Blurring of the human and the artificial.
A conceptual clarification

Future of the Global Infosphere, Miniconference, IS4SI Summit Berkeley 2019, UC Berkeley, 2-6 June 2019

Wolfgang Hofkirchner
Director, GSIS – The Institute for a Global Sustainable Information Society, Vienna

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1 "Silicon Valley just simulating"

Oswald Wiener (*1935 Wien; cybernetician, avantgardistic writer, musician, linguist etc.):

(Photo 1968)

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1 "Silicon Valley just simulating"

Oswald Wiener (*1935 Wien; cybernetician, avantgardist writer, musician, linguist etc.):

- In Silicon Valley, they rush into talking of "learning" and "intelligence". However, all current AI machines don't go beyond "flat formalisms". Though they outclass humans in computation, they are a "surrogate of intelligence" only. They are stupid on a high level. "The heterarchically ordered depth of human rationality cannot be realised in such a way." Humans are incapable of following an algorithm straight. The recognition process is rather a "recursive process", in which data are permanently matched with given knowledge in the background. Thinking is dependent on sensuality.

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(Oliver Jungen: Silicon Valley simuliert nur, Frankfurter Allgemeine, 28.01.2017, https://www.faz.net/aktuell/feuilleton/debatten/oswald-wiener-und-die-kuenstliche-intelligenz-14770061.html)

2 The ontological difference

A complex systems view

1 compares the human and the artificial so as to explore what **differs** on the basis of what they have **in common**

2 and shows how **fallacies in theorising** the human and the artificial in relation to each other can be **avoided**

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2.1 A complex systems comparison: "man"/society vs. machine

"Man"/society is the product of

– **physical**,
– **biotic** and
– **social** evolution.

Machine is the product of "man"/society.

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2.1 A complex systems comparison: "man"/society vs. machine (1/4)

	"Man"/society	**machine**
in physical respect	as an ***agens****: • is able to **organise itself**, that is, to build up its own order by using free energy and dissipating used-up energy; • is made up of elements that produce **organisational relations** that constrain and enable **synergy** effects and it can take part in meta-/suprasystems; • works on the basis of **less-than-strict-determinacy** yielding emergence and contingency…	as a ***patiens****: • cannot self-organise; • is made up of moduls that are connected in a mechanical way; • is strictly determi-nistic, not emergent nor contingent…

* Rafael Capurro

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2.1 A complex systems comparison: "man"/society vs. machine (2/4)

	"Man"/society	**machine**
in biotic respect	as an **autonomous agent**: • is able to **maintain** its organisational relations by the active provision of free energy; • can make **choices** according to its embodiment, its embedding in its natural environment and the network of conspecifics; • tries to **control** other systems by catching up with their complexity…	as an **heterono-mous mechanism**: • cannot maintain itself; • cannot choose; • cannot catch up with complexity, is under control of the organism…

2.1 A complex systems comparison: "man"/society vs. machine (3/4)

	"Man"/society	**machine**
in social respect (1)	as an **actor** (a social agent): • is, in essence, the **ensemble of the social relations*** that emerged from a change in co-operation of its animal ancestors; • is element of social systems that provide the **commons** as social synergy effects; • constitutes social **agency** (action, inter-action and co-action with other actors) that **reproduces and transforms** the social **structure** (social relations) that, in turn, **enables and constrains** social agency;	as **artefact**: • is constructed; • pertains to the commons; • does not act itself but supports action, inter- and co-action, is not directly causative;

* Karl Marx

2.1 A complex systems comparison: "man"/society vs. machine (4/4)

	"Man"/society	**machine**
in social respect (2)	• is the **driving force** of social evolution, including the evolution of culture, polity, economy, ecology, technology; • can attempt to **set off the transition into actuality of an option of choice** out of the field of possibilities; • can **reflect upon the social relations** so that „I“ and „thou“ become **„me“** and **„thee“** by mediation of **„us“** as the third that is „we“ as reflected from „me“ and „thee“…	• is driven by social evolution; • does not directly trigger emergence; • cannot reflect relationally…

2.2 A complex systems review: "man"/society–machine models

The relationship of "man"/society and the machine is modelled
– either on the basis of the **identity**,
– or the **difference**,
– or the **identity and difference** of their degrees of complexity.

"Edmond de Belamy",
computer print,
min G max D x [log (D(x))] +
z [log(1 – D (G(z)));
sold for 432.500 $ at Christie's in 2018

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2.2.1 Identity of "man"/society and machine

	"Man"/society-machine models		
conflation	**monism:** "man"/society and mechanism are identical inasmuch as they share the same degree of complexity	**reduction**	**technomorphism:** any "man"/society is as complex as a mechanism
		projection	**anthropomorphism:** any mechanism is as complex as "man"/society

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2.2.1.1 Identity by reduction: "man"/society is a machine

(1) The societal system is reduced to the **individual actor**; a fallacy of *horizontal reduction* of complexity (from the system to its elements);
(2) The individual actor as a social being is reduced to the **human body** as living system; a fallacy of *biologism*, which is a vertical reduction from social complexity (on a higher level) to a mere biotic complexity (on a lower level);
(3) The human body is reduced to its **physical substrate**; a fallacy of *physicalism*, of reduction from biotic complexity to mere physical complexity;
(4) The physical substrate of the human body is reduced to a **mechanism**; a fallacy of *strict determinism*, of reduction from self-organising systems at all to entities that have no capacity to self-organise.

Examples: Materialism in education of computer and cognitive scientists ("If I can model it with engineering or natural science methods, I understand it")

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2.2.1.2 Identity by projection: any machine is like "man"/society

(1) The essential features of the **social system** are projected onto the individual actor;
(2) The essential features of the **individual actor** as a social being are projected onto the human body as living system;
(3) The essential features of the **human body** are projected onto its physical substrate;
(4) The essential features of the **physical substrate** of the human body are projected onto any mechanism, be it natural or artificial.

Examples: Info-Computationalism ("The universe is a natural computer")*, panpsychism ("The universe is ensouled"), Gaia hypothesis ("The planet is a living organism")**

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* Gordana Dodig-Crnkovic et al.; ** James Lovelock

2.2.2 Difference of "man"/society and machine

	"Man"/society-machine models	
disjunction	**dualism:** "man"/society and mechanisms are genuine entities of different or same complexity	**anthropocentrism:** "man"/society has been and will be of exceptional complexity
		technocentrism: a mechanism can be higher complex than current "man"/society
		"man"/society-machine interactivism: "man"/society and mechanisms are different entities but interact as if of same degree of complexity

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2.2.2.1 Difference by anthropocentrism: "man"/society superiority

Examples: Idealism in theological positions, humanities ("Humans are sentient – robots are corpses")*

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* Sarah Spiekermann

2.2.2.2 Difference by technocentrism: machine superiority

Examples: Technophilia in Trans- and Posthumanism ("Technology will outperform more and more human functions"), Singularitarianism

2.2.2.3 Difference by "man"/society–machine interactivism: indifference

Examples: Flat ontologies in Actor-Network-Theory ("actants")*, Sociomaterialism ("intra-action")**

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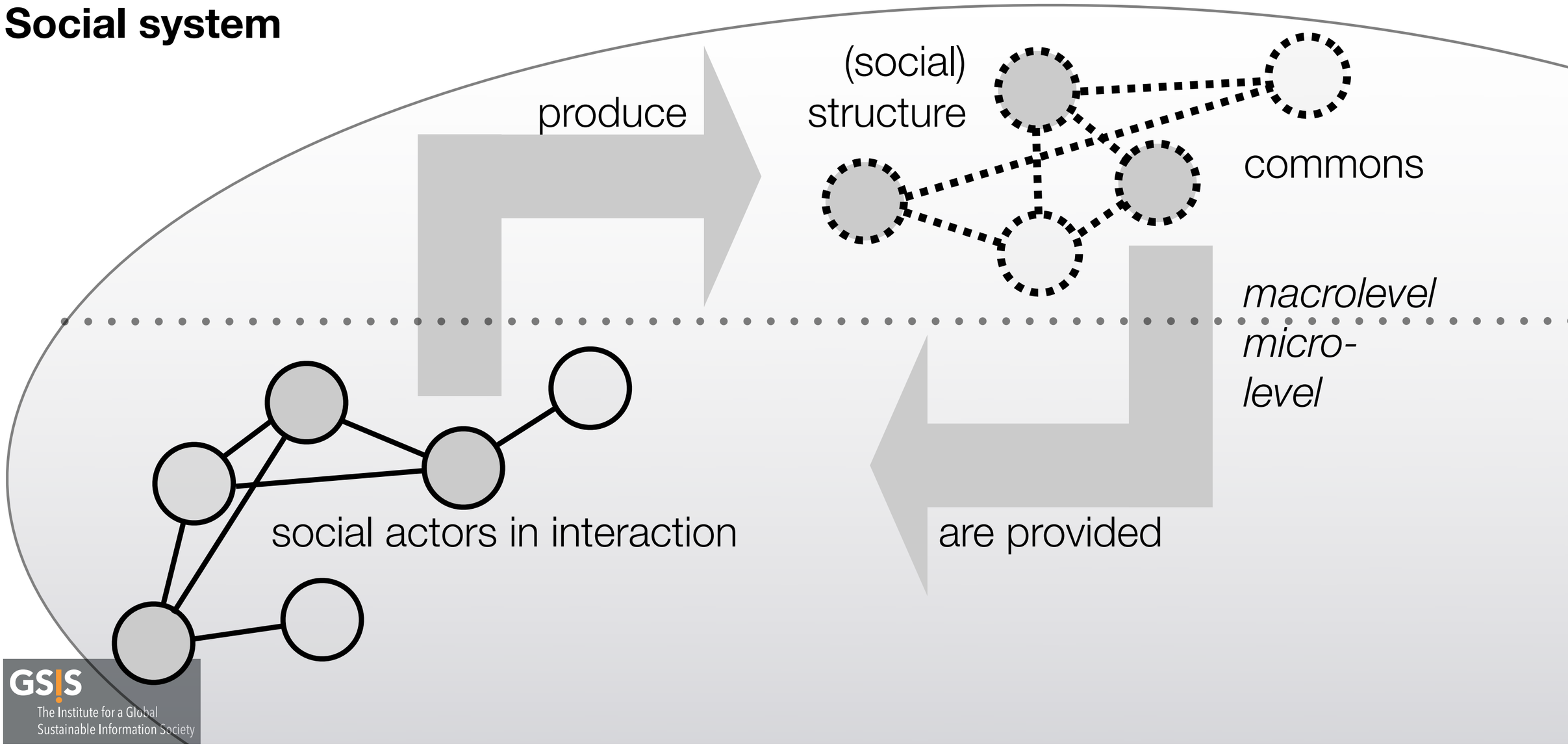
* Bruno Latour, ** Karen Barad 2012, Lucy Suchman 2007

2.2.3 Identity and difference of "man"/society and machine

	"Man"/society-machine models	
integration	**dialectic:** "man"/society and mechanisms are evolutionary products of nested complexities	**techno-social systemism:** techno-social systems are social systems emergent from "man"/society as soon as mechanisms are functionalised by which the performance of the (techno-)social systems is improved to such an extent that they transform into another system of the same kind

2.2.3 Identity and difference of "man"/society and machine

Social system



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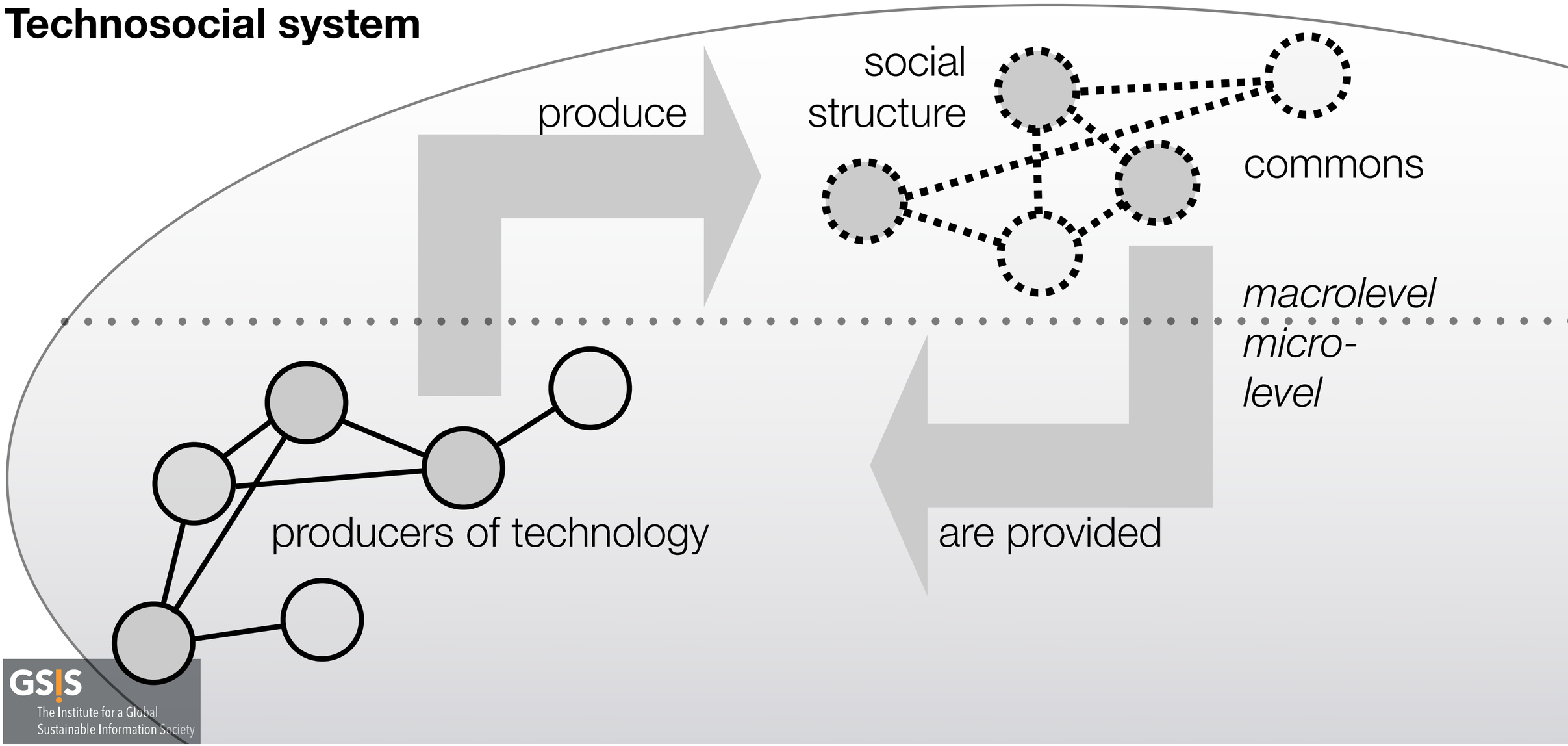
2.2.3 Identity and difference of "man"/society and machine

Technosocial system



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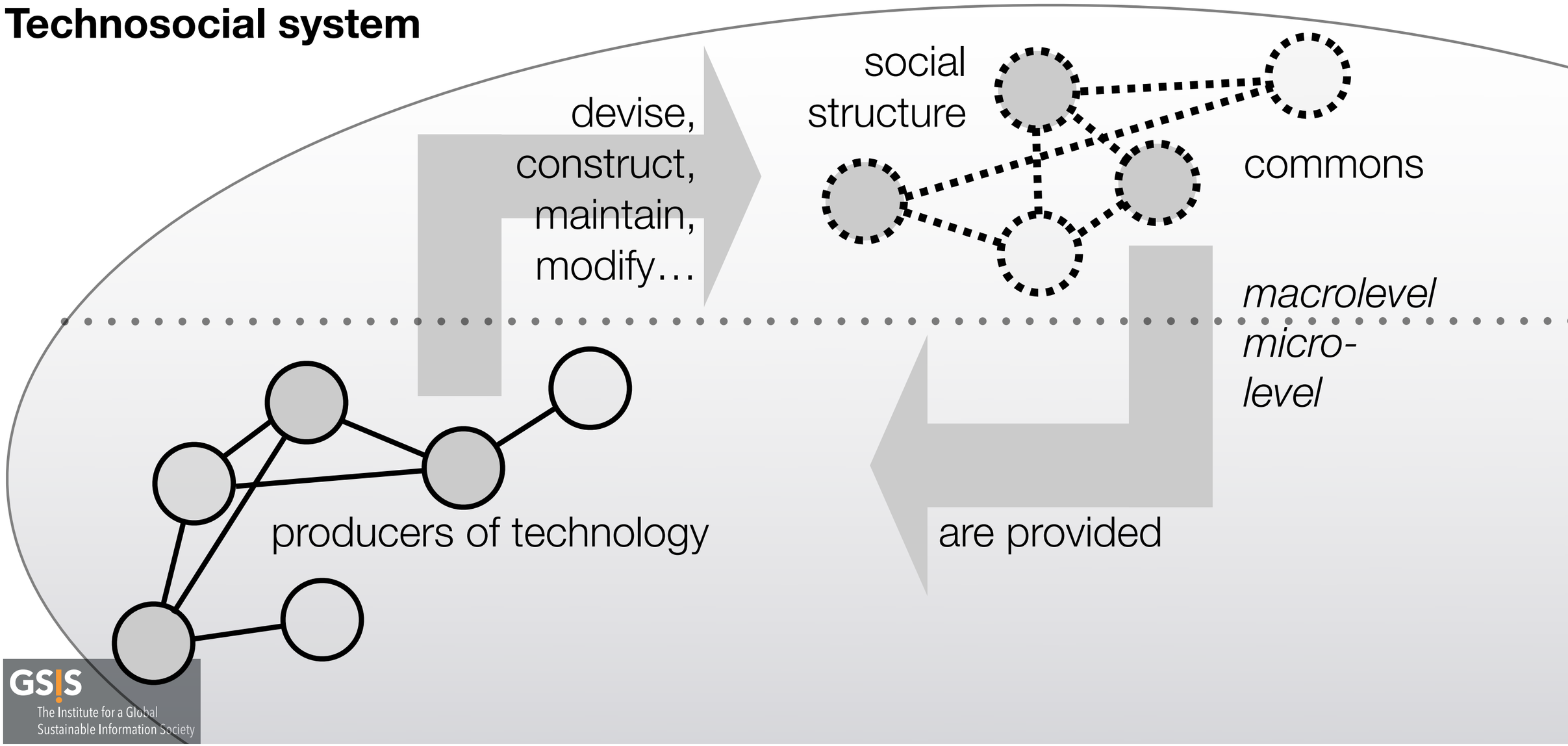

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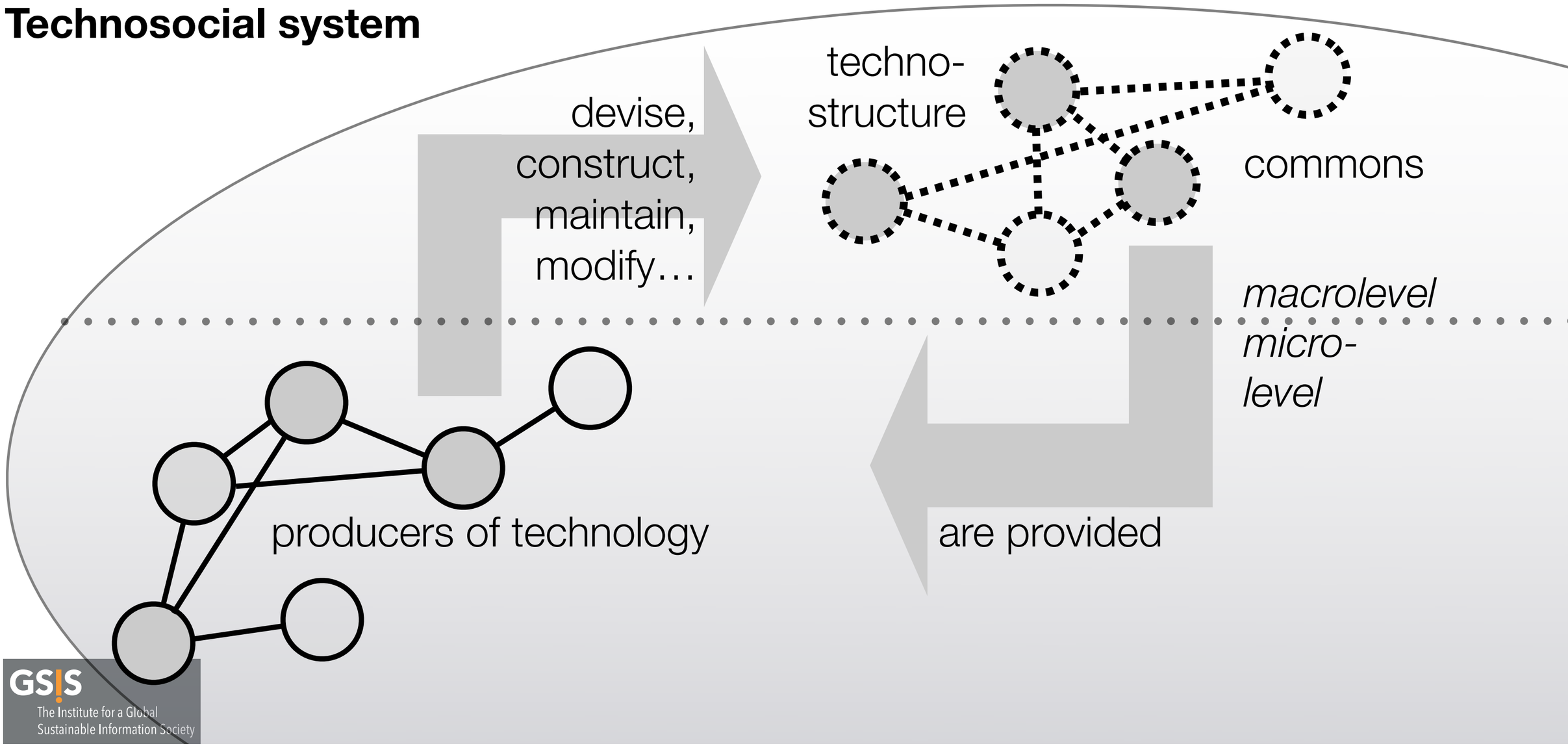

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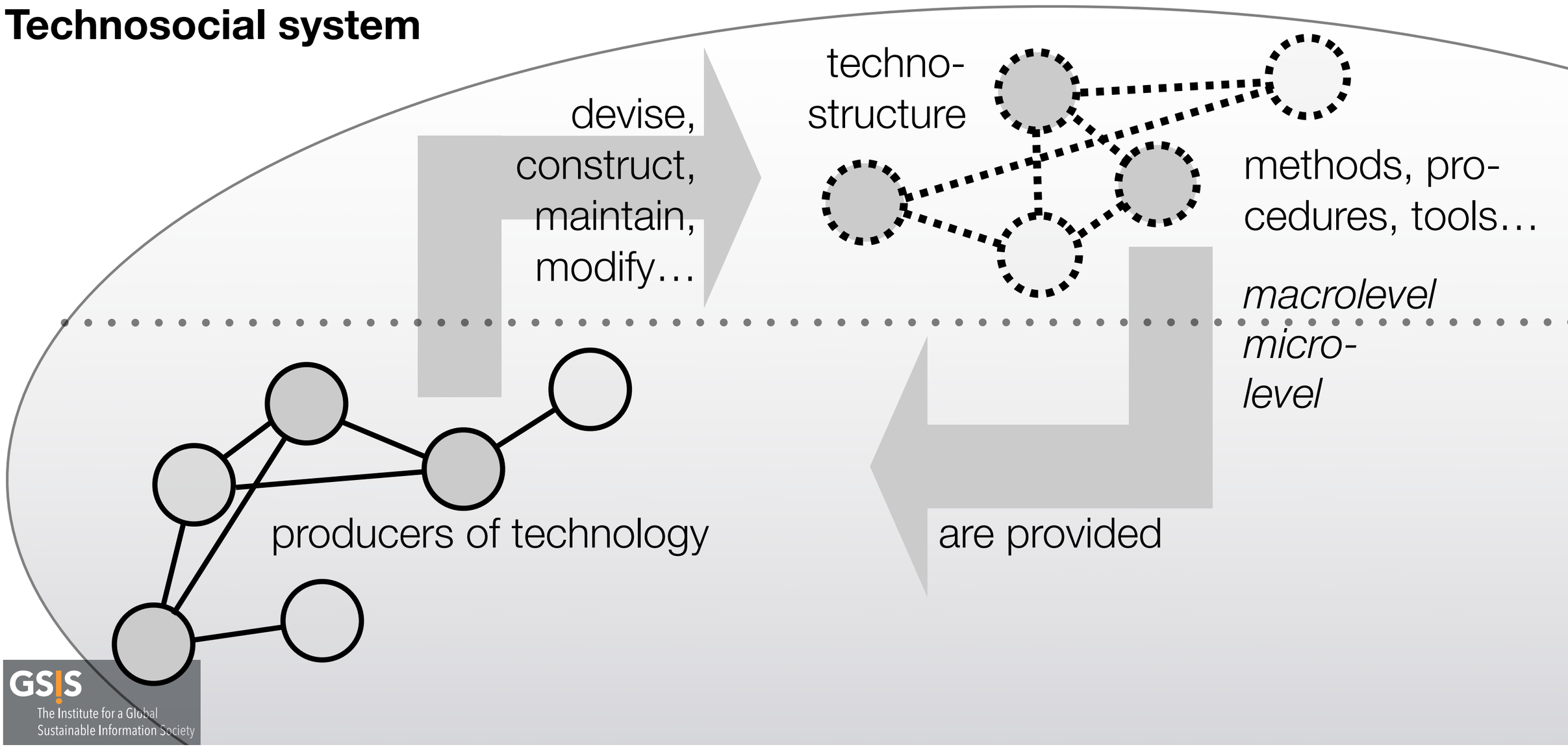

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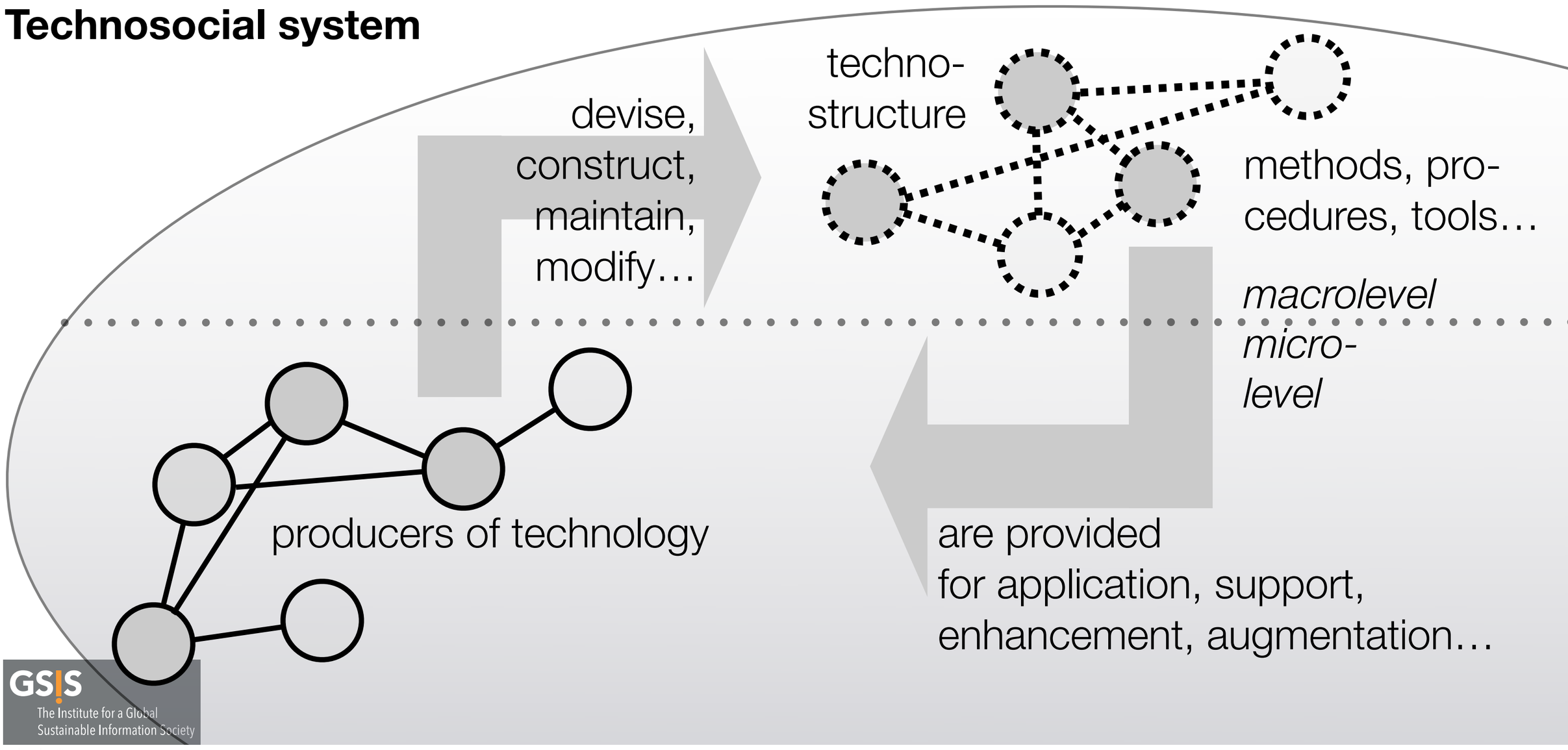

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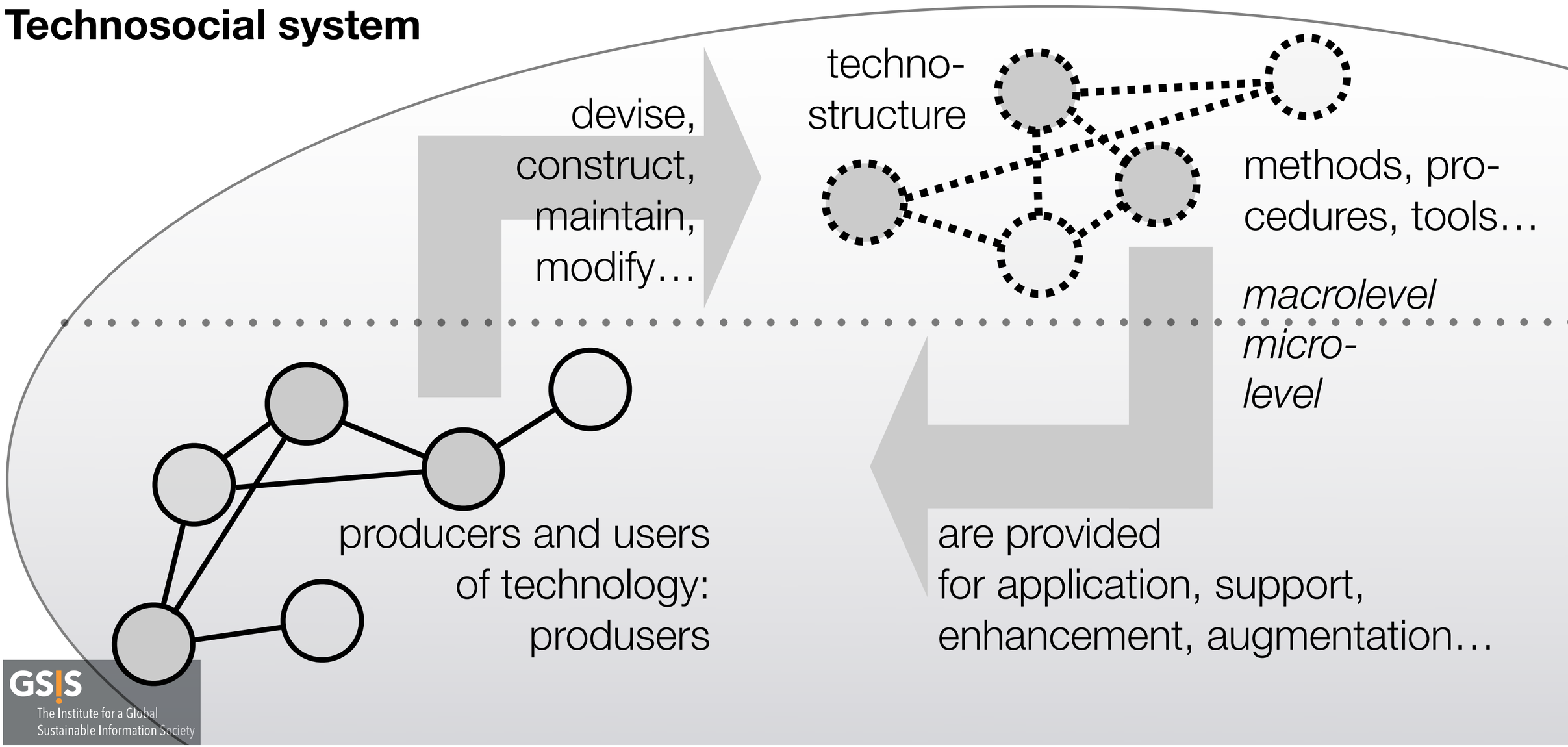

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3 The ethical consequence

(Photos from mobilegeeks.de; Boeing/Craig Larsen)

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3 The ethical consequence (1/5)

"[T]he uncritically applied anthropomorphistic **approach** toward A/IS" "**erroneously blurs the distinction between moral agents and moral patients**" (i.e. subjects). In systems terms, it as a distinction between "**natural self-organizing systems and artificial, non-self-organizing devices**". Such "devices cannot, by definition, become autonomous in the sense that humans or living beings are autonomous". The **terminology used is "both dangerous and misleading in that it encourages anthropo-morphistic expectations of machines by human beings when designing and interacting with A/IS."** It is **only metaphoric**, since "[t]his is how language works and how humans try to understand their natural and artificial environment." But "the difference must be maintained, especially as A/IS begins to resemble human beings more closely".

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* IEEE: Ethically Aligned Design: A Vision for Prioritizing Human Well-being with Autonomous and Intelligent Systems (A/IS), version 2, 2018

3 The ethical consequence (2/5)

Eight rules of Klaus Kornwachs*

1. **Never use a decision-making system that substitutes your own decision**. Even robots must not be used in decision-making intent.

2. ***Nihil Nocere*** – don't tolerate any harm to users.

3. **User rights break producer rights**.

4. **Do not build pseudo-autonomous systems that cannot be turned off.** Fully autonomous systems should not be allowed.

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* K. Kornwachs: Transhumanism as a Derailed Anthropology. W. Hofkirchner, H.-J. Kreowski (eds.), Transhumanism – The proper guide to a posthuman condition or a dangerous idea, Springer, 2019

3 The ethical consequence (3/5)

5. **The production of self-conscious, autonomously acting robots** (if possible)* **is prohibited** (analogous to the chimera ban and human cloning ban in genetic engineering).

6. **Do not fake a machine as a human subject** as a counterpart. A machine must remain machine, imitation and simulation must be always recognizable. It must always be clear to all people involved in human-machine communication that a machine communication partner is a machine.

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* IMHO, this will never be possible.

3 The ethical consequence (4/5)

7. **If you do not know the question and the purpose of the question, you cannot handle the system response and understand the behavior of a robot**. The context must always be communicated.

8. **Anyone who invents, who produces, operates or disposes of technology has interests. These interests must be disclosed honestly.**

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3 The ethical consequence (5/5)

Conclusion

Neither humans nor artificial devices will become smart as long as the focus is on the **individual** in a trans-/posthumanistic perspective that detracts from the real task:
the preparation of humanity for a third step in **societal** evolution – a self-organised noogenesis* – to be accomplished through a meta-/suprasystem transition** to a **global sustainable information society**.

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* Vladimir I. Vernadsky, Teilhard de Chardin, ** Francis Heylighen et al.

Thank you!


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