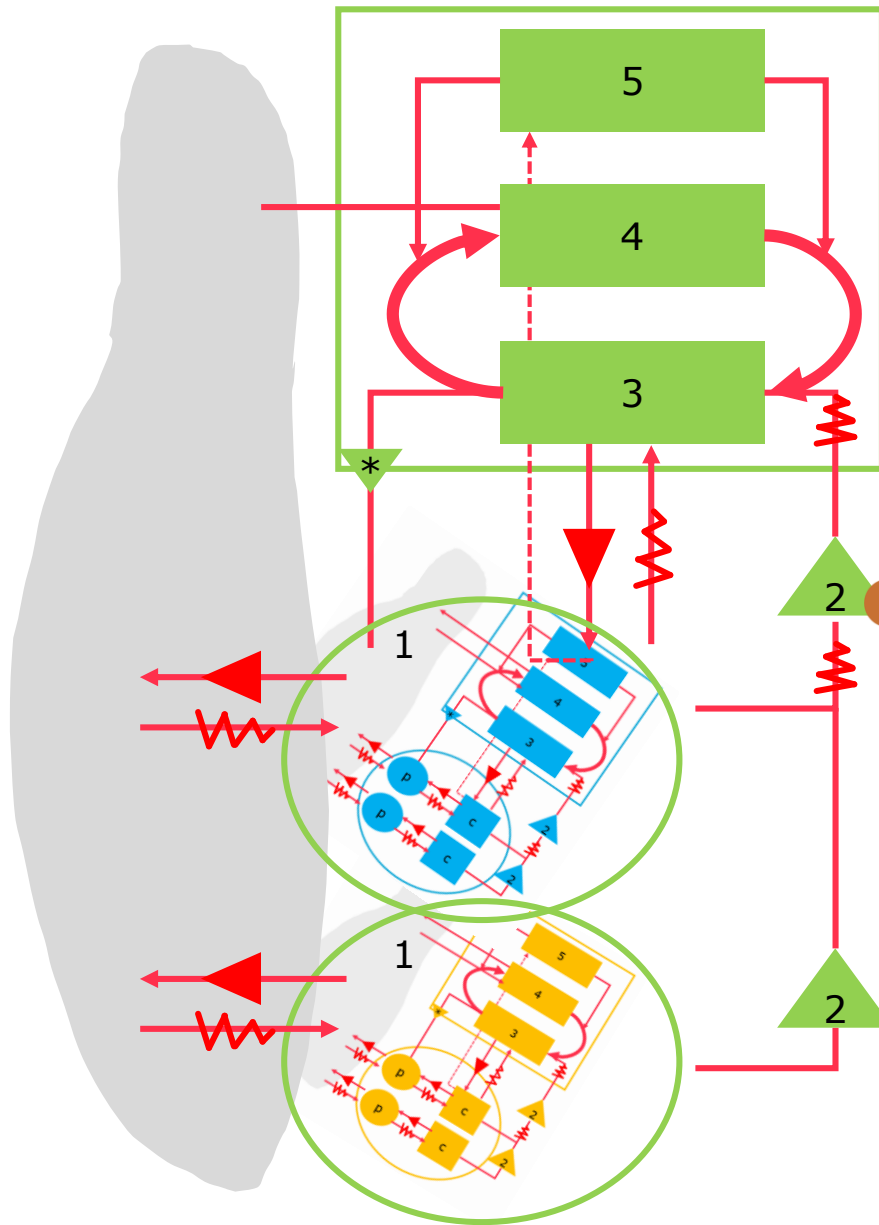
en nu recursie

**Is een levensvatbaar
ecosysteem
een hogere recursie
van levensvatbare
(sub)systemen?**



Welke rol heeft jouw organisatie in het ecosysteem?

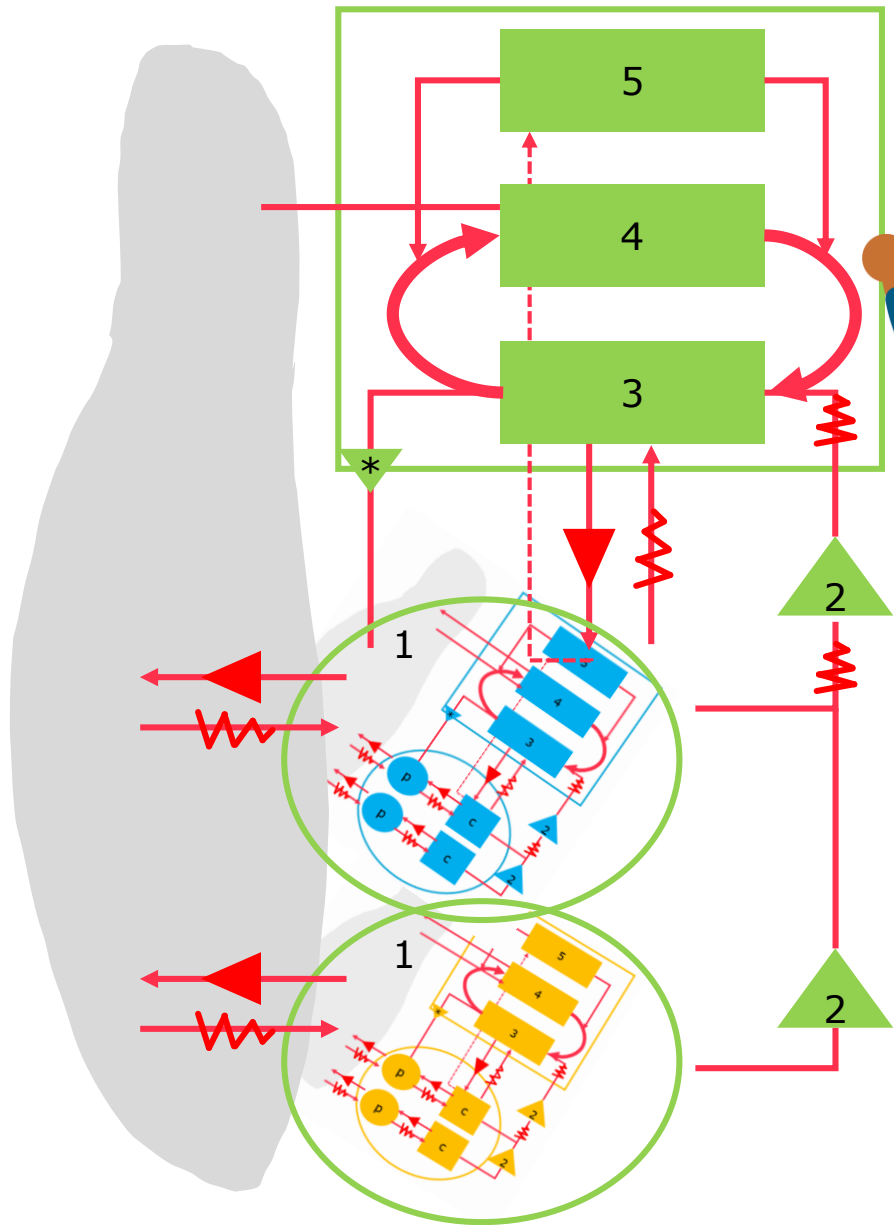
volgens het viable systems model?



Bestaat er een systeem 2, de dagelijkse coordinatie tussen de deelnemende bedrijven/organisaties?
Is het wettelijk toegestaan? Bijvoorbeeld het coördineren van prijzen?

Bestaat er een systeem 3, worden de deelnemers gemanaged of zijn ze geheel autonoom?
Worden resources verdeeld en gemanaged?

Welke rol heeft jouw organisatie in het ecosysteem? volgens het viable systems model?



Bestaat er een systeem 4 met een naar buiten gerichte visie die de lange termijn strategie van het ecosysteem stuurt?

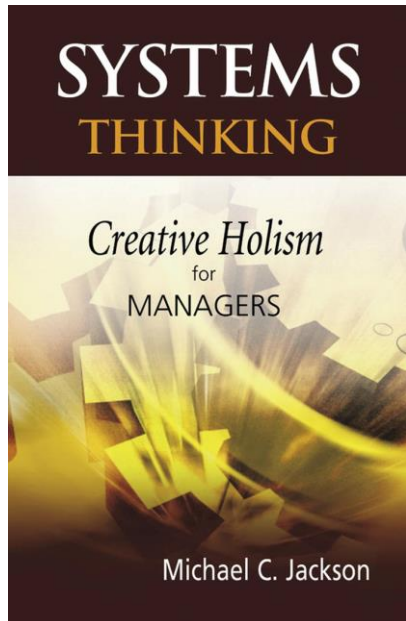
Bestaat er een systeem 5, die de systemen 3 en 4 in balans houdt?

VSM Checklist

Rezaee, Z., Azar, A., Erz, A.M.B. et al. Syst Pract Action Res (2018). <https://doi.org/10.1007/s11213-018-9454-y>

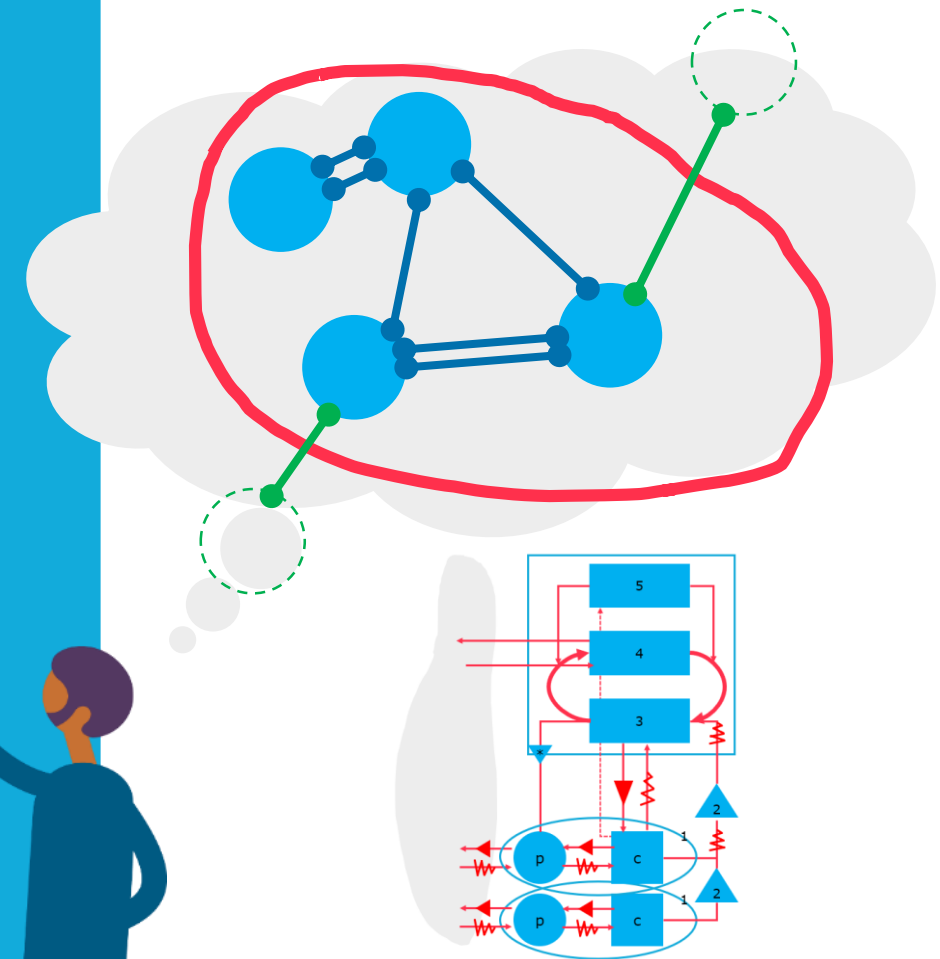
Jackson MC (2003) System thinking: Creative holism for managers. Wiley, Chichester

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.476.2858&rep=rep1&type=pdf>



	Checklists
System1	<ol style="list-style-type: none"> 1- For each part of System1, detail its environment, operations and localized management. 2- Ensure that each part of System1 has the capacity to be viable in its own right. 3- Study what constraints are imposed upon the parts of System 1 by higher management. 4- Ask how accountability is exercised for each part and what indicators of performance are used. 5- Model System 1 according to the VSM diagram
System2	<ol style="list-style-type: none"> 1- List possible sources of disturbance or conflict in the organization. 2- Identify various elements of System 2 that are needed to ensure harmonization and co-ordination. 3- Ask how System 2 is perceived in the organization: threatening or facilitating.
System3	<ol style="list-style-type: none"> 1- List System 3 activities of the system in focus. 2- Ask how System 3 exercises authority - is this seen as autocratic or democratic in System1 and how much freedom do System1 elements possess? 3- How good is System 3 at translating overall policy into operational plans? 4- How is the 'resource bargain' with the parts of System 1 carried out? 5- Are all control activities clearly facilitating the achievement of purpose? 6- How is the performance of System3 elements in enabling achievement of the purpose measured?
System3*	<ol style="list-style-type: none"> 1- Who can oversee the performance of the parts of System 1? 2- What audit enquiries into aspects of System1 do System 3 conduct and are these appropriate?
System4	<ol style="list-style-type: none"> 1- List all System 4 activities of the system in focus. 2- How far ahead do these activities consider? 3- Do these activities guarantee adaptation to the future? 4- Is System 4 monitoring what is happening in the environment and assessing the trends? 5- Is System 4 open to novelty? 6- Does System4 provide a management centre/operations room, bringing together external and internal information and providing an 'environment for decision'? 7- Does System 4 adequately process, filter, and distribute relevant information? 8- Are all development activities clearly facilitating the achievement of purpose? 9- How is the performance of System4 elements in enabling achievement of the purpose measured?
System5	<ol style="list-style-type: none"> 1- Who is responsible for policy (e.g., on the 'board') and how do they act? 2- Does System 5 provide a suitable identity and convey clear purposes for the system in focus? 3- How does the 'ethos' set by System 5 affect the perception of System 4? 4- How does the 'ethos' set by System 5 affect the relationship between Systems 3 and 4 - is stability or change emphasized? 5- Is System 5 organized to behave creatively? 6- Does System 5 share an identity with System 1 or claim to be something different?

- Systemtheorie & recursie
- Feedback & Requisite Variety
- Cybernetics
- Viable Systems Model
- Levensvatbare enterprises!
- Levensvatbare ecosystemen?



Hans Nouwens | MSc. CGEIT
Enterprise Architect

Hans.Nouwens@Sogeti.com
<https://www.sogeti.nl/profiel/hansnouwens>

Maart 2019



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